



## Badger Culling

Standard Note: SNSC-5873

Last updated: 18 October 2012

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Section Science and Environment Section

The previous Government decided in 2008 not to introduce a badger cull as part of bovine TB control measures in light of the findings of the UK Randomised Badger Culling Trial. This concluded that a reactive cull of badgers resulted in significant increases in Bovine TB and a proactive cull, whilst controlling TB in the cull area, contributed to an increase in TB in surrounding areas, and would not be cost effective. Not all agreed. Sir David King, the chief Scientific Adviser at the time, reviewed the findings and concluded that a proactive cull would be cost effective.

After the election the Coalition Government indicated that a badger cull would be introduced as part of TB control measures. It announced a consultation in September 2010, which set out its proposals. These include introducing proactive culls over 150km<sup>2</sup> areas where farmers would be licensed to control badgers by shooting. Farmers would have to bear the costs of any culls. The consultation also included proposals on TB monitoring in cattle and further biosecurity measures.

In December 2011 the Government announced that it intended to go forward with a badger cull trial. The trial will be carried out in two pilot areas. Results from the trial will be considered before culling is rolled-out more widely. The two trial areas, in West Gloucestershire and West Somerset, were announced in January 2012. T. Licences were granted by Natural England for the two areas in autumn 2012.

The Welsh Assembly was also in the process of introducing a badger cull in Wales, although the process was temporarily halted by the courts. Following the elections in May 2011, the new Labour Government halted the proposed cull pending a review of the science. The proposed cull has now been replaced by a five year vaccination programme, which is ongoing.

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## 1 Background

There has been an increase in TB in cattle in the UK since the 1980s, particularly in the south west of England and Wales. Statistics on the levels of TB in cattle can be found in Library Note SNSG6801 on [Bovine TB Statistics](#).

## 1.1 Badger densities

The last [national badger survey](#) was carried out between 1994 and 1997. This was the second national badger survey, following an earlier survey carried out between 1985 and 1988.

Between the two surveys, the number of badger social groups increased by 24%, to around 50,000. The number of badger setts increased by 43%, to approximately 248,000. Overall, the survey estimated that the number of badgers in Britain had increased by 77% between the two surveys, to between 300,000 and 400,000 badgers.

With regard to badger densities, the available summaries of the survey results only say that badger densities are highest in the south-west of England, with high densities present throughout southern counties, the west midlands and Wales.<sup>1</sup> A new national badger survey began this year and will be completed in 2013.<sup>2</sup>

## 2 UK Randomised Badger Culling Trial

Badgers have been found to carry TB and transmit it to cattle. This was established through UK Randomised Badger Culling Trial (RBCT). The RBCT was commissioned by the previous Government to study the various options for culling badgers and the effectiveness of these at preventing the spread of the disease amongst cattle.

As a result of initial findings from the RBCT in 2003 the reactive culling aspect of the study, where badgers were culled in and around a farm where TB was present in cattle, was suspended. This was due to a 27% increase in bovine TB outbreaks in these areas of the trial compared to areas in which no culling took place. The trials advisory group concluded that reactive culling could not be used to control bovine TB.

A preliminary analysis of the RBCT published in December 2005, showed that proactive culling, where most badgers in a particular area were culled, reduced the incidence of bovine TB by 19% within the cull area, although increased it by 29% up to 2 km outside the cull area.

These apparently contradictory findings were explained in a follow up study which found that the culling of badgers disrupts their territorial behaviour. This resulted in badgers roaming further afield and different groups of badgers mixing in ways they would not normally do, resulting in an increased spread of the disease.

This final report of the Independent Scientific Group on Cattle TB concluded that there were limitations to using badger culling to control TB in cattle:

15. Detailed evaluation of RBCT and other scientific data highlights the limitations of badger culling as a control measure for cattle TB. The overall benefits of proactive culling were modest (representing an estimated 14 breakdowns prevented after culling 1,000 km<sup>2</sup> for five years), and were realised only after coordinated and sustained effort. While many other approaches to culling can be considered, available data suggest that none is likely to generate benefits substantially greater than those recorded in the RBCT, and many are likely to cause detrimental effects. Given its high costs and low benefits we therefore conclude that badger culling is unlikely to contribute usefully to the control of cattle TB in Britain, and recommend that TB control efforts focus on measures other than badger culling (Chapter 10).

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<sup>1</sup> See for example [HC Deb 26 Jan 2004, c1W](#)

<sup>2</sup> See <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=18014>

16. In contrast with the situation regarding badger culling, our data and modelling suggest that substantial reductions in cattle TB incidence could be achieved by improving cattle-based control measures. Such measures include the introduction of more thorough controls on cattle movement through zoning or herd attestation, strategic use of the IFN test in both routine and pre-movement testing, quarantine of purchased cattle, shorter testing intervals, careful attention to breakdowns in areas that are currently low risk, and whole herd slaughter for chronically affected herds (Chapters 7 and 10).<sup>3</sup>

Further full details of the Trials, can be found in [Library Note 3751](#) on Badgers and Bovine TB: Culling Trials.

### **3 Labour Government Decision on Culling**

The previous Government decided in 2008 not to introduce a badger cull as part of bovine TB control measures in light of the findings of the RBCT, published in 2007.

Hillary Benn, the then Secretary of State for Environment, Food and Rural Affairs, made a statement to the House of Commons on 7 July 2008 in which he set out details of the Government's decision not to go ahead with a cull for the time being:

While scientists agree that a prolonged and effective cull over even larger areas—some 250 to 300 sq km—could reduce the incidence of bovine TB, the ISG's judgment was that the practicality and cost of delivering a cull on that scale meant that "badger culling cannot meaningfully contribute to the future control of cattle TB".

Having listened carefully to a wide range of views from scientists, farming, veterinary and wildlife organisations, and many others, and having considered all the evidence, I have decided that although such a cull might work, it might also not work. It could end up making the disease worse if the cull was not sustained over time or delivered effectively, and public opposition, including the unwillingness of some landowners to take part, would render that more difficult. It would not be right to take that risk. Therefore, in line with the advice that I have received from the Independent Scientific Group, our policy will be not to issue any licences to farmers to cull badgers for TB control, although we remain open to the possibility of revisiting that policy under exceptional circumstances, or if new scientific evidence were to become available.<sup>4</sup>

He went on to highlight other measures that would be taken, including allocating funding of £20m to the development of an effective TB vaccine for cattle and badgers:

We have invested £18 million in the past 10 years in vaccine development, which has delivered good results, including: evidence that vaccinating young calves is effective; making progress towards developing a test to distinguish between infected and vaccinated cattle; showing that injectable BCG can protect badgers; and developing oral badger vaccine baits. I now intend to increase significantly our spending on vaccines by putting in £20 million over the next three years to strengthen our chances of successfully developing them. I will also provide additional funding to set up and run a practical project to prepare for deploying vaccines in future.<sup>5</sup>

The Minister went on to say that due to the fact there would not be a viable vaccine for badgers or cattle in the short to medium term – nothing is expected before 2015 – there

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<sup>3</sup> Defra, Final Report of the Independent Scientific Group on Cattle TB, *Bovine TB: The Scientific Evidence*, June 2007

<sup>4</sup> HC Deb 7 July 2008 c1153

<sup>5</sup> *ibid*

needed to be a focus on disease control by both the Government and farmers. He also announced the setting up of a bovine TB partnership group to develop a plan for tackling TB in England.<sup>6</sup>

### 3.1 Reactions

The NFU was strongly critical of the decision calling it an abdication of responsibility:

NFU president Peter Kendall has roundly denounced the Secretary of State's refusal to cull badgers as a part of a TB control programme, despite admitting that a cull 'might work' in his statement to the House of Commons today.

