Scapegoats: Badgers and Bovine TB

A Viva! report by Justin Kerswell, Campaigns Manager

(updated September 2014)

Bovine TB (bTB) is an infectious and contagious disease of cattle caused by the bacterium *Mycobacterium bovis*. Although the main reservoir and natural host of *M. bovis* is cattle, humans and a wide range of mammals, including badgers and deer, are susceptible to it. However, badgers are often – and wrongly – blamed for playing a large part in the spread of bTB in cattle and are under threat of mass 'culling' in parts of Britain.

Currently (September 2014), against continuing public and scientific opinion, badgers are once again being killed in two areas of England (Somerset and Gloucestershire) with a combination of cage trapping and shooting in the open (so-called free-shooting). This is the second year of six week trials to supposedly assess the 'effectiveness' and 'humaneness' of this method (of a proposed four year plan). This follows on from the disastrous trials in 2013 – which needed to be extended in both areas but still failed to satisfy the Government's own criteria and were widely condemned as costly failures. However, it has been suggested that should the policy be extended widespread 'culling' could last for the next 25 years (137).

In 2013, only 3 per cent of 1,800 carcases were checked to see if badgers had been shot 'humanely' according to a Freedom of Information request by Care for the Wild International (128). In September 2013, the Government's Chief Veterinary Officer, Nigel Gibbens, even admitted there was "no definitive criteria" for measuring how humane the current pilot operations would be (134). However, the IEP (Independent Expert Panel) set up to monitor the 'cull' eventually found that it failed its humaneness test, with between 7.4 per cent and 22.8 per cent of badgers still alive five minutes after being shot and were assumed to have experienced "marked pain" (142, 145).

The 2013 'cull' also failed the test of being able to kill enough badgers to meet criteria set by the Government. There was failure to kill at least 70 per cent of the local badgers within a six-week

period, with marksmen only managing to kill between 28 per cent and 48 per cent. Even though 'culling' periods were extended, the total number of badgers slaughtered rose to just 31-56 per cent. The Government was forced to admit that only 24 per cent of the badgers killed were by controlled shooting, which was precisely the method that the pilots were supposed to be testing – the rest were cage trapped (which is much more expensive) (148).

The Government's badger 2013 'culls' were branded an "epic failure" by Professor David Macdonald – the chief scientific adviser to Natural England (NE), the organisation that authorised them. He said: "It is hard to see how continuing this approach could be justified." (152) Ahead of the 'cull' the Government had been warned by many eminent scientists that the failure of farmer-led 'culling' risked worsening the problem it was intended to solve. And fail it did at every step. Yet it continues. (see Latest Position in England later in this report for more details)

It is worth keeping in mind that the term 'culling' in this context is actually misleading, as the vast majority of badgers killed will be healthy and free of the disease. The Independent Scientific Group (ISG) report– the largest ever study into the subject – concluded that killing them was not the answer to curbing bTB back in 2007.

As this Viva! report shows, the finger of blame for the current bTB outbreak in cattle should be squarely pointed at politicians (failed agricultural policy and self-serving agendas) and bad farming practices (overworked animals, bad biosecurity, mass cattle movements and even fraud).

Bovine TB and Cattle

bTB has been around for several hundred years and it is suggested that it became more prevalent in the UK because of increasingly intensive cattle breeding and farming from the 18th century onwards. It is believed that the middle to late 19th century was its peak – with as many as 80 per cent of cattle infected in some counties (117).

In the 1930s, 40 per cent of cattle were still infected in the UK – and approximately 50,000 people a year caught tuberculosis, contracted either through infected milk or close contact with infected cows (57). The subsequent pasteurisation of milk and compulsory slaughter of infected cattle greatly reduced the incidence (1).

bTB in cattle was all but wiped after the second world war because of a policy of slaughtering all cattle that tested positive, with herds essentially free of the disease by 1960. However, the current situation stems from the restocking of cattle herds from the southwest of England after the 2001 foot and mouth crisis. At the time, bTB tests were suspended; allowing the infection to spread unchecked.

Indeed, bTB in badgers has been caused by allowing it to spread in cattle – with the rapid restocking of cattle after the foot and mouth crisis the likely genesis of the current situation. James Wood, professor of farm animal science at Cambridge said in September 2013 that this current infection of badgers with a bovine disease had been accelerated by cattle movements. He stated: "When the first infected badger was found in 1971 it was entirely surprising. Now it is common." He reiterated: "The evidence suggests the reason bTB is now widespread among badgers is because they were infected by cattle" (129). Indeed, according to research by Professor Christl Donnelly, herd-to-herd transmission of bTB in cattle accounts for 94 per cent of cases (148).

