



## Badger Culling: Controlled Shooting Pilots

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Proposals for controlled shooting of badgers as part of bovine TB control measure were published for consultation in September 2010 by Defra. In December 2011 it announced the decision to carry out pilot badger culls in two areas. In each area farmers would be licensed to control badgers by shooting and would bear the costs of any culls. The Government promised to bear the costs of licensing and monitoring the culls.

In January 2012 two pilot areas were announced: West Gloucestershire and West Somerset. In March 2012 the Government appointed members to an Independent Expert Panel (IEP) to monitor the effectiveness, humaneness and safety of controlled shooting. The cull was not intended to make any assessment of the effectiveness of shooting to control TB. Licenses were granted by Natural England for the two areas in autumn 2012, but, following concerns from the NFU on the late start for the cull, were postponed until 2013.

In February 2013 an announcement was made that the cull would go ahead from 1<sup>st</sup> June. The culls commenced on 27<sup>th</sup> August 2013 and the initial 6 weeks cull in both areas was extended after failing to meet the 70% culling targets. Despite this the cull targets were missed with an estimated 65% culled in Somerset and less than 40% culled in Gloucestershire.

The Government published the IEPs report and its response and future strategy on 3 April 2014. The Secretary of State announced that the current two culls would be continued with amendments to improve effectiveness in the proportion of badgers killed and time taken for shot badgers to die. Further proposed culls would not be initiated until the methodology to improve this was in place.

The second year of the cull took place in September and October 2014. The minimum numbers of badgers to be culled to meet licence conditions were set as 615 in Gloucestershire and 316 in Somerset. Final numbers published by Defra in December 2014 showed the target was met in Somerset with 341 badgers culled but not in Gloucestershire with 274 badgers culled. Shooting and live trapping, followed by shooting, were used in both areas.

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## 1 Background

In September 2010 the Government published a consultation on proposals to introduce a badger cull as part of bovine TB control measures in England. In December 2011 it announced its intention to carry out pilot badger culls in two areas. In each area farmers would be licensed to control badgers by shooting and would bear the costs of any culls. The Government pledged to bear the costs of licensing and monitoring the culls.

Library note SNSC 3751 summarises the findings of the [Randomised Badger Culling Trials \(RBCT\)](#) published in 2007 and the previous Government's decision not to carry out a cull. Library note SNSC 5873 on [Badger Culling](#) summarises developments since 2010, including the decision to introduce a cull. Library Note SNSC 6447 covers developments in [TB vaccination of cattle and badgers](#). Library Note SNSC 6081 covers [Bovine TB Statistics](#)

## 2 Culling Announcement

The Government announced its decision to go ahead with a cull on 14 December 2011. At the same time it published [The Government's policy on Bovine TB and badger control in England](#), which explained the decision:

We are satisfied that culling badgers in line with the strict licence criteria outlined in [section 5](#) below will prevent the spread of TB in the culled area and we consider a reduction of the scale seen in the RBCT to be substantial in the context of dealing with bovine TB, which is a "slow-moving", chronic, latent and infectious disease.<sup>1</sup>

The document sets out in detail the conditions that a cull should meet. This included the requirements that all participating farmers must be compliant with TB cattle controls. A cull would be trialled in two pilot areas to assess the effectiveness of the proposals. If a full scale cull went ahead a maximum of 10 areas per year would be licensed to carry out culls over a four year period, each covering an area of 150km<sup>2</sup>. Culls would take place over a six week period and would be required to reduce the badger population by 70%. As in the original proposals the costs of culling would be met by farmers.<sup>2</sup> Natural England would licence the culls.

To minimise perturbation – badgers spreading disease by moving out of their territory - farmers would have to identify natural barriers to badger movements:

Farmers will have to take reasonable measures to identify barriers and buffers, such as rivers, coastlines and motorways, or areas where there are no cattle or where vaccination of badgers occurs, at the edge of culling areas to minimise the 'perturbation effect', where disturbing the badger population is thought to cause an increase in TB in cattle in the surrounding area.<sup>3</sup>

The document also addressed issues such as cost of policing and the potential for the use of vaccination.<sup>4</sup>

## 3 Pilot Areas

The Government announced in a Ministerial Statement in January 2012 that the two trial areas would be in West Gloucestershire and West Somerset:

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<sup>1</sup> Defra, [The Government's policy on Bovine TB and badger control in England](#), 14 December 2011

<sup>2</sup> *ibid*

<sup>3</sup> Defra, [Update on measures to tackle Bovine TB](#), 14 December 2011

<sup>4</sup> *ibid*

I can now confirm that I have asked groups in two carefully selected areas, West Gloucestershire and West Somerset, to submit applications to Natural England.

Natural England will assess the applications against the strict licensing criteria and decide whether or not to grant licences. If either of the two areas fail to meet the licensing requirements, another area from the industry's shortlist will be invited to apply.

I understand that residents in these areas may have views on the proposal to cull badgers and, as part of its assessment, Natural England will provide the public with an opportunity to comment on the applications.<sup>5</sup>

Natural England published further details of the proposed areas without giving their exact location:

West Gloucestershire Area description: The application area is located mainly in the county of Gloucestershire. The area lies predominantly within the council districts of the Forest of Dean and Tewkesbury, and parts lie within the districts of Wychavon, Malvern Hills and the south east part of the county of Herefordshire. The application area does not include the area of the public forest estate in the Statutory Forest of Dean.