"This is a disgraceful abdication of responsibility by Secretary of State Hilary Benn," said Mr Kendall. "Despite his promise to base his decision on the facts, he has ignored the scientific evidence of the ISG report, the recommendation of the EFRA select committee and that of Professor Sir David King, in reaching his conclusion. It is a total non decision.

"To admit that a cull might work, and then push the already crippling burden of TB controls further onto the farming industry is just plain wrong. It is ridiculous to expect farmers to continue fighting TB with one hand tied behind their back."<sup>7</sup>

The RSPCA welcomed the move, calling it "the right decision based on compelling evidence", as did the Badger Trust which published the following press release.

"We are delighted that Hilary Benn has based his decision on sound science. The Government and the farming industry can now move forwards together in controlling the disease in a way which supports rather than harms the industry. Eradication is a long way off, but the science clearly shows that control is rapidly within our grasp, provided that the farming unions are prepared to work towards it."

However, the Badger Trust criticised Conservative spokesman James Paice for claiming that Mr Benn had "gone against the advice of the ISG [Independent Scientific Group]" and for claiming that PCR - the Polymerase Chain Reaction - could be used to "target" diseased badgers.<sup>8</sup>

## 4 Bovine TB Eradication Group for England

The Bovine TB Eradication Group for England was set up in November 2008 and included members from the veterinary profession, farming industry and Defra officials. It reported back to the Government in October 2009. It proposed a series of measures with regards to TB control, some of which were put in place by the previous Government and are included in the new proposals for badger control. Details of these recommendations can be found on the Group's Defra [webpage](#).

With regards to badger culling, the group concluded the balance of scientific evidence was against a cull:

We concluded that the option of badger culling needs to remain open but we cannot, at this stage, make a clear case for change based on scientific evidence which has emerged since the Secretary of State's decision or exceptional circumstances. We will keep this position under close review since results emerging from the ongoing post-

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<sup>6</sup> ibid

<sup>7</sup> NFU Press Release, [Government refusal to cull badgers is a disgraceful abdication of responsibility](#), 7 July 2008

<sup>8</sup> Badger Trust Press Release, *Benn rules out badger culling*, 7 July 2008

RBCT analysis led by Christl Donnelly and Helen Jenkins of Imperial College still show an overall benefit. We have also agreed that we need to make sure options are available so, if the position were to change, culling could be carried out in an effective and cost efficient way.<sup>9</sup>

The research referred to above was published in February 2010. It concluded that the benefits of the cull were not sustained once culling stopped and that culling was not an effective way of controlling TB in Britain:

Our findings show that the reductions in cattle TB incidence achieved by repeated badger culling were not sustained in the long term after culling ended and did not offset the financial costs of culling. These results, combined with evaluation of alternative culling methods, suggest that badger culling is unlikely to contribute effectively to the control of cattle TB in Britain.<sup>10</sup>

The current Government published a Bovine TB Eradication Plan for England in July 2011 in which it stated that the Group would “continue to play an important role”.<sup>11</sup>

## 5 Coalition Government Proposals

The [Programme for Government](#) published in May 2010 set out the position as follows:

As part of a package of measures, we will introduce a carefully managed and science-led policy of badger control in areas with high and persistent levels of bovine tuberculosis.

The Government published a document setting out its approach to dealing with Bovine TB, and consulting on a policy to control badgers, on 15 September 2010. With regards to badgers the Government statement summarised the proposals to allow farmers to cull badgers at their own expense:

The consultation proposes issuing licences under the Protection of Badgers Act 1992 to enable farmers and landowners to cull badgers, at their own expense. Under the Government’s new proposal, they will be able to use vaccination either on its own or in combination with culling. Licences would be subject to strict criteria to ensure culling is carried out effectively, humanely and with high regard to animal welfare. They will also be asked to explain how they intend to minimise the negative effect in the surrounding area identified by the Randomised Badger Culling Trial (RBCT).<sup>12</sup>

There was also further detail provided including the proposal only to allow culling, by shooting or cage trapping, in areas of at least 150km<sup>2</sup> and for the licensing scheme to be funded by the Government, although farmers would have to bear the cost of the actual cull.

Badger control licences would be subject to strict criteria to ensure that measures are carried out effectively, humanely, and with high regard to animal welfare. This will include a requirement that any culling must take place over a minimum area of 150km<sup>2</sup> so we can be confident it will have a net beneficial effect. This means that we would expect to receive licence applications from groups of farmers and landowners rather than individuals. Applicants will also need to demonstrate that they have considered

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<sup>9</sup> The Bovine TB Eradication Group , [Developing a Bovine TB Eradication Programme for England](#), October 2009

<sup>10</sup> *ibid*

<sup>11</sup> Defra, [Bovine TB Eradication Programme for England](#), July 2011

<sup>12</sup> Defra, [Bovine Tuberculosis: the Government’s approach to tackling the disease and consultation on a badger control policy](#), 15 September 2010

taking further steps to minimise the potential detrimental effect at the edge of a culling area.

Licences will only permit culling by cage-trapping and shooting, and by shooting free-running badgers, carried out by trained, competent operators with appropriate firearms licences. Defra ruled out gassing and snaring on the basis that we do not have sufficient evidence to demonstrate that they are humane and effective methods of culling.

The Government will fund the cost of the licensing operation and monitor the effects of the policy. We expect the farming industry to bear the direct costs of badger control.<sup>13</sup>

The consultation also set out other measures being considered to improve the monitoring and control of TB in cattle:

We will continue to look over the next few months at: changes to TB terminology; strengthening controls on high risk unconfirmed breakdowns; extending the use of gamma interferon testing to all confirmed breakdown herds in the two year testing areas; providing better support for TB restricted farmers by enhancing their options for selling surplus stock.

In 2009/10 controlling bovine TB cost the taxpayer £63million in England. An additional £8.9million was spent on research.<sup>14</sup>

The full consultation, which closed on 8 December 2010, is available on the Defra website. Alongside the consultation a Veterinary Assessment of the risk factors associated with proactive badger culling was published. This set out in detail what would be required to ensure a successful cull:

For badger culling to decrease the incidence of TB in cattle, a culling strategy must take into account factors that will mitigate perturbation. A culling strategy should be

- a. **Sustained** (at least annual), undertaken on a regular basis over a period of at least 4 years in order to achieve low local badger populations in high TB incidence areas;
- b. **Over a large area** (the evidence suggests a minimum area of 150 km<sup>2</sup>);
- c. Conducted where land access is **over 70% of the area**;
- d. **Effective and humane** and conducted by competent operators; and
- e. Where possible, conducted in areas with **boundaries or buffers** (such as motorways, conurbations, coast, and substantial rivers) around the culled area to mitigate any risks from the perturbation effect.

The licensed Badger BCG vaccine could also be used as a tool to mitigate the negative effects of perturbation. This is likely to be beneficial but not fully protective against the negative effects of perturbation. Immunity takes time to develop and so vaccination would need to precede culling. There is limited evidence about the impact of vaccination in field conditions.

If a different culling strategy to that conducted in the RBCT is used, the effect on TB incidence and the degree of the resulting perturbation is uncertain.

It is essential that any culling is carried out using methods that are both effective and humane.