There are currently around 9.8 million cattle in the UK (dairy and cattle farmed for beef) (51). Although bTB is rarely fatal in cattle, with signs of infection usually only appearing in advanced cases, it does lead to reduced milk yields, making it a particular concern for dairy farmers looking to maximise their profits (2).

Surprisingly, Defra has previously claimed not to know the breakdown of bTB incidence in cattle farmed for dairy vs. beef in the UK. However, a report by the AHVLA (Animal Health and Veterinary Laboratories Agency) in 2011 stated: "... incidence in Beef herds has consistently been less than half the incidence in live Dairy herds since 2003, and has shown a similar trend in

2011" (125). Peer-reviewed research from Spain, published in 2012, strengthens these findings by showing that dairy cattle are more than twice as likely to get bTB (from each other) as those farmed for beef. This research states: "Our results suggest that bTB spreads more rapidly in dairy herds compared to other herd types, a likely cause being management and demographic-related factors" (124). Further research has shown that cattle that are overworked to the point of immune compromise are more likely to become sick. There is no farmed animal in Britain worked harder than the modern dairy cow (see Cattle Husbandry section).

Incredibly, despite the Government saying that bTB is at epidemic proportions as late as 2012 less than half of England's cattle were tested annually for the disease – although it increased to just over 60 per cent in 2013 (110). Far from bTB being a runaway epidemic, the percentage of cattle tested/slaughtered has stayed constant between 0.4 – 0.6 per cent between 2001 and 2012 (111). Additionally, the latest Defra figures (comparing Jan-April 2012 to Jan-April 2014) show a marked reduction in cases, with the incidence rate shrinking from 4.4 per cent to 3.7 per cent (121). This reduction can only be attributed to improving biosecurity and tightening cattle movements.

In addition, despite the repeated epidemic claims, Defra has said that 88.5 per cent of English herds were not under cattle restrictions at any point in 2011. Even in the South West of England, where TB prevalence is at its highest, more than 75 per cent of herds do not currently face cattle movement restrictions (122).

Also, according to the Government, the number of cattle being slaughtered because of the disease is actually decreasing overall and all without killing badgers, with 32,620 cattle across Britain slaughtered because of the disease in 2013 (a 14 per cent reduction on 2012) (141), compared to over 39,000 killed in 2008 (100, 122).

Increased testing is showing a previously unknown reservoir in cattle and one that has clearly been the main driving force behind the spread of bTB for years – not badgers. This is further illustrated by the fact that 22 per cent of all new confirmed bTB case in cattle are first discovered at slaughterhouses, the animals having come from officially bTB-free herds (119). Many of these cattle will have been traded multiple times during their lifetime and it is this failing that will have had a massive impact on the spread of bTB across the UK.

Also, a sense of perspective is important: compare the figure of 32,620 cattle prematurely slaughtered because of bTB to approximately 90,000 dairy cows 'culled' annually due to mastitis (infection of the udder), 31,000 due to lameness and 125,000 due to infertility (4). The difference being that these animals are not compulsorily slaughtered, but are sent to the abattoir voluntarily by farmers as is it is not, in many cases, financially worth it to them to keep them alive. Defra – rather conveniently – no longer collects figures of mastitis, lameness and infertility (even though mastitis sends around three times as many cattle to slaughter as bTB and infertility almost four and half times as much). However, in written evidence submitted to the Environment, Food and Rural Affairs Committee in February 2013, Gloucestershire farmers DG & GE Purser claimed that the number of cattle slaughtered for bTB "is easily outnumbered by fallen stock and cattle slaughtered annually due to lameness, infertility, mastitis etc." (123).

Also, the figure of how many cattle are compulsorily slaughtered because of bTB is dwarfed by the 2,594,000 cattle that were slaughtered by the UK livestock industry in 2013 for their meat or when their milk productivity dropped (51).

Bovine TB and Badgers

There are less than 300,000 badgers in Britain. Although protected by laws to prevent badger baiting, licences can be granted by the Government for 'disease control' and 'research' reasons. It is believed that only between 11-15 per cent of the national population of badgers has bTB (101).

Despite the hysterical calls for the killing of badgers by politicians, the Government had to admit that a 16 per cent reduction in bTB is the best that could be achieved after 9 years of 'culling' 70 per cent of badgers. This 16 per cent is not even of bTB as a whole, but a reduction in the

number of new confirmed cattle herd bTB incidents across the ‘culled’ areas and adjacent ring over that period. Ultimately this is a derisory amount.