West Somerset Area description: The application area is located in the county of Somerset. The application area predominantly lies within the council district of West Somerset and part lies within the district of Taunton Deane.<sup>6</sup>

#### **4 Independent Expert Panel (IEP)**

In March 2012 the Government appointed members to an independent panel of experts to oversee the monitoring and evaluation of the pilot areas and report back to Government. The panel's role was to evaluate the effectiveness, humaneness and safety of the controlled shooting method, *not* the effectiveness of badger culling to control TB in cattle. This is because much longer and wider culling would be needed to carry out that kind of evaluation and the Government has already set out its position the science supports culling badgers as an effective tool for combating TB in cattle.

The remit of the panel was set out as follows:

- making sure monitoring protocols are developed which are scientifically robust and policy-relevant.
- advising on data collection and analysis
- advising on the robustness of data collected and analysis conducted after a cull
- recommending options for monitoring effectiveness and humaneness
- considering public safety issues and recommending improvements to the licence criteria, training course content, or best practice guidance.<sup>7</sup>

The 6 members of the IEP were appointed for their expertise in animal welfare, veterinary pathology, badger ecology, wildlife population biology, statistics, marksmanship and the

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<sup>5</sup> Defra [Written Statement, Bovine TB](#), 19 January 2012

<sup>6</sup> Natural England, [Frequently asked questions about badgers and bovine tuberculosis](#), Website as of 19 September 2012.

<sup>7</sup> Defra, Policy Advisory Group, [Badger Culling Pilots: Independent Expert Panel](#), [accessed 13 Feb 2014]

management of wild animal populations. The members of the panel, with a brief biography, can be found on the [IEP page](#), along with notes of all their meetings.

#### 4.1 Monitoring

Part of the IEP's role was to oversee the development of protocols to monitor the effectiveness and humaneness of controlled shooting.

To determine the effectiveness of the cull and its ability to remove 70% of badgers present, the original population needed to be estimated as precisely as possible. The panel looked at several methods for population estimation and any associated restrictions.<sup>8</sup> They decided to extrapolate the population from sampling approximately 16% of the land of each of the two trial areas for active setts and using hair trapping to estimate the number of badgers in each of those setts.<sup>9</sup>

Humaneness would be monitored through both field observations and post mortems of culled badgers. In addition a random sample of culled badger carcasses would be subject to an x-ray, to assess bone damage and ammunition fragmentation, and a post mortem to look at wound location and internal organ damage. Field observations would be performed by researchers, accompanying some of those carrying out the culling, and would aim to:

assess the likelihood that badgers will be wounded but not killed, and to provide data to aid an assessment of the humaneness, based on the behaviour displayed by the animal, and an estimate of the time to death.<sup>10</sup>

## 5 Culling Licences

The first culling licence was issued for the West Gloucester Area on 17 September 2012:

Under the terms of the licence, and in accordance with the criteria specified in the bTB control policy, licensees will be authorised to reduce badger populations in the pilot area by at least 70% and maximum numbers will be specified to prevent the risk of local extinction.

Control operations can only commence once Natural England has formally confirmed with the Licensee the specific dates when these operations will take place, the persons authorised to carry them out, confirmation that the necessary funds are in place, and the permitted number of badgers that will be subject to control operations. These formal confirmations are expected to be completed within the next few weeks.<sup>11</sup>

A copy of the [licence](#) is available on the Natural England Website. A similar [licence](#) for the Somerset area was issued on 4 October 2012. Each licence had a four year term.

### 5.1 Best practice culling guidance

Defra published [best practice guidance](#) for shooting badgers in the field in October 2012. This includes the following:

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<sup>8</sup> Defra, Independent Expert Panel, [Monitoring the effectiveness of badger population reduction by controlled shooting](#), October 2012

<sup>9</sup> Defra, [Estimation of badger population sizes in the West Gloucestershire and West Somerset pilot areas](#), 22 February 2013

<sup>10</sup> Defra, Independent Expert Panel, [Monitoring the humaneness of controlled shooting](#), October 2012

<sup>11</sup> Natural England, [Badger Control Licence issued in West Gloucestershire](#), 17 September 2012

- No shooting of badgers in the field will be permitted from 1st February to 31st May, inclusive.
- Badgers must only be shot when they are at least 30 metres away from the nearest sett
- Shots must only be taken when the animal is stationary, when the target area is clearly visible and the animal is more or less broadside on; a head shot presents an unacceptable risk of wounding and must not be attempted; a neck shot is unacceptable in any circumstances.

Separate guidance on [best practice when cage trapping and shooting](#) badgers was also published in May 2012 covering cage trapping procedure and shooting of captive badgers. This includes:

- Trapping of badgers for culling will not be permitted from 1st December to 31st May, inclusive.
- A well-placed shot to the head from close range should be overwhelming, resulting in rapid unconsciousness and death. The muzzle of the weapon should be inserted with care through the mesh of the cage trap but not in contact with the animal. Neck shots and body shots are not suitable for despatch of trapped badgers.
- Persons killing badgers by this method must have attended a Defra-approved training course on the humane killing of badgers.