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<sup>13</sup> *ibid*

<sup>14</sup> *ibid*

Training in capture and culling techniques will be needed to ensure that the operators are competent and that culling is as effective as possible, in order to minimise perturbation. Education will also help to ensure understanding of the risks of inefficient culling and ensure adherence to welfare requirements.<sup>15</sup>

## 5.1 Reactions to the Proposed Cull

The NFU strongly welcomed the Government decision to consult on culling and very much supported the proposal to cull:

The consultation on badger control, launched by Defra Minister of State Jim Paice today, is a major step forward in the battle to control the spread of bovine TB according to the NFU.

The organisation, which has long lobbied for action to combat the disease as it threatens the future of so many farming families in the beef and dairy sector and costs taxpayers upwards of £84million, said it looks forward to contributing to the consultation.

And

“Bovine TB is out of control. The NFU has always said that in order to effectively tackle the spread of bTB we need to address the disease in both cattle and wildlife but it’s important to be clear; this is not about eradicating badgers, this is about disease control.<sup>16</sup>

The British Veterinary Association also welcomed the Government’s proposals:

The British Veterinary Association (BVA) and British Cattle Veterinary Association (BCVA) have long argued that bTB cannot be controlled without measures to control the disease in both cattle and wildlife.

In particular the BVA and BCVA have welcomed

- the recognition that the farming industry, veterinary profession and Government need to work in partnership
- the understanding that there is no single solution to tackling bTB and that we need to use ‘every tool in the toolbox’
- the commitment to a balanced package of measures linked to the understanding that we cannot succeed in eradicating bTB in cattle without addressing the reservoir of disease in wildlife
- the commitment to monitor the effectiveness, humaneness and impact of badger control measures.<sup>17</sup>

Hilary Benn, who made the decision under the Labour Government not to carry out a cull, was critical of the proposals:

This is the wrong decision,” he said. “Bovine TB is a terrible disease that we must overcome, but we have to use means that will work.

Bovine TB has a devastating effect on farmers’ herds and their livelihoods, and I understand how desperate those affected are for something more to be done. But badger culling has already been tried. Based on these trials, the Independent Scientific

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<sup>15</sup> Defra, [Veterinary assessment of the risk factors associated with proactive badger culling](#), September 2010

<sup>16</sup> NFU, [Consultation on TB a 'major step forward'](#) , 15 September 2010

<sup>17</sup> BVA, [TB consultation receives strong support from vets](#) ,15 September 2010

Group concluded that 'badger culling cannot meaningfully contribute to the future control of cattle TB.

As Secretary of State, I agreed with this scientific judgement. It would be neither practical nor publicly acceptable, and getting it wrong could actually make matters worse.

Shooting badgers may make Ministers feel that they are doing something, but it is not the way to beat this disease. Vaccination is, which is why cancelling five of the six vaccine demonstration projects was such a mistake.<sup>18</sup>

The Wildlife Trust which has campaigned strongly against using a cull as a measure for controlling TB echoed Hilary Benn's concern about the effectiveness of a cull:

The Wildlife Trusts acknowledge bTB is a significant problem that causes hardship for many in the farming community. There is no single solution to this disease but any approach must take account of ecological as well as veterinary science. It should be tackled on many fronts: vaccination of badgers, cattle controls and improved biosecurity on farms. The rationale for any cull of native species needs to be extremely clear and well proven.

We are concerned the scientific evidence does not support the culling of badgers as part of that solution. It could even make matters worse by disturbing the remaining badgers, so spreading the disease further. The Wildlife Trusts are willing to work with the farming community and others to confront this disease in a science-led and constructive way.<sup>19</sup>

The Badger Trust, which temporarily halted a proposed cull by the the Welsh Assembly Government through the courts, expressed similar views.<sup>20</sup>

## 5.2 Proposals in Detail

### Effectiveness of Free Shooting

The Minister set out how he envisaged badgers being culled using free shooting in an interview with the Farmers Guardian following the publication of the consultation:

Farmers will cover the entire cost of badger removal. The big advantage with 'free shooting', which farmers will be able to do themselves as long as they possess the appropriate firearms licence, is that it will be affordable to all.

The alternative of employing a contractor to trap and shoot badgers, given the cost of the cages and manpower involved, would be financially out of reach for many

Questions have been raised, however, about the potential animal welfare implications if badgers are wounded but not killed and also possible safety implications for humans of free shooting, which has not been trialled.

As a countryman my view is that free shooting would, in most cases, be by far the most effective option, Mr Paice told Farmers Guardian this week.

There may be security issues but I am not talking about people just ranging around the countryside with a rifle. If you put a high seat over a sett you could kill most of them fairly quickly.<sup>21</sup>

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<sup>18</sup> Farmers Guardian, [Badger cull the 'wrong decision' says Benn](#), 15 September 2010

<sup>19</sup> Wildlife Trust, [Concern over culling proposals](#), 15 September 2010

<sup>20</sup> The Badger Trust, [Badger Cull in England?](#) 15 September 2010

However, a report to Defra by The Game Conservancy Trust published in August 2006, *Shooting as a Potential Tool in Badger Population Control*, concluded that shooting over a sett should not be considered a first choice:

A major problem with shooting at or near the sett is that a wounded badger will almost certainly attempt to bolt underground, preventing a second shot (and preventing safe disposal of the carcass). This really means that the first shot must cause the badger to collapse on the spot, limiting the choice of target to the spine, neck or head (cranium)<sup>22</sup>

And

In view of the difficulties outlined above, shooting at the sett should probably be regarded as a viable ancillary approach, but one requiring considerable care, and certainly not a first choice.<sup>23</sup>

The Trust was also of the view that due to the need for shooting to take place at night there may be difficulties for farmers in incorporating this in their daily routine:

Time. Badger shooting would be restricted almost entirely to the hours of darkness, and would therefore involve an anti-social work regime that is unlikely to fit well with farming or husbandry activities.

It seems likely that this profile fits professional operators rather than landowners and farmers with other demands on their time. Because of the finite number of badgers on any one land-parcel, such specialists would probably need to operate on a roving basis among many different land-parcels. A further consequence is that regional co-ordination would be essential to ensure appropriate incentives for operators to maintain effort where badger numbers had already been reduced.<sup>24</sup>

As a result of the conclusions of this report the RSPCA is of the view that it will be difficult to shoot badgers humanely:

The animals' anatomy and behaviour make them harder targets to kill with a single shot than foxes or deer, a fact made clear to ministers in a report by the Game Conservancy Trust, says the RSPCA. It alleges that if the shooting campaign goes ahead, many badgers will be wounded, not killed.