The reality is that it is likely to make things worse by pushing surviving badgers to new areas (known as perturbation) – although badgers tend not to roam over large distances unless disturbed and movement of infected cattle is the only reasonable cause for outbreaks any distance from bTB hotspots .

There are no plans to ‘cull’ badgers in Scotland (where bTB infection is low), but politicians in Northern Ireland have announced that a targeted ‘cull’ would happen there in 2015 (94, 106). However, in Wales, plans to ‘cull’ badgers were dropped in favour of vaccination of wildlife (a move announced in March 2012) (95). For more information see below.

Cattle farmers have long blamed badgers for the spread of bTB. In fact, research suggests there may be more reason to think that badgers catch bTB from cattle, possibly after feeding on larvae in cow pats left by infected cows. Whilst the bTB bacterium can survive in bodily excretions (see later), as it is essentially a condition that initially and primarily affects the lungs, it is spread mostly (as with human strains) through the exchange of respiratory secretions (coughing, sneezing etc). However, recent research the Royal Veterinary College has shown that direct contact between badgers and cattle does not happen often (whereas cattle-to-cattle interaction is commonplace – especially when they over-winter in sheds). Dr Julian Drewe, who led the study, said: "Our findings reveal that direct contacts between badgers and cattle at pasture are surprisingly rare, despite ample opportunity for interactions to occur, suggesting that the two species may be ignoring or even actively avoiding one another” (116). Further recent research, this time by Durham University, has said that a widespread ‘cull’ of badgers would have no impact on solving the problem of bTB in cattle. This research also says that bTB is just that – a disease of cattle that spills over into badgers – and in areas where bTB has been eradicated in cattle it quickly disappears from badgers (117).

However, since the mid-1970s tens of thousands of badgers have been killed in an attempt to control the disease. Despite this, post-mortem examinations revealed that more than 80 per cent of those badgers were disease-free and in some areas of high bTB incidences in cattle, no badgers were infected (5). A Defra survey from 2002 to 2004 found that six out of seven badgers killed on roads in areas of high infection were also free of the disease (6). Regardless, badgers are blamed for bTB outbreaks by farmers and are routinely scapegoated.

Already an estimated 50,000 badgers are killed on Britain's roads each year – around one sixth of the population (64). However, given that ‘culling’ is now underway in two areas there is growing evidence that some in other areas are taking matters into their own hands (and so the true numbers of badger casualties is difficult to gauge). Anecdotal evidence suggests that there has been an increase in badgers being illegally killed and dumped by the roadside to look like the victims of road traffic accidents. Official records released in 2013 show the number of people prosecuted for cruelty to badgers has almost doubled in five years – which likely means that much more badger cruelty has gone unreported. Undoubtedly, political and farming vilification of badgers has driven this illegal persecution, as MP Dianne Abbott says: "The problem is that some of campaigning on badger culling has given a green light to this kind attitude to our wildlife" (107).

Worries about the mass extermination of indigenous wildlife are growing. In 2011, one dairy farmer in Tiverton, Devon said, “If I had my way, every badger in the country would be sorted out” (73). In other words, badgers are seen as a ‘nuisance’ to be stamped out. So much for ‘the guardians of the countryside’.

The Latest Positions in Wales, England and Northern Ireland

Wales

In Wales, a change of Government in 2011 saw badger ‘culling’ pushed onto the back burner. A scientific review was commissioned and eventually made public in March 2012.

John Griffiths (then Minister for Environment and Sustainable Development) announced in the Welsh Assembly on the 20 March 2012 that he was rejecting the ‘culling’ policy of the previous administration and was commissioning a five year vaccination programme for badgers across the identified Intensive Action Area (IAA) (the area that had previously been earmarked for ‘culling’) (95). He said: “This is the right thing to do and the right course of action.” Other cattle and biosecurity measures were also announced.

In the first year of their badger vaccination project the Welsh Government successfully caught and vaccinated more than 1,400 badgers. This was followed by around 1,350 badgers in the second year, while provisional figures indicate that more than 1,000 badgers have been successfully vaccinated so far in 2014.

Badger vaccination rather than eradication has played a part – along with increased cattle controls – in significantly reducing bTB in Wales. Defra figures show new incidents of bTB in Wales fell by 18 per cent in the 12-month period to May this year. They also showed a 31 per cent decline in the number of cattle slaughtered in Wales as a result of bTB compared to the previous year. In addition, the numbers for the period between the months of February and May (2014) show new incidents of the disease were at their lowest level since 2008. All without killing badgers (144).