Both documents also included guidance on other issues such as the type of weapons that can be used, and handling and disposing of carcasses. Defra also published minimum course requirements for companies looking to establish a badger culling training course and how to assess competence.<sup>12</sup> Two companies applied to establish a course and Defra approved one company to provide training.<sup>13</sup>

## 5.2 Court Injunction against Protestors

The NFU applied for a court injunction to prevent certain activities by protesters against the cull. This was granted on 23 August. The [Farmers Guardian](#) summarised the contents of the injunction as follows:

The injunction, granted under the Protection from Harassment Act 1997 will prevent a number of named defendants and ‘persons unknown’ from carrying out a number of unlawful acts against a defined group of ‘protected persons’. The full injunction can be seen [here](#)

These include farmers in and around the pilot badger cull areas of Gloucestershire and Somerset, and also the reserve area of Dorset as well as individuals involved in the culling operations, and NFU members, staff and officeholders.

Among the conditions specified are that those covered by the injunction must not ‘procure, incite, aid abet or encourage’ any person to:

- Enter onto privately-owned land within the cull zone without the consent of the owner (excluding public rights of way).

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<sup>12</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69585/pb13714-badger-culling-training.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69585/pb13714-badger-culling-training.pdf)

<sup>13</sup> Defra, FOI, [Request for information: Marksmen Training](#), 30 August 2013

- Assault, molest, threaten or cause harassment alarm or distress to those defined as a 'Protected Person'.
- Make abusive communications with Protected Persons, whether verbally or by phone or any electronic communication.
- Protest within 100 metres of people's homes or 25 metres from businesses.
- Operate remote controlled devices without the consent of landowner/occupier.
- Use devices like LED lights, torches and camera flashes between 6.30pm and 6am, or make 'excessive noise' with the likes vuvuzelas, klaxons and whistles, to disturb wildlife or harass Protected persons.
- Film Protected person or their property or vehicles and publish still or moving images from which people and their property and vehicles could be identified.<sup>14</sup>

## 6 Badger Cull Pilots 2013

The Secretary of State for Environment, Owen Paterson, announced in a statement to Parliament on 23 October 2012 that a cull would be postponed until 2013. The NFU, who would be carrying out the cull on behalf of farmers in both areas, had written to ministers asking for a postponement. This was because problems caused by a late start to the cull. In addition, the number of badgers found in the cull areas was higher than had been expected and which would result in higher costs to farmers than originally anticipated. The Minister explained further in his [statement](#):

The exceptionally bad weather this summer has put a number of pressures on our farmers and caused significant problems. Protracted legal proceedings and the request of the police to delay the start until after the Olympics and Paralympics, have also meant that we have moved beyond the optimal time for delivering an effective cull. We should have begun in the summer.

In addition to these problems, the most recent fieldwork, has revealed that badger numbers in the two areas are significantly higher than previously thought. This only highlights the scale of the problem we are dealing with.

Evidence suggests that at least 70% of the badgers in the areas must be removed. This is based on the results of the Randomised Badger Culling Trial so that we can be confident that culling will reduce TB in cattle. Despite a greatly increased effort over the last few days and weeks, the farmers delivering this policy have concluded that they cannot be confident that it will be possible to remove enough badgers based on these higher numbers and considering the lateness of the season. It would be wrong to go ahead if those on the ground cannot be confident of removing at least 70% of the populations.

A copy of the NFU letter to Defra is available on the [House of Commons Library](#) website

In February 2013 the Government [announced](#) that Natural England had issued authorisation letters for two pilot areas in West Gloucestershire and West Somerset and that an area in Dorset would be prepared as a contingency area should it be needed.<sup>15</sup>

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<sup>14</sup> Farmers Guardian, [NFU granted badger cull protest injunction in High Court](#), 23 August 2013

<sup>15</sup> Defra, [Badger cull to go ahead this summer](#), 27 February 2013

At the same time a new estimate of badger numbers in the two areas was published. This concluded that:

Current, best-available estimates of populations, with 80% confidence in both limits, in the pilot areas during summer/autumn 2012 are 2657 to 4079 in West Gloucestershire and 1972 to 2973 in West Somerset.

A written answer set out the explanation of why the numbers had changed so significantly:

Andrew George: To ask the Secretary of State for Environment, Food and Rural Affairs pursuant to the statement of 23 October 2012, Official Report, columns 835-6, on bovine tuberculosis and badger control, and the Statement of 27 February 2013, Official Report, column 28WS, on bovine tuberculosis, for what reasons the badger population estimates in the two pilot cull areas published on 23 October 2012 are higher than the estimates published on 27 February 2013. [148091]

Mr Heath: Both sets of estimates, each of which is expressed as a range, were calculated by estimating the number of active badger setts in the area and multiplying this by the estimated average number of badgers per active sett.

For the purpose of the October 2012 badger population estimates, the average number of badgers per active sett was estimated from the results of two studies conducted over several years in the Gloucestershire area. This was the best information available at the time.

The availability of new data has allowed new badger population estimates to be calculated. This new data included information on the estimated number of badgers per active sett collected in each of the pilot areas using DNA analysis.

The February 2013 badger population estimates are the best information currently available on badger population size in the pilot areas and should be used in preference to the October 2012 estimates.<sup>16</sup>

Defra [announced](#) on 27 August 2013 that the badger cull had commenced.

## 6.1 Extensions and Final numbers

During the first 6 weeks of the badger cull 850 badgers were killed in Somerset and 708 in Gloucestershire.