Colin Booty, the RSPCA's deputy head of wildlife, said: "Shooting badgers might be very different from shooting foxes, say, because their anatomy is very different. The badger has a very thick skull, thick skin and a very thick layer of subcutaneous fat. It has a much more robust skeleton than the fox. Because of the short, squat body and the way its legs work, these legs often partly conceal the main killing zone. Free shooting carries a high risk of wounding."<sup>25</sup>

## Regular Culling

A follow-up report to the RCBT, published in February 2010, warned of the need for any cull to be well planned and co-ordinated with the potential for small scale or irregular culls resulting in increases rather than decreases in bovine TB incidence:

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<sup>21</sup> Farmers Guardian, [Why I am proposing a badger cull](#), 17 September 2010

<sup>22</sup> Game Conservancy Trust, [Shooting as a potential tool in badger population control](#), August 2006

<sup>23</sup> *ibid*

<sup>24</sup> *ibid*

<sup>25</sup> *The Independent*, [Badger shooting is cruel, says RSPCA](#), 29 October 2010

It is important to note that the effects described here relate only to culling as conducted in the RBCT, i.e. deployment of cage traps by highly trained staff in coordinated, large-scale, simultaneous operations, repeated annually for five years and then halted. As described elsewhere, culling-induced changes in badger numbers and movement patterns mean that culling which is small-scale, patchy, short-term or asynchronous is very unlikely to provide comparable reductions in the incidence of cattle TB and could well prompt increases.<sup>26</sup>

This view was supported by Dr Robbie McDonald, Head of Wildlife and Emerging Diseases Programme for the Food and Environment Research Agency, in an article published in September 2009, before the proposal for shooting badgers was put forward:

The disappearance/reduction of one group will cause badgers from another group to go and 'investigate' the vacated area, taking their diseases with them or picking up new infections in the process.

"Transmission of disease reduces where there's a stable social system," he says, explaining that disease peaks are usually seen the year after a period of upheaval and that it takes a long time to return to a stable situation again.

Therefore, the benefit of culling a population is outweighed by the detrimental affect on neighbouring populations. He says a huge number of badgers would have to be killed to make a difference and while it is cheap and easy to trap and exterminate animals in the early days of a cull it gets harder and more expensive as time goes on.<sup>27</sup>

## Costs

Defra set out the 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>

The RBCT follow-up report examined the cost and benefits of a cull carried out by farmers. It pointed out that the costs estimates from Defra did not include any capital costs to farmers, or costs of training and co-ordinating efforts and concluded that costs of this culling method could exceed the long term financial benefits:

Defra estimated that the costs of culling would be substantially lower if implemented by licencing of farmers (roughly £1,000/km<sup>2</sup>/year, hence £562,500 for the idealised five-year 150 km<sup>2</sup> area described above; note that the Welsh Assembly Government recently published updated cost estimates of £4,200/km<sup>2</sup>/year for government-delivered cage trapping and £1,500/km<sup>2</sup>/year for farmer-delivered culling). However, this assumed that farmers would conduct the culling themselves (and so included only minimal capital costs) and excluded the costs of training farmers or coordinating their efforts. In the absence of such training and coordination, licenced culling would almost certainly be patchy, asynchronous, unsustainable and uncoordinated, circumstances highly likely to prompt increases, rather than reductions, in the incidence of cattle TB. Hence, although the total cost of licenced culling is slightly lower than the potential

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<sup>26</sup> Jenkins *et al*, [The Duration of the Effects of Repeated Widespread Badger Culling on Cattle Tuberculosis Following the Cessation of Culling](#), PLoS ONE, 10 February 2010

<sup>27</sup> Farmers Guardian, [TB: The science behind the decisions](#), 4 September 2009

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

benefits projected from RBCT results (using 2005 cost estimates), it is extremely unlikely that such benefits could in fact be realised by this culling method. The costs of conducting badger culls thus substantially exceed the long-term financial benefits likely to be achieved.<sup>29</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>30</sup>

The consultation closed in December 2010. Further details and accompanying documents can be found on the Defra [website](#).

### **5.3 Second Consultation**

Caroline Spelman, Secretary of State for Environment, Food and Rural Affairs, announced the Government response to the consultation - which received 59,000 responses - on 19 July 2011. A cull was proposed within the framework of a [Bovine TB Eradication Programme for England](#). However, in view of the concerns raised, a further consultation would first be carried out to determine whether a cull could effectively enforced and monitored by Natural England. The intention is that a cull will initially be piloted in two areas, before being extended to other parts of the country:

There is great strength of feeling on this issue, which is why I have carefully considered the scientific evidence and the large number of responses to the public consultation. I know that a large section of the public is opposed to culling, and that many people are particularly concerned about whether it will actually be effective in reducing TB in cattle and about whether it will be humane.

"I wish there was some other practical way of dealing with this, but we can't escape the fact that the evidence supports the case for a controlled reduction of the badger population in areas worst affected by bovine TB. With the problem of TB spreading and no usable vaccine on the horizon, I'm strongly minded to allow controlled culling, carried out by groups of farmers and landowners, as part of a science-led and carefully managed policy of badger control."

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<sup>29</sup> Jenkins *et al*, [The Duration of the Effects of Repeated Widespread Badger Culling on Cattle Tuberculosis Following the Cessation of Culling](#), 10 February 2010

<sup>30</sup> HC Deb 21 Dec 2010 : Column 1333W

Badger control licences would be issued by Natural England under the Protection of Badgers Act 1992 to enable groups of farmers and landowners to reduce badger populations at their own expense.

In light of concerns raised in the public consultation, a number of amendments to the proposed policy have been made. Key stakeholders will now be further consulted on the resulting draft guidance to Natural England, who are the licensing authority for culling activity.

The draft guidance to Natural England sets out strict criteria that applicants for a licence to cull badgers would have to meet to ensure that any culling is carried out safely, effectively and humanely.

Initially in the first year, the culling method would be piloted in two areas, to confirm the effectiveness and humaneness of controlled shooting, overseen by an independent panel of scientific experts. If this is found to be effective, then and only then would this policy be rolled out more widely.<sup>31</sup>

The TB Eradication Programme for England includes the following measures:

- Cattle surveillance and control measures to address cattle to cattle transmission.
- Promoting good biosecurity, to address transmission between cattle, and between badgers and cattle.
- Control of TB in badgers, to reduce transmission from badgers to cattle in TB endemic areas.
- Measures to tackle TB in non-bovine farmed species (including pigs, goats, deer, sheep, alpacas and llamas).
- Advice and support for farmers.
- Robust governance, monitoring and reporting arrangements.<sup>32</sup>

The new consultation document set out the main concerns about a badger cull raised by respondents to the previous consultation, and which it now aimed to address:

The main issues and concerns raised during the public consultation in relation to the operation of a badger cull were:

- a) concerns that ineffective or incomplete culling could make TB worse and that culling licences would not be enforceable;
- b) requests for the inclusion of a requirement for 'simultaneous' culling and for a definition of 'simultaneous';
- c) mixed views on allowing the shooting of badgers in the field as a culling method (referred to in this consultation paper as "controlled shooting"), in addition to the shooting of cage-trapped badgers, and concerns about the effectiveness and humaneness of the former method;
- d) concern about the risk of negative impacts on non-participating farmers and landowners with vulnerable livestock within and at the edge of the Control Area;
- e) concerns over security and personal safety for those participating and for the general public;
- f) queries and uncertainty about the impact of culling on the badger population;
- g) questions about whether there will be sufficient resources to carry out adequate monitoring; and

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<sup>31</sup> Defra, [Next steps to tackle bovine TB in England](#), 19 July 2011

<sup>32</sup> Defra, [Bovine TB Eradication Programme for England](#), July 2011

- h) agreement that the Government should do more to support and encourage the use of badger vaccination.<sup>33</sup>

The proposals are that culling would only be permitted by cage-trapping and shooting or by controlled shooting of badgers in the field, carried out by competent operators. The number of annual culling areas would be limited to ten. Vaccination would also be encouraged. The Government would monitor: actions taken under the licence; the impact on cattle herd breakdowns within the areas culled or vaccinated; humaneness of the culling methods; and the impacts on the remaining badger population. In the event that culling was not carried out effectively by the licensed farmers/landowners Government would be able to intervene, assume responsibility for completing the culling operation, and recover the costs from the farmers and landowners. If a decision to cull is made it will be reviewed after four years.<sup>34</sup>

Speaking to the Farmers Guardian in anticipation of the July announcement, Professor Krebs expressed the view that a cull would not have a significant impact:

Professor Lord John Krebs said the results was commenting on the publication of a Defra report suggesting that, based on the findings of the trial, culling badgers would reduce bTB incidence in cattle by approximately 12-16 per cent over a nine year period.