Previously, the last administration – orchestrated by Plaid Cymru’s Elin Jones – wanted to push ahead with a badger eradication policy despite the Appeal Court previously finding in favour of The Badger Trust and overturning plans to allow the Welsh Assembly to kill badgers. That ruling highlighted the fact that a 'cull' could only expect a maximum drop in the instances of the disease by a paltry 9 per cent (clearly showing that the main cause lies elsewhere) (70).

Predictably, the news that plans for a ‘cull’ had been dropped was met with anger by Elin Jones and several other opposition politicians. However, Ms Jones’ apparent sanctioning of farmers taking matters into their own hands was widely condemned and calls for her to face prosecution were widespread, but were ultimately unheeded (96).

Also somewhat predictably, ‘culling’ in England has renewed calls for a similar approach to be taken in Wales despite no-lethal methods achieving impressive results (127).

England

Regardless of the encouraging developments in Wales, the current coalition Government in England has pushed ahead with plans for second round of killing badgers in two parts of the country most affected by bTB (areas in Somerset and Gloucestershire). Dorset had been set up as reserve area, but it was confirmed that ‘culling’ would not take part in the county in 2014. As expected, anti-‘cull’ protestors in both areas said that they would resume their wounded badger patrols during ‘culling’.

The trials have resumed despite recent drops in the number of cattle being slaughtered and incidents of the disease, which suggests that cattle specific anti-bTB measures alone are working and 'culling' badgers should be dropped from the political agenda altogether.

The Government have also appeared to refuse to take into account fundamental flaws that came to light about reporting incidences of bTB. Since the end of the 2013 trials, Ministers revealed that there has been over-reporting of the incidence in herds under restriction and the incidence rate of bTB since September 2011. The Animal Health and Veterinary Laboratories stated that this is likely to result in the “significant downwards revision” of the data. Despite these anomalies the statistics have been a crucial part of the Government’s case for proceeding with the ‘culling’ of badgers in England in 2014 (148).

In 2013, 1,800 badgers were killed in the first round of pilot trials. Just under 1,000 are due to be killed in 2014 (142). Marksmen are shooting the badgers at night – in a repeat of last year’s unsuccessful (by the Government’s own terms) free shooting – after putting food such as peanuts outside their setts or cage trapping. Fewer badgers will be shot than in 2013 in a cynical attempt to meet artificially lower targets and claim that the trial has been a success.

Despite a brief glimmer of hope that new Environment Secretary Liz Truss (who replaced Owen Paterson in a cabinet reshuffle) would result in a u-turn in Government policy she reiterated unwavering Tory support for the policy. The Liberal Democrats have said they played a part in preventing the policy being rolled out in light of the disastrous IEP report (147). Labour have said they will abandon 'culling' if they win the next election (but have not ruled it out completely if there is scientific justification for it). Maria Eagle MP, Shadow Secretary of State for Environment, Food and Rural Affairs, said in August 2014: "All the evidence and expert advice that I have seen suggests that the most effective strategy will need to focus on badger vaccination and enhanced measures to address herd to herd transmission, including compulsory post-movement testing, a comprehensive risk-based trading system, and more robust bio-security on farms." It has been reported that Labour will implement a strategy for bTB reduction based on the Welsh model, which has reduced new incidents of the disease by 48 per cent in the past five years by implementing cattle-based measures, with no badger 'culling' (151).

Public scrutiny will be even less this year as Defra has jettisoned independent monitoring (despite the IEP making this one of its recommendations) (145). The Badger Trust challenged this year's 'culls' on this basis but their judicial review failed in August 2014 (although an appeal has been granted) (146). Defra has denied this saying that the 'culls' would be independently monitored in 2014; instead experts from Natural England and the Animal Health Veterinary Laboratory Agency will do so. In other words Government employees. Rosie Woodroffe, Senior Research Fellow at the Institute of Zoology, has been highly critical of this decision: "Choosing - against formal expert advice - to collect inconsistent, inadequate and potentially biased data is an insult to evidence-based policymaking" (145).

In September 2014, the Government announced a scheme to vaccinate badgers against bTB in areas where infection is currently low in order to stop it spreading. Areas identified for vaccination include Cheshire, Derbyshire, Nottinghamshire, Leicestershire, Warwickshire, Northamptonshire, Buckinghamshire, Oxfordshire, Berkshire, Hampshire and East Sussex. Whilst it is positive that some badgers will get protection against bTB it is important to remember that it is likely – through perturbation and cattle movements – that the disease will be spread to new areas. That perturbation (displacement) will largely be caused by the very 'culls' that the Government has authorised. The Government has said it will fund only 50 per cent of the vaccination, which means that uptake could be patchy and many landowners might feel disgruntled at having to pay to clean up a mess caused by Government policy and NFU belligerence (149).