According to a freedom of information request to Natural England, reported in the Guardian, of the 708 badgers culled in Gloucestershire 543 were killed through free shooting whilst 165 were cage-trapped and shot. In Somerset the figures were 360 by free shooting and 490 by first cage-trapping then shooting.<sup>17</sup>

The culls in both pilot areas were extended as a result of the failure to cull 70% of the badgers in the areas. This was requirement was set out in the Government badger control policy:

In the first year of culling, a minimum number of badgers must be removed through an intensive cull which must be carried out throughout the land to which there is access, over a period of not more than six consecutive weeks. This minimum number should be set at a level that in Natural England's judgement should reduce the estimated badger population of the application area by at least 70%.

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<sup>16</sup> HC Deb, 18 Mar 2013 c392w

<sup>17</sup> "Badger cull killed only 24% of animals by controlled shooting, figures show", The Guardian, 23 January 2014



A minimum number of badgers must also be removed in subsequent years of culling through an intensive cull which must be carried out throughout the land to which there is access. This minimum number should be set at a level that in Natural England's judgement should maintain the badger population at the reduced level achieved through culling in the first year.<sup>18</sup>

The culls ended by 30 November with an estimated 65% of badgers culled in the Somerset pilot and just less than 40% in the Gloucestershire pilot:

The pilot badger cull in Somerset ended on Friday 1 November. Environment Secretary Owen Paterson updated Parliament today on the results of the cull following the conclusion of the three week licence extension granted by Natural England.

In the additional three weeks the cull company removed an extra 90 badgers, taking the total across the whole cull period to 940. This represents a 65 per cent reduction in the local badger population.<sup>19</sup>

And:

Culling operations ceased on Saturday 30 November, following discussions between the cull company in West Gloucestershire, Natural England and the NFU that the license for the extension would end.

The decision was taken based on the decreasing number of badgers seen by contractors over recent weeks which made achieving a further significant reduction in the coming weeks unlikely. Figures show that in the additional 5 weeks and 3 days of culling, 213 badgers have been removed, giving an overall total of 921. This represents a reduction of just under 40% in the estimated badger population before culling began.<sup>20</sup>

## 6.2 Monitoring the Pilot

### Monitoring for humaneness

During the cull 20 people monitored humaneness as set out in and FOI response.<sup>21</sup> The aim of this monitoring, carried out by the AHVLA, was to test the assumption that controlled shooting is a humane culling technique. The Independent Expert Panel recommended 60 in field observations and 120 post mortems be carried out to provide a base for conclusions about the humaneness of the controlled shooting method. 158 post mortems were actually conducted.<sup>22</sup>

This research was completed during the first 6 weeks of the trial period. The panel did not monitor the cull extension periods, as explained in a written answer in January 2014:

**Caroline Lucas:** To ask the Secretary of State for Environment, Food and Rural Affairs pursuant to the oral answer to the hon. Member for Brighton, Pavilion of 9 January 2014, on badger culls, if he will make it his policy to extend the remit of the Independent Panel to cover and report on all extensions of badger cull pilots; what the

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<sup>18</sup> Defra, [The Government's policy on Bovine TB and badger control in England](#), December 2011

<sup>19</sup> Defra, [Gloucestershire Badger Cull Ends](#), 2 December 2013

<sup>20</sup> Defra, [Gloucestershire Badger Cull Ends](#), 2 December 2013

<sup>21</sup> Defra, FOI request, [Pilot Badger Cull](#), 1 October 2013

<sup>22</sup> HC Deb 5 February 2014 c297W

rationale has been to date for limiting the Independent Panel's remit to the first six weeks of the culls; and if he will make a statement. [182739]

**George Eustice:** During the six-week periods in each cull area, a structured programme of observations and post-mortems was implemented by trained teams to build a robust evidence base that will inform conclusions about the humaneness of controlled shooting. This programme of carrying out the required number of field observations and post-mortem examinations was completed during the six-week period, as planned, and in accordance with the protocols agreed with the Independent Expert Panel in advance of the pilot culls commencing.

Careful consideration was given to whether there was a need to continue this monitoring during the extension periods, and the chair of the independent panel was consulted. It was concluded that continuing observations beyond the required 60 and associated 120 post-mortems would add little to the statistical robustness of the data gathered during the planned six weeks of the humaneness study.

It should be noted that monitoring by Natural England to ensure that cull companies complied with the licence conditions and best practice guidance continued through the extension periods. A post-mortem capability was maintained to support any investigations if necessary.

The panel will also review the efficacy of the pilot culls at the end of the six-week period as planned.<sup>23</sup>

### Monitoring for TB

Tests for TB infection were not routinely carried out as part of the post mortem process. This was confirmed in a written question:

**Mr Godsiff:** To ask the Secretary of State for Environment, Food and Rural Affairs pursuant to the answer of 17 January 2014, *Official Report*, column 706W, on bovine tuberculosis, how many detailed laboratory post-mortems of culled badgers were carried out; and what use will be made of the results. [185945]

**George Eustice:** 158 detailed post mortems were conducted on the culled badgers.

The purpose of the post-mortem examination of carcasses was to gather the required evidence to support an assessment of humaneness of controlled shooting. It was not to test badgers culled for infection with *M.bovis* as we already know around one-third of badgers to be infected in areas with a high incidence of the disease. The post-mortem information is being considered by the Independent Expert Panel, which will report in due course.<sup>24</sup>

However during the post mortem any signs of illness or ill health of the badgers would have been noted. This would include the outward signs of a chronic TB infection. On a few occasions TB testing has been carried out at the specific request of landowners, however this information not available under article 12(5)(c) of the Environmental Information Regulation relating to intellectual property.<sup>25</sup>