“You cull intensively for at least four years, you will have a net benefit of reducing TB in cattle of 12 per cent to 16 per cent. So you leave 85 per cent of the problem still there, having gone to a huge amount of trouble to kill a huge number of badgers. It doesn’t seem to be an effective way of controlling the disease.”<sup>35</sup>

And

Lord Krebs said the Government should instead try to develop a vaccine in the long term, and in the short term to introduce better farm biosecurity measures to reduce the risk of infection from badgers and cattle-to-cattle spread.<sup>36</sup>

## 6 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.

We would not want to see culling continue for any longer than is necessary, but there are no easy solutions to the problem. We have come to the conclusion that the importance of achieving the anticipated net reduction in bovine TB in cattle at a local level from culling in areas where the disease is endemic (in control areas of the size envisaged and for the period for which that benefit is anticipated), and the benefit of allowing farmers to manage the risks to their herds, are sufficient to justify the number of badgers that would be killed.

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<sup>33</sup> Defra, [Consultation on Guidance to Natural England on the implementation and enforcement of a badger control policy](#), July 2011

<sup>34</sup> *ibid*

<sup>35</sup> Farmers Guardian, [Badger cull would not work – Krebs](#), 12 July 2011

<sup>36</sup> *ibid*

Our policy is therefore to license groups of farmers/landowners to cull badgers for the purpose of preventing the spread of bovine tuberculosis (TB) in cattle (subject to a set of strict policy requirements as set out below). Licences to vaccinate badgers will continue to be available for farmers/landowners who wish to use vaccination either alone, or in combination with culling against the risk of the perturbation effect on cattle TB at the edge of culled areas.<sup>37</sup>

The document sets out in detail the conditions that a cull must meet. This includes the requirements that all participating farmers must be compliant with TB cattle controls. A cull will be trialled in two pilot areas to assess the effectiveness of the proposals. If a full scale cull goes ahead a maximum of 10 areas per year will be licensed to carry out culls over a four year period, each covering an area of 150km<sup>2</sup>. Culls will take place over a six week period and will be required to reduce the badger population by 70%. As in the original proposals the costs of culling will be met by farmers.<sup>38</sup> Natural England will licence the culls.

To minimise perturbation farmers will 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>39</sup>

The document also addresses issues such as cost of policing and the potential for the use of vaccination.<sup>40</sup>

## 6.1 Trial Areas

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

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>41</sup>.

Natural England has 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

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<sup>37</sup> Defra, [The Government's policy on Bovine TB and badger control in England](#), 14 December 2011

<sup>38</sup> *ibid*

<sup>39</sup> Defra, [Update on measures to tackle Bovine TB](#), 14 December 2011

<sup>40</sup> *ibid*

<sup>41</sup> DEFRA [Written Statement, Bovine TB](#), 19 January 2012

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>42</sup>

## 6.2 Independent Expert Panel

The Government also announced it would set up an independent panel of experts, chaired by Prof. Christopher Wathes, to oversee the monitoring and evaluation of the pilot areas and report back to Government. The panel will evaluate the effectiveness, humaneness and safety of controlled shooting, rather than the effectiveness of culling to control TB in cattle. It has the following [term of reference](#):

- a. oversee the development of scientifically robust and policy-relevant monitoring protocols, that offer good value for money, including considering an assessment of the field and post-mortem data;
- b. advise on appropriate auditing of data collection and analysis (either themselves or by appointing a suitable auditor separately);
- c. provide timely advice to Defra Ministers comprising their view of the robustness of the data collection and analysis conducted by the research teams, and a discussion of factors that may have influenced the results obtained;
- d. advise on any other factors of scientific relevance that are material to the monitoring of effectiveness (in terms of badger removal) and humaneness of controlled shooting both in the pilot areas and if the policy is rolled out more widely;
- e. recommend any changes or improvements to the licence criteria, training course content or Best Practice Guidance and;
- f. consider the report on the public safety of controlled shooting following the pilots and other information that may arise regarding operator safety.

Details of the all panel members and notes of any meetings are available on the Defra website.<sup>43</sup>

## 6.3 Legal Challenge

The Badger Trust lodged a claim in the High Court on 27 February 2012 for a Judicial Review of the decision to carry out a cull in a [press release](#) set out the basis for the claim. The case put forward by the Trust was that licences to cull badgers as proposed could not be granted under existing legislation; that the cost assessment made by Defra was flawed as it did not include the higher costs of continuing a cull if free shooting is ruled unsuitable after the trials; and that guidance issued to Natural England is invalid as issuing licences to cull badgers to prevent the spread of disease is not one of Natural England's original functions.

Permission for the review was granted on 20 April 2012.<sup>44</sup> However the Judge found against the Trust's argument on 12 July 2012.

## 6.4 Licences to Cull

Following the failure of the Badger Trust's legal challenge – see below - a licence was issued for the West Gloucester Area on 17 September 2012:

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<sup>42</sup> Natural England, [Frequently asked questions about badgers and bovine tuberculosis](#), Website as of 19 September 2012.

<sup>43</sup> Defra, [Badger Culling Pilots: Independent Expert Panel](#), 18 October 2012

<sup>44</sup> Bindmans, [Badger Trust's judicial review of DEFRA badger cull given green light on all 3 grounds](#), 24 April 2012

The licence: has a four year term and authorises control operations to be conducted within the West Gloucestershire pilot area over a continuous six week period each year over the next four years. No control operations can be carried out during specified close seasons.

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>45</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.

A Written Answer on 17 October 2012 set out the population estimate for the two cull areas:

#### **Bovine Tuberculosis: Disease Control**

**Mary Creagh:** To ask the Secretary of State for Environment, Food and Rural Affairs what estimate he has made of the number of badgers within each pilot cull area.

**Mr Heath:** Badger population estimates for the pilot areas have been generated using the methodology published on the DEFRA website.

We have yet to issue definitive target figures for the two areas, but the best estimate for the number of badgers within each pilot area is, to the nearest 100:

West Gloucestershire: 3,600

West Somerset: 4,300<sup>46</sup>

### **6.5 Public Petition and Commons Debate**

An [e-petition](#) to stop the badger cull was placed on the HM Government website in September 2012:

We, the undersigned, call on the government to stop the planned cull of badgers on the following grounds:

Over 70% of the badger population in large areas of the country will be killed, many of them healthy.

The method of free-shooting badgers could cause severe to many thousands of badgers.

Independent scientific studies have shown that culling would be of little help in reducing bovine TB, and even suggest that it could make things worse in some areas.

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<sup>45</sup> Natural England, [Badger Control Licence issued in West Gloucestershire](#), 17 September 2012

<sup>46</sup> HC Deb, c296 W, 17 October 2012

We urge the government to stop the cull and implement the more sustainable and humane solution of both a vaccination programme for badgers and cattle, along with improved testing and biosecurity<sup>47</sup>

The petition had collected over 158,000 signatures by 18 October. When over 100,000 signatures have been collected for a petition the Leader of the House of Commons writes to the Backbench Business Committee, who then considers whether to hold a debate on issue. The Government also publishes a response to petitions.