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<sup>23</sup> HC Deb 14 Jan 2014 c471W

<sup>24</sup> HC Deb 5 Feb 2014 c297W

<sup>25</sup> Defra, FOI, Request for information: TB in badgers, 14 February 2014

## Monitoring by Natural England

Natural England also employed 5 people to monitor for compliance with licence conditions and best practice guidance:<sup>26</sup>

**Angela Smith:** To ask the Secretary of State for Environment, Food and Rural Affairs (1) what monitoring of the process of cage trapping to ensure compliance with licence requirements and published guidance was carried out by observers from Natural England and other agencies during the extended period of pilot badger culls; [178679]

(2) what assessment was made of the competence of contractors carrying out the cage trapping of badgers. [178680]

**George Eustice:** Contractors completed and passed a DEFRA approved training course. Natural England carried out monitoring of cage trapping throughout the entire culling period to ensure the licence conditions and Best Practice Guidance were complied with.<sup>27</sup>

## 7 Pilot Costs

The Government agreed to underwrite the cost of monitoring the cull, including policing costs and costs to Defra; however the farming industry is responsible for the operational costs associated with the cull. The full costs of the badger cull are not yet known.

Defra set out the original estimated costs of various culling methods in its Annex to the consultation document setting out the scientific basis for culling:

The cost of conducting five annual culls over a 150 km<sup>2</sup> area, 75% of which was accessible for culling, is estimated as £2.14 million for cage-trapping (as undertaken in the RBCT) at £3,800/km<sup>2</sup>/year, or £1.35 million for snaring or gassing at roughly £2,400/km<sup>2</sup>/year. The predicted annual cost of a farmer-led culling operation is estimated to be around £562,500 at £1,000/km<sup>2</sup>/year.<sup>28</sup>

A Written Answer in December 2010 set out an estimate of the cost to Government of licensing culling areas and monitoring compliance:

### Badgers

Mr Bain: To ask the Secretary of State for Environment, Food and Rural Affairs what estimate she has made of the cost to the public purse of the licensing and monitoring systems that would be required for a cull of badgers undertaken by her Department.

Mr Paice: As stated in the consultation impact assessment, costs to be incurred by Government for licensing are estimated at £26,000 for a 150km<sup>2</sup> application area.

This is based on receiving a modest number of applications and includes assessing applications and monitoring compliance. It does not include costs for setting up the licensing system which are yet to be determined. Costs to be incurred by Government for monitoring are estimated at £200 per km<sup>2</sup> of participating land. This includes monitoring badger population numbers, humaneness of the methods used, epidemiological monitoring of the disease and monitoring protected sites. These costs will be refined in the final impact assessment.<sup>29</sup>

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<sup>26</sup> Defra, FOI request, [Pilot Badger Cull](#), 1 October 2013

<sup>27</sup> HC Deb 12 Dec 2013 c330W

<sup>28</sup> Defra, [Annex B: The Randomised Badger Culling Trial \(Proactive & Reactive culling\)](#), September 2010

<sup>29</sup> HC Deb 21 December c 2010 c1333W

A response from October 2012 set out the costs to Government for monitoring the effectiveness of the cull at £850,000:

Mary Creagh: To ask the Secretary of State for Environment, Food and Rural Affairs how many staff of his Department and its agencies have been assigned to visit badger cull areas to take DNA samples and conduct sett surveys; how many such surveys (a) have taken place and (b) are expected to take place; and what estimate his Department has made of the total likely cost of such surveys, including the cost of contractor and staff remuneration, transport, accommodation and subsistence.

Mr Heath: 55 DEFRA network staff have been assigned to visit badger cull areas to take DNA samples and conduct sett surveys. 61.7km<sup>2</sup> of land has been surveyed in West Somerset, and 74.4km<sup>2</sup> in West Gloucestershire. The costs of the licensing and monitoring operations are not calculated in such a way that the fieldwork component can be easily extracted. The estimated total cost of the effectiveness monitoring, for which the bulk of the surveys work was conducted, is £850,000.<sup>30</sup>

A Written Answer from January 2014 indicated that many of the Government's costs would be one off costs due to the monitoring process of the first year of the pilots :“The Department for Environment, Food and Rural Affairs has agreed to cover any additional costs incurred by the relevant police forces.”<sup>31</sup>

The total costs for policing the original six weeks cull and the three week extension were confirmed by [Avon as Somerset Constabulary](#) as £738,985. Gloucestershire Police January 2014 estimated that their costs in for the original six-week cull and the eight-week extension were likely to be in the region of £1.7 million.

A further update of costs was provided by the Minister in [debate on rural crime](#) on 9 April 2014:

On the issue of badger culls, the policing costs are £2.3 million in Gloucestershire, £446,000 in West Mercia and £739,000 in Avon and Somerset. Those are indicative costs. We are yet to receive the report from Her Majesty's inspectorate of constabulary that reviews the resources deployed in respect of the badger culls; that report will obviously give the final figure. I should add that DEFRA has agreed to pay all the additional policing costs.<sup>32</sup>

More recently the Daily Telegraph [reported](#) in November that it had seen official Defra figures setting out the costs of monitoring and managing the first year's cull. The figures reportedly did not include policing costs, as set out above:

Official figures seen by The Daily Telegraph show it cost £6,294,000 to kill 955 badgers in Somerset and 924 in Gloucestershire last year – an average of £3,350 per badger.

Some £2.6 million was spent on monitoring "humaneness", including postmortems on dead badgers, and £2.3 million went on watching over "efficiency". The rest was spent

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<sup>30</sup> HC Deb 18 Oct 2012 c 383W

<sup>31</sup> HC Deb 14 January 2014 c462W

<sup>32</sup> HC Deb [9 April 2014 c117](#) WH

on advice and assessments, licensing and compliance and equipment as well as other unspecified costs.<sup>33</sup>

## 8 Culling Rollout Abandoned

The Government intention was to use the report submitted by the Independent Expert Panel to inform its decision on whether to roll out badger culling to other areas affected by bovine TB. The aim was for up to 10 of the most severely affected areas to be issued with licences. Natural England would oversee the licences and they would run for four years.

### 8.1 Expert Panel Findings

On 3 April 2014 the Secretary of State for Environment, Food and Rural Affairs, made a [statement](#) in the House of Commons<sup>34</sup> publishing the Expert Panel's report<sup>35</sup>, the Government's response<sup>36</sup> and the Department's future TB strategy.<sup>37</sup>

The Panel's report concluded with high confidence that "controlled shooting removed less than 24.8% of the pre-cull badger population in Somerset, and less than 37.1% of the pre-cull population in Gloucestershire". Cage trapping was used in addition to controlled shooting. On this the report concluded that "a combination of controlled shooting and cage trapping removed less than 48.1% of the pre-cull population of badgers in Somerset and less than 39.1% of the pre-cull population in Gloucestershire".

The report also raised concerns about the humaneness of shooting as a culling methods finding:

It is extremely likely that between 7.4% and 22.8% of badgers that were shot at were still alive after 5 min, and therefore at risk of experiencing marked pain. We are concerned at the potential for suffering that these figures imply

The Panel concluded:

If culling is continued in the pilot areas, or in the event of roll-out to additional areas, standards of effectiveness and humaneness must be improved. Continuation of monitoring, of both effectiveness and humaneness, is necessary to demonstrate that improvements have been achieved. In addition, such monitoring should be independently audited.

The Government published its [response](#) to the report in April 2014 in which it responded to each recommendation individual. It also stated:

We have set out our response to each of the Panel's recommendations. In implementing these recommendations we have to balance the need to continue monitoring the effectiveness of the cull and accuracy of shooting with the costs of carrying out detailed fieldwork and post-mortem examinations.

Monitoring effectiveness and humaneness of the cull will continue in an appropriate and cost-effective way, building on the quality of the research carried out in the pilots. We will work with Natural England to require better data collection by the cull companies to evaluate progress and improve effectiveness, for example by better

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<sup>33</sup> The Daily Telegraph, [Coalition badger cull cost taxpayer £3,350 for every animal killed](#), 14 November 2014

<sup>34</sup> [HC Deb 3 April 2013 c1034-](#)

<sup>35</sup> IEP, [Pilot Badger Culls in Somerset and Gloucestershire](#), 3 April 2014

<sup>36</sup> Defra, [Government Response to Report by the Independent Expert Panel](#), April 2014

<sup>37</sup> Defra, [Strategy for Achieving Official Bovine Tuberculosis Free Status for England](#). April 2014

targeting areas where badgers remain, and take steps to ensure sufficient effort is deployed to cull all the known badger groups in defined areas. Similarly, we will implement monitoring of the accuracy of controlled shooting that will be sufficiently rigorous to identify issues of concern so that timely interventions can be made if necessary.

The purpose of the pilots was to test our assumptions about safety, efficacy and humaneness of controlled shooting. This has now been completed through the high-quality information generated that will enable us to plan how we proceed in controlling this wildlife reservoir of bovine TB effectively, humanely and safely. We will work with Natural England to put measures in place to address the recommendations made by the Panel.

## **8.2 Minister's Statement**

In his statement, Mr Paterson confirmed that the two existing pilots would continue, with enhanced training and monitoring but no further pilots would go ahead for the moment, although the two ongoing ones would be used to perfect the system. He also announced increased investment in development of an effective badger and cattle vaccine:

On effectiveness, we already know from the figures we made public last year that the culls did not make as much progress as we hoped. This is confirmed by the independent expert panel, which has given its views on why this might have happened. Three of the 10 areas in the badger culling trials between 1998 and 2005 also got off to a slow start, but by the end of the trial they had contributed to a reduction in TB. That is what we expect to happen here, especially after the panel's recommendations for improving the effectiveness of culling are put into action.

The second year of culling in Gloucestershire and Somerset will start with the panel's recommended improvements in place. We will work with Natural England and the industry to implement the changes. The cull companies will adapt their operational plans to ensure better consistency of coverage in the cull areas. They will incorporate more extensive training and real-time monitoring of cull effectiveness and humaneness by Natural England. We know that there are many farming communities in other parts of England that want badger culls to help combat TB. I hope they will understand that we need to put these changes into practice before we roll out the culling programme to other areas. I am also announcing a trial of a comprehensive farm-level risk management programme throughout the cull areas over the next three years. This will be available to all farmers, providing bespoke assessments and advice on how to protect their cattle.