A Backbench debate on badgers has been scheduled to take place in the House of Commons on 25 October 2012.

## 7 Badger TB Vaccination

A vaccine for TB in badgers is available. It is an injectable vaccine and requires badgers to be trapped in a cage before it can be administered. The [veterinary guidelines](#) for the vaccine produced by the Food and Environment Research Agency (FERA) summarises how the vaccine was tested and its effectiveness in badgers:

The injectable BCG badger vaccine, BadgerBCG, is the first tuberculosis vaccine authorised for use in badgers in the United Kingdom. Vaccination of badgers aims to reduce transmission of TB between badgers and from badgers to cattle by reducing the prevalence of disease in badger populations and the severity of disease and shedding of bacteria from infected individual badgers.

FERA also highlights the potential for use of the vaccine for reducing TB in cattle, although it emphasise that no trials have been carried out to determine whether it would be effective:

The reduced severity of disease and reduction in shedding of the bacteria from infected badgers could have the desired effects of reduction of badger to badger transmission, therefore a reduction in prevalence of disease in badgers and a reduction of the risk of transmission to cattle. There have been no field trials of the effect of BadgerBCG on TB incidence in cattle.

### 7.1 Vaccine Trials

The incoming Government announced in June 2010 that it would be reducing the number of proposed areas covered by the Badger Vaccine Deployment Project (BVDP) trials from six to one in view of its intention of reviewing policy on badger control, and the need to reduce spending. Further details were set out in a Written Answer:

#### **Bovine Tuberculosis: Vaccination**

Hilary Benn: To ask the Secretary of State for Environment, Food and Rural Affairs what her plans are for the six badger vaccination demonstration projects approved by the previous Government. [4745]

Mr Paice: On 25 June it was announced that the Badger Vaccine Deployment Project (BVDP) has been reviewed and for the time being will proceed only in one area (Gloucestershire, near Stroud), in order to help maintain capacity at the Food and Environment Research Agency to train lay vaccinators. Badger sett surveys will also be completed in the Gloucestershire area near Cheltenham since this was already well under way. The areas in Staffordshire, Herefordshire/Worcestershire and Devon where

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<sup>47</sup> HM Government e-petition, [Stop the badger cull](#), website as of 2 October 2012.

the BVDP was due to take place will not now be trapped and vaccinated as part of the project.<sup>48</sup>

The aim of the five year trial was to build confidence in the principle and practicalities of vaccination and provide an opportunity to learn how best to address practical difficulties.<sup>49</sup> Further details on the trial can be found on the [Food and Environment Research Agency](#) webpage, together with details of other voluntary vaccination programmes.

Results of a field trial on the impacts of the BCG vaccine on badgers were published in December 2010. The trial found that vaccination resulted in a 73.8% reduction in positive blood tests in badgers. The authors concluded:

In common with other species, BCG did not appear to prevent infection of badgers subjected to experimental challenge, but did significantly reduce the overall disease burden. BCG vaccination of badgers could comprise an important component of a comprehensive programme of measures to control bovine TB in cattle.<sup>50</sup>

## 7.2 Government Policy on Vaccination

The Government's view on the implications of the above results was set out in Annex C of the original badger culling consultation:

The results of the laboratory and small-scale field studies do not lend themselves to giving a definitive figure for BCG vaccine efficacy. This could only be determined by vaccine field-testing on a large scale over a long period of time and several thousand badgers would need to be removed to allow the determination of the presence and severity of TB at detailed post-mortem.

An oral badger vaccine, which may be a more practical option in terms of field deployment, is still at the research stage and will not be available until 2015 at the earliest.<sup>51</sup>

The TB Eradication Plan summarised the current position with regards to vaccination:

### **Badger vaccine deployment project**

The vaccine is being used in a Defra-funded Badger Vaccine Deployment Project in Gloucestershire. During the first trapping year more than 500 badgers were vaccinated in the 100km<sup>2</sup> project area. The project involves training operatives to use the vaccine in the field and seeks to increase confidence in the use of injectable badger vaccines, while looking at the practicalities of the vaccination process. The first commercial training course in badger vaccination was run in October 2010 and more courses are taking place this year.<sup>52</sup>

There are currently several wildlife organisations carrying out vaccine trials across England, including the National Trust, which began a four year trial in Killerton, in Devon, in April 2011.<sup>53</sup> The Gloucester Wildlife Trust published findings on the costs of a one year

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<sup>48</sup> HC Deb 30 Jun 2010 c561w

<sup>49</sup> Defra, [Changes to badger vaccine deployment project](#), 24 June 2010

<sup>50</sup> Chambers *et al*, [Bacillus Calmette-Guérin vaccination reduces the severity and progression of tuberculosis in badgers](#), *Proc. R. Soc. B*, 1 December 2010

<sup>51</sup> Defra, [Annex C: Badger TB Vaccines](#), September 2010

<sup>52</sup> Defra, [Bovine TB Eradication Programme for England](#), July 2011

<sup>53</sup> National Trust, [New programme to demonstrate badger vaccination as effective alternative in bovine TB control](#), April 2011

vaccination trial in the Stroud area in October 2011. This small study found that the average cost per hectare for vaccinating badgers was £51.<sup>54</sup> Defra made a commitment

In its announcement to go ahead with badger culling Defra made a commitment to provide funding that would halve the cost of training volunteers to vaccinate badgers.

## 8 Policy in Wales

The Welsh Assembly Government announced on 8 April 2008 that a TB eradication programme would be put in place:

A comprehensive plan of action to eradicate the infectious disease bovine TB in Wales was announced by Rural Affairs Minister Elin Jones today [Tuesday, 8 April]. The plan includes measures to test all cattle herds across Wales in order to measure the extent of the infection, to remove all sources of the infection on farms and to review the compensation system.

Bovine TB is having a devastating impact on the health and welfare of the national cattle herd in Wales. It is a disease that can be transmitted to humans and to and from other mammals. The incidence of TB has increased dramatically over the past decade with 7,905 cattle slaughtered in Wales because of the disease in 2007 compared with less than 700 in 1997. The cost of compensation in Wales has risen from £1.8m in 2000/01 financial year to £15.2m in 2007/08. On present trends by 2012 it could exceed £30m.<sup>55</sup>

The main measures put forward by the Minister involved removing sources of infection, including badgers:

### **Cattle Surveillance and Control**

A key step for the first year will be to establish an additional one-off test of all cattle herds across Wales in order to identify the extent of the infection and to remove diseased animals.[...]

### **Change compensation regime**

[..] By the end of 2008 plans will be published to amend the current system to ensure compensation arrangements encourage herd owners to comply with legal and best practice requirements.[...]

### **Identify and Remove all on-farm sources of infection**

Previous studies have already concluded that badgers are a wildlife reservoir of bovine TB in the UK and they are involved in the transmission of infection to cattle, and vice versa. The results of the Wales Badger Found Dead Survey were consistent with this, because they showed that levels of infection in badgers were highest in Gwent, Pembrokeshire and Carmarthenshire and other areas of high incidence of TB in cattle.<sup>56</sup>

The announcement also included details of a proposed pilot area where intensive culling would be carried out:

To take this forward we will prioritise the establishment of an intensive action pilot in an area which has been identified as a TB hotspot. No final decision has yet been made

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<sup>54</sup> Gloucestershire Wildlife Trust, [Nature Reserves Badger Vaccine Deployment Programme 2011](#), October 2011.