I am keen to develop new techniques to support the strategy. Over this Parliament, we are investing £24.6 million in the development of effective TB vaccines for cattle and badgers. Our scientists are leading the world in the development of a deployable cattle vaccine. In 2013, I agreed with the European Commissioner the work that was needed to develop a viable cattle vaccine. We are designing the large-scale field trials necessary to take this forward.<sup>38</sup>

In response the Badger Trust called for the two pilots to be stopped

"The government is clearly in full retreat. They had hoped to cull badgers in 12 areas this year, so to only be culling in two is a victory of sorts. But why continue at all? Culling is cruel, expensive and won't work. The government should call it off

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<sup>38</sup> [HC Deb 3 April 2013 c1034-](#)

completely, and come to the table so we can plan a way of beating bTB which will actually be effective.”<sup>39</sup>

The British Veterinary Association welcomed the Government’s decision not to roll out badger culling using controlled shooting to new areas. It also recognised the need to continue culls in the pilot areas to reduce the perturbation effect, which could result in TB increases in the cull areas. However, it also called for further detail and assurances before it would support the culls being continued in 2014.<sup>40</sup> It has since welcomed the second year of culling but called for independent analysis of the cull to be put in place.<sup>41</sup>

In July 2014 the Badger Trust was given permission to seek a Judicial Review of whether the continuation of the pilots for a second year would be legal, following the Government’s decision not use the Independent Expert Panel to monitor the culls. Instead Natural England the AHVLA work would be independently audited.<sup>42</sup> The legal challenge was dismissed by the Court of Appeal in October 2014.<sup>43</sup>

## 9 2014 Badger Culls in Pilot Areas

The Government [announced](#) that a second year of culling had begun in the two pilot areas in September 2014:

This year’s culls incorporate improvements learned from last year’s culls and those set out in the Independent Expert Panel’s report. We have made changes to improve the humaneness and effectiveness, including better training and monitoring.

The culls will be monitored closely and we have published details of the monitoring procedures that AHVLA and Natural England will follow on GOV.UK. As with last year, these results will be independently audited.

The details of the monitoring that took place during the cull were published by Defra and available [here](#) but this did not include detail how the independent audit would be carried out.

The issue of what the independent audit would involve was raised during a Westminster Hall debate on Badger Culls Assessment on 4 November 2014. The Minister’s response did not provide any further detail:

We published our approach to monitoring before the culls started, and I confirm that we carried out the planned number of field observations and far more than the planned number of post-mortem examinations—figures that were both set last year. A lot of information has been collected. The processes used for collecting data are also currently subject to independent audit. We are taking the same approach as last year to ensure that our data are robust.<sup>44</sup>

This lack of information led to the Senior Editors of the Journal of Animal Ecology to write an open letter to Defra, in advance of the debate, offering to carry out an independent review of the data:

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<sup>39</sup> [Badger Cull Roll-Out Postponed – But Culling Returns to Gloucestershire and Somerset](#)

<sup>40</sup> BVA, [BVA backs badger cull report and calls for clear improvements](#), 17 April 2014

<sup>41</sup> BVA, [BVA restates support for second year of badger cull pilots but renews call for independent analysis](#), 10 September 2014

<sup>42</sup> BBC, [Badger Trust given permission to challenge badger cull](#), 1 July 2014

<sup>43</sup> Farmers Guardian, [Badger Trust loses legal appeal over cull](#), 29 October 2014

<sup>44</sup> HC Deb 4 November 2014 200WH

In response to recent calls for an independent review of the methods being used to assess the outcomes of the 2014 pilot badger culls, and in the absence of an IEP, we offer Defra the services of *Journal of Animal Ecology* editors and reviewers to critically appraise the methods used and their power to determine the success of this year's cull. Should Defra accept our offer, we would provide a transparent and independent review of the available evidence using our extensive international network of reviewers, comprising scientists with acknowledged expertise in wildlife population monitoring and management, as well as expert statisticians and modellers.<sup>45</sup>

Defra published its [advice to Natural England](#) on setting the minimum and maximum numbers of badgers to be culled in each area. This together with Natural England's [authorisation letters](#) for the culls, and the proposed cull numbers were published on 26 August 2014:

Under the terms of the authorisation letters, licensees have been set a minimum number of badgers to be removed – these are 615 in Gloucestershire and 316 in Somerset. A maximum number of badgers has also been set (1091 in Gloucestershire, 785 in Somerset) to safeguard the local populations:

[2014 west Somerset authorisation letter](#)  
[2014 west Gloucestershire authorisation letter](#)

The minimum and maximum numbers are based on the estimates of the badger populations in 2013 set out in the Independent Expert Panel's report, and the new evidence we have of badger activity on the ground in 2014.

The methodology used to calculate the number and the fact that it was different for each area, was raised during the debate, including by the Shadow Defra spokesperson Maria Eagle:

The 2013 targets were based on estimates of badger population size derived from capture-mark-recapture using genetic signatures from badger hair snagged in barbed wire. For 2014, there was no such field estimation of badger numbers. In the second year of the culls, the Government have not only departed from the original methodology but used two different methods to set cull targets for Gloucestershire and for Somerset.<sup>46</sup>

The Minister explained why this was the case in his response and concluded:

In Gloucester, there was greater consistency in what the models were telling us about the population, so it was easier to meet that condition. In Somerset there was a conflict between some of the models, so it went with the most reliable model, which used real data in real time on real activity in setts.<sup>47</sup>

The Senior Editors of the *Journal of Animal Ecology* [referred as follows](#) to the methodology chosen by the Government:

In 2014 Defra dispensed with both the IEP and the molecular methods it recommended. Instead, Defra plans to estimate badger density reduction internally, using information from culling companies on their culling effort, and the numbers and

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<sup>45</sup> *Journal of Animal Ecology*, *Animal Ecology in Focus*, [Transparency and Evidence-Based Policy: An Open Letter to Defra from Journal of Animal Ecology](#), 4 November 2014

<sup>46</sup> HC Deb 4 November 198 WH

<sup>47</sup> *Ibid* c 201 WH



locations of badger kills. Precise details of the planned methods have not yet been made public.