<sup>55</sup> Welsh Assembly Government Press Release, [Comprehensive Plan to eradicate bovine TB announced](#), 9 April 2008

<sup>56</sup> *ibid*

about a location capable of satisfying these criteria but I anticipate it would be in a defined high incidence area for the disease and subject to strict conditions. Additional areas would not be considered until the implementation and robust review and a proper evaluation of the cull and other measures in the intensive action pilot area has been undertaken.<sup>57</sup>

An area of north Pembrokeshire and small areas of Ceredigion and Carmarthenshire were designated as a pilot area for the new TB controls. The measures which were to come into force 1 May 2010 included the following:

- Cattle herd testing every six months;
- Two clear tests 60 days apart required after a positive test to regain official TB free status;
- All breakdowns will be subject to tracing and associated herds tested;
- Increased restrictions on cattle movements, and all movements to be reported and pre-movement testing carried out;
- Veterinary surgeons to visit farms to offer advice on biosecurity and preventing disease transfer;
- A limited badger cull within the pilot area;
- Penalties for farmers who do not comply with testing.<sup>58</sup>

Following a Court of Appeal ruling which halted the proposed cull the Welsh Assembly announced in September 2010 how it would be taking forward its plans by consulting on a new draft order:

Following consideration of the Court of Appeal's judgement, legal advice together with scientific and technical evidence, the Minister will consult on a draft Order that would allow the Welsh Assembly Government to pursue a badger control strategy in this specified area of west Wales.

Under the proposals, there would be an annual cull of badgers over a five year period. Based on the available evidence, at the end of a cull and post cull period (total of 10 years), through culling alone we expect to have reduced bovine TB in cattle in the area by approximately 22%, preventing an estimated 83 confirmed herd breakdowns that would otherwise have occurred in the absence of culling badgers in the area.

However, that is a conservative estimate. The additional surveillance and controls on cattle that the Assembly Government has already put in place in the Intensive Action Area are designed to generate further reductions.<sup>59</sup>

## 8.1 Welsh Vaccination Programme

The Labour Party won a majority in the Welsh Assembly in May 2011. Soon after this it made an announcement that proposals for badger culling would be suspended pending a review of the science. This was followed by an announcement in March 2012 by the Environment Minister, John Griffiths, of new [Strategic Framework for Bovine TB Eradication](#) and the cancellation of the proposed culling, which would be replaced by a badger vaccination programme:

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<sup>57</sup> *ibid*

<sup>58</sup> Welsh Government, [Strict cattle control measures come into force in west Wales pilot area](#), 29 April 2010

<sup>59</sup> Welsh Assembly Government, [New bovine TB Eradication proposals announced by Welsh Rural Affairs Minister](#), 20 September 2010

The Minister made his decision after considering the Science Review that he commissioned last summer, and other evidence and advice provided to him. The Minister also announced that he would not be implementing a cull of badgers within the Intensive Action Area.

Speaking in Plenary, the Minister set out the Government's challenging and progressive plans for dealing with bovine TB over the next four years. He said:

*"Bovine TB has a significant financial and social impact on farmers and the wider community in Wales. I have visited and spoken to a number of cattle farming families across Wales. I know from listening just how difficult it is and how the consequences of TB can be devastating.*

*"We have a Government commitment to take a science led approach to tackling this serious disease and I am personally committed to the eradication of bovine TB in Wales. "The Strategic Framework for Bovine TB Eradication that I am launching today acknowledges that we must deal with all sources of bovine TB, including wildlife, if we are going to achieve our goal of eradicating this debilitating disease. "I have considered a number of options including whether culling or vaccination of badgers are appropriate. After careful consideration I have decided to pursue a badger vaccination project within the Intensive Action Area."*

The Minister explained that he had asked his Chief Veterinary Officer to design a five year vaccination programme which would begin in the Intensive Action Area.

And

The Minister confirmed that the new Strategic Framework took a comprehensive approach, with proposed policy changes including improved management of long running and persistent TB Herd breakdowns, the pilot of an audit of TB testing, a voluntary scheme to share bovine TB breakdown data between neighbouring farms and an advisory service for farmers affected by the disease.

The Minister emphasised that TB eradication was a long term commitment that would require the application of new technologies and scientific developments as they became available. He had also asked the Chief Vet to convene a working group of experts to develop a cattle vaccinations strategy so that best use could be made of such a vaccination once it became available.<sup>60</sup>

The vaccination programme started in summer 2012 and is intended to be carried out annually for five years. The Welsh Assembly page on badgers includes a link to an [FAQ document](#). In a separate document on the [Intensive Action Area](#) the following summary of the expected effects of the programme were set out:

11. What effect does vaccination have on badgers?

Research has demonstrated that vaccination can reduce the severity and progression of TB in badgers that were experimentally infected with bovine TB after vaccination. BCG vaccination also reduced the amount of bacteria excreted in urine, faeces and other clinical samples. It is thought that such effects in the field are likely to translate into a reduced risk of transmission to cattle.

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<sup>60</sup> Welsh Government, [Environment Minister announces programme of badger vaccination](#), 20 March 2012

12. Does it fully protect all badgers that are vaccinated?

As with any vaccine, not all vaccinated individuals will be fully protected. However, laboratory studies indicated that in common with other species, BCG vaccination did significantly reduce the overall disease burden. A recent field study of wild badgers showed that of the badgers that tested negative for TB at the outset, those that were vaccinated had a lower incidence of positive responses to a blood test that we know is a good indicator of the extent and severity of TB infection when caught at a later date

14. Do you have to vaccinate every badger?

No. It is thought that if a significant proportion of the susceptible population (that is those that are not already infected with bovine TB) are able to benefit from the protective effects of the vaccine. This should reduce the weight of infection over time, and this is likely to have a consequent effect on cattle herd breakdowns. This is known as herd immunity and works on the principle that if a sufficient proportion of the badger population are protected from the disease it is less likely that an infected individual will come into contact with a susceptible individual, therefore, the disease is less likely to be passed on.

19. What is the point of vaccinating badgers in an endemic area?

Vaccinating the badgers that are not infected reduces the number of individuals that are susceptible to becoming infected. Even in an endemic area approximately 75% of badgers could be free from bovine TB. As more individuals receive protection from vaccination the prevalence of the disease in badgers should decrease. If fewer badgers are infected there should be a lower risk of transmission of TB from badgers to cattle.

## 9 Recent Developments

There have been several issues that have arisen most recently in the ongoing debate about the cull and its implementation. These are summarised below.

- The EU published a report on TB control measures in the UK in March 2012 which highlighted some of the weaknesses in the implementation of TB control measures in England and Wales:

While the approved eradication programme is broadly applied as described, the audit identified a number of potential weaknesses. These include numerous movement derogations, pre-movement test exemptions (including extended time intervals between testing and movement), the operation of "linked" holdings over large geographical areas, incomplete herd testing and the operation of specialist units under restriction, which lacked the necessary bio-security arrangements. Furthermore, despite efforts by the CA [Competent Authority] – some of their key targets could not be met in relation to the removal of reactors from breakdown herds and the instigation of epidemiological enquiries.

There is a fragmented system of controls, involving a number of responsible bodies. This combined with a lack of co-ordination (particularly with Local Authorities) makes it difficult to ensure that basic practices to prevent infection/spread of disease (such as effective cleaning and disinfection of vehicles and markets) are carried out in a satisfactory way.<sup>61</sup>

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<sup>61</sup> EU Commission, [Final Report Of An Audit Carried Out In The United Kingdom From 05 To 16 September 2011 In Order To Evaluate The Operation Of The Bovine Tuberculosis Eradication Programme](#), March 2012

The report also focused on measures to control TB in badgers:

Measures to prevent re-infection from other sources focus on the risk presented by wildlife (badgers). The CA maintains that the delay in implementing the proposed wildlife controls (i.e. a managed cull of badgers), which is a significant element of the approved eradication programme, remains the major obstacle to progress.<sup>62</sup>

The [full report](#), together with the Government response, is available on the Europa website.

- According to [Gloucestershire Against Badger Shooting](#), Tewkesbury County Council is reported to have rejected a proposal to allow badger culling on their land, whilst Gloucester County Council is reviewing its decision to allow culling. Their land lies within one of the culling areas.

Tewkesbury Borough Council voted by a 2:1 majority to reject the proposal to cull badgers on council land at their meeting on Monday 1st October. A motion had been put forward in favour of culling following their Overview and Scrutiny committee meeting in September, however, this was decisively rejected by the full Council following a lengthy debate. The vote follows the landslide 30/1 vote at the Forest of Dean to reject badger culling last Thursday, and Gloucestershire County Council's Overview and Scrutiny Committee's recommendation to review their policy of allowing farmers to cull badgers.

- [Stop the Cull](#) have stated their intention "to watch farms that are involved in the cull, to make sure that they are following correct bio-security and animal welfare laws". Their instructions to members include the following:

1. Wear a high viz jacket. (to stop yourself from getting shot!)
2. Have very bright torches so that you can film the cull and any possible legal wrong doing.
3. Use megaphones and or horns (again this is to stop people from shooting you, it is not to disrupt the cull)

- The [Badger Trust](#) is critical of the proposed cull but rejected threats by some organisations to disrupt it:

The country's leading badger conservation charity today publicly rejected the dual threat of extremism by activists and what it sees as state-backed vandalism –an unscientific, counter-productive badger slaughter.

As rumours mounted that a pilot cull of thousands of badgers could start within days in parts of Gloucestershire and Somerset, the Badger Trust said it was absolutely opposed to illegal action and threats of violence against farming families. But it also described the impending cull as Government backed vandalism which flies in the face of public opinion and overwhelming and utterly persuasive independent scientific opinion

- Professor Ian Boyd, Defra's chief scientific adviser, and Nigel Gibbens, the chief veterinary officer published [an article](#) in the Guardian on 11 October 2012, reiterating the case for a badger cull:

This application of what we have learned from careful scientific experimentation includes measures to counteract some of the problems that have been highlighted by those studies. Culling will only be permitted in areas sufficiently large that the impact of

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<sup>62</sup> [ibid](#)

any short term increased incidence of disease - from disruption to the badger population - is outweighed by the long-term benefit in the culled area. Farmers proposing to cull must also apply management measures to reduce the risk of spread of disease between badgers and cattle, and culled areas must be planned to reduce as much as possible the likelihood, or impact of, increased movement of badgers.

We have made it clear that these culls alone will not solve the problem of TB in cattle. There is no single solution and they represent part of a comprehensive package of measures that the government is taking to arrest the increase in new bovine TB cases.

- Professor Sir Patrick Bateson from the University of Cambridge and president of the Zoological Society of London published an [open letter](#) to the Government on 14 October signed by 30 scientists. The letter was critical of the proposed cull as planned and expressed concerns that it risked increasing cattle TB:

Bovine tuberculosis is a serious problem for UK farmers, deserving the highest standard of evidence-based management. The government's TB-control policy for England includes licensing farmers to cull badgers. As scientists with expertise in managing wildlife and wildlife diseases, we believe the complexities of TB transmission mean that licensed culling risks increasing cattle TB rather than reducing it.

Even if such increases do not materialise, the government predicts only limited benefits, insufficient to offset the costs for either farmers or taxpayers. Unfortunately, the imminent pilot culls are too small and too short term to measure the impacts of licensed culling on cattle TB before a wider roll-out of the approach. The necessarily stringent licensing conditions mean that many TB-affected areas of England will remain ineligible for such culling. We are concerned that badger culling risks becoming a costly distraction from nationwide TB control.

We recognise the importance of eradicating bovine TB and agree that this will require tackling the disease in badgers. Unfortunately, culling badgers as planned is very unlikely to contribute to TB eradication. We therefore urge the government to reconsider its strategy.

Ian Boyd and Nigel Gibbens' response to the letter, on behalf of the Government, was published in the Times. This stated that:

Government policy is based on sound analysis of 15 years of intensive research. Critics are not able to cite new scientific evidence or suggest an alternative workable solution for dealing quickly with this rising epidemic. Culling is just one of a range of measures the Government is taking to arrest the increase in new bovine TB cases, including intensifying testing to remove infected cattle, tighter cattle movement controls, guidance to farmers on stopping badgers on contacting cattle and further research in to vaccination.<sup>63</sup>

The letter also referred to a meeting that took place between several external contributors from the scientific communities in April 2011. Some of the published conclusions from the meeting were that a cull "as conducted in the [RTCB] trial resulted in an overall beneficial effect" compared to no cull areas and that "existing control measures will not be fully efficient without effective measures to address transmission between badgers and cattle".<sup>64</sup> However, there was no mention in the document of the free-shooting as a culling method or its effectiveness.

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<sup>63</sup> Letter to the Times, Badger Cull, 17 October 2012 p22

<sup>64</sup> Defra, [Bovine TB - Key conclusions from the meeting of scientific experts](#), 4 April 2011

- Two scientific papers on TB in cattle have received recent coverage in the press. A first paper on a potential TB DIVA (differentiation of infected from vaccinated animals) test for cattle was published in September 2012. It would allow vaccinated cattle to be distinguished from diseased cattle when they are TB tested. If proved effective there would still be a significant delay before test could be used as any TB vaccination of cattle in would require approval at EU level.<sup>65</sup>

A second paper published on cattle to cattle transmission in October 2012 indicates that there may be higher than previously thought hidden levels of TB in cattle herds, due to false negative testing results giving diseased cattle the all clear:

We estimate that in the worst case scenario up to 21% of herds may be harboring infection after they clear restrictions. However, we also estimate that there is a high rate of re-introduction of infection into herds, particularly in high incidence areas. Eliminating the hidden burden of infection alone is unlikely to be sufficient to prevent recurrent breakdowns. Rather, the high rate of external infection, both through cattle movements and environmental sources, must be addressed if recurrence is to be reduced.<sup>66</sup>

- The Guardian published an [article](#) on 18 October which stated that the cost of the cull may prove to be higher to farmers than originally estimated. This is because the number of badgers in the two trial areas is higher than the numbers used in the original estimate of cost, and according to reports farmers have to pay a fixed sum per badger shot.<sup>67</sup>

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<sup>65</sup> Whelan et al, [Development of a Skin Test for Bovine Tuberculosis for Differentiating Infected from Vaccinated Animals](#), J Clin Microbiol. 2010 September; 48(9): 3176–3181.

<sup>66</sup> University of Cambridge, [Scientists build a clearer picture of the spread of bovine tuberculosis](#), 18 October 2012

<sup>67</sup> The Guardian, [Cost of badger cull may force U-turn](#), 18 October 2012