### **Why is this important?**

The implications of these estimates of culling effectiveness are of great interest to policymakers, farmers, wildlife groups, and the general public. This interest is justified because the density reduction achieved by badger culling determines whether this approach will improve or worsen the prospects for bTB control. Due to a lack of transparency concerning the assessment of the 2014 pilot culls, significant concerns have been raised about the methods being used and their utility in assessing the impact of the pilot culls<sup>48</sup>

## **10 Final Numbers and Appraisal of Cull**

Defra published a [Summary of badger control monitoring during 2014](#) on 18 December 2014. This provided the final numbers culled for both areas for 2014 together with details of monitoring of the cull for humaneness and effectiveness.

### **10.1 West Gloucestershire Numbers**

The target range of badgers to be culled set by Defra for this area was 615 to 1091. This was not achieved, with a total of 274 culled. 166 were shot, with an effort of 1938 shooting hours and 108 culled by cage trapping and shooting, with a total of 5359 traps set.<sup>49</sup>

The report noted that the level of interference by anti-cull activists was higher in this areas than in Somerset.

### **10.2 West Somerset Numbers**

The target range of badgers to be culled set by Defra for this areas was 316 to 785. This was achieved, with a total of 341 culled. 147 were shot, with an effort of 1192 shooting hours and 194 were cage trapped and shot, with a total of 7598 traps set.<sup>50</sup>

### **10.3 Cull effectiveness and humaneness**

The overall conclusions of was that a cull could be humane and effective:

The results from the 2014 monitoring suggests that the levels of accuracy achieved in this year's cull, were slightly, but not significantly improved compared to 2013. The likelihood of suffering in badgers is comparable with the range of outcomes reported when other culling activities currently accepted by society have been assessed. We noted a small difference between accuracy in West Somerset and West Gloucestershire. This might reflect the difficult circumstances that contractors were working under in Gloucestershire with widespread interference by anti-cull activists. The outcome of this year's cull in Somerset indicates that industry-led culling can, in the right circumstances, deliver the level of effectiveness required to be confident of achieving disease control benefits and that the culls in both areas were carried out to a high standard of public safety. There is a need for continued training of contractors, to ensure high standards of effectiveness, humaneness and safety.

These views reflected the advice given by the Chief Veterinary Officer on the [outcome of year two of the badger culls](#). He concluded that an industry led cull can in the right

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<sup>48</sup> Journal of Animal Ecology, Animal Ecology in Focus, [Transparency and Evidence-Based Policy: An Open Letter to Defra from Journal of Animal Ecology](#), 4 November 2014

<sup>49</sup> Defra, [Annex A1 - efficacy summary report for West Gloucestershire](#), 18 December 2014

<sup>50</sup> Defra, [Annex A2 - efficacy summary report for West Somerset](#), 18 December 2014

circumstances be effective; that the suffering of badgers was similar to that of other culling activities such as deer shooting with no observed badger taking more than five minutes to die; that the benefits of reducing disease should be realised in West Somerset, and recommended that culling should continue there for at least another two years. He also recognised that this may not be the case in West Gloucestershire:

Given the lower level of badger population reduction in the Gloucestershire cull area over the past two years, the benefits of reducing disease in cattle over the planned four year cull may not be realised there. Culling should continue there in 2015 provided there are reasonable grounds for confidence that it can be carried out more effectively that year through measures of the kind mentioned in paragraph 2, and should be maintained for at least one subsequent year to achieve a substantial reduction in the badger population. As there has been a slow start, we should consider whether culling should be repeated in future years beyond 2017 in order to increase the likelihood of reduced disease in cattle.

The independent audit report commissioned by Defra assessed the work undertaken by Natural England (NE) and the Animal and Plant Health Laboratories Agency (APHA). It did not cover the data held by contractors conducting the cull on behalf of the NFU. The appraisal looked at the teams carrying out the work, data collection and documentation. The overall conclusion was that:

The auditor is satisfied that the study has been run according to the SOPs [Standards of Practice] and other available documents that were in place and that the data recorded is complete and accurate.

#### **10.4 Reactions**

The NFU [welcomed](#) the statement by the Chief Veterinary Officer, calling for culling to be rolled out in high incidence areas as soon as possible.<sup>51</sup>

The Badger Trust was critical of the timing of the release of the figures “In a clear attempt to bury bad news over Christmas, the report paints a picture of a disastrous policy which has clearly failed on scientific, economic and humaneness grounds.” And:

Despite the many recommendations of the Independent Expert Panel from 2013, the standards of training and competence of the cull contractors continues to fall short, badger cull targets have not been met in Gloucestershire and many badgers have taken up to 5 minutes to suffer long painful deaths.<sup>52</sup>

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<sup>51</sup>NFU, [Badger cull results show roll out needed](#), 18 December 2014.

<sup>52</sup>Badger Trust, [Government attempts to bury badger bad news over Christmas](#), 18 December 2014