Fears for human safety were raised just ahead the commencement of the 'cull', in September 2014, when police in Gloucestershire said that the force would not be held accountable for public safety. They said safety and legal responsibility lies firmly with 'cull' operators. This may, of course, be a reflection on the huge cost – both financially and in police hours – that were accrued during the 'culls' in 2013.

Northern Ireland

Despite previously ruling out a badger 'cull' in Northern Ireland, Agriculture Minister Michelle O'Neill has been under increasing pressure by the Ulster Farmer's Union (UFU) to introduce a policy of badger eradication. She has confirmed that controlling the disease is a 'key priority' for DARD (Department of Agriculture and Rural Development). She has previously committed £4 million into projects looking at potential links between bTB and wildlife (95).

In February 2013 it was announced that a selective 'cull' of badgers would happen in Northern Ireland in an area of 100sqm. The five-year project in Co Down started in May. In 2014, all captured badgers will be identified, assessed, sampled and vaccinated. In 2015, all captured badgers that are bTB test negative will be vaccinated and released, while those testing positive will be killed. In addition, up to 40 badgers will have GPS collars fitted so that their movement can be recorded and analysed. (106, 154). However, concern was raised that this approach could paradoxically spread the disease. New research published in the journal Proceedings of the National Academy of Sciences (PNAS) warned that small-scale, selective 'culling' being

piloted in Northern Ireland could have a similar effect to the large-scale ‘culls’ in England in displacing badger populations (155).

This new ‘cull’ is despite the ‘Four Areas Trial’, which ran from 1997 to 2002, concluding in 2005 that "... the widespread removal of badgers was not considered a viable strategy for long-term control of bTB" (62). Despite no badgers having yet being killed under official sanction in Northern Ireland, as Ms O'Neill has acknowledged, the annual herd incidence has almost halved, from nearly 10 per cent in 2002 to just over 5 per cent on 30 September 2011 (97). The latest figures (2013) from DARD show that – after a small spike last year – bTB figures are falling significantly again – and all without killing badgers (126, 155).

This reduction has been achieved by cattle measures alone. However, it has been suggested that there is still much room for improvement in this area. Victoria Magreehan, Strategic Development Director with the Ulster Wildlife Trust said in March 2012: "We understand that a senior DARD vet has criticised the general level of biosecurity on farms in NI as ‘not something to be particularly proud of’, and echoes the need for more work to be done double fencing perimeter fences and making livestock housing inaccessible to badgers to help prevent transmission of bTB."

As with other parts of the UK, there are fears that some are taking the law into their own hands – and may inadvertently be causing the disease to spread by illegal badger killing, causing a perturbation effect. The Ulster Society Prevention of Cruelty to Animals (USPCA) recently published a report of their findings after a two year long investigation into badger baiting in Northern Ireland. They said that they were “…shocked by the scale of organised badger persecution [that they had] uncovered in Northern Ireland.” The USPCA’s chief executive, Stephen Philpott said: “You’re talking about a huge number of setts being targeted right across Northern Ireland week in, week out”. The group also said that some farmers were at the very least turning a blind eye to the activity on their land (99).

[Also see ‘bTB Fraud: A Dirty Business’ below for claims that some farmers in Northern Ireland have been purposefully infecting cattle for compensation]

[Also see ‘Badger ‘culling’: a recent history’ below]

Disingenuous concern?

There has been an increase in calls to implement a 'cull' to 'end the suffering of badgers' infected with bTB, despite the fact badgers with bTB can live a number of years without displaying clinical symptoms. The Badger Trust said that there was no scientific proof that bTB caused unbearable suffering in badgers and accused pro-'cull' groups of trying to influence the public into thinking that a 'cull' would be in the badgers' best interest (49).

Damaging Biodiversity

Little thought has seemingly been given to the removal of one species from a delicate ecosystem. Dr Dan Forman from the Conservation Ecology Research Team of Swansea University, in a letter to Elin Jones in May 2010, said: "It has been well established over several decades of research that habitats are incredibly fragile and that removal of top predators can cause a huge shift in the ecology and stability of ecosystems that can directly reduce species diversity" (66). In other words, we mess with wildlife at our peril. A policy to reduce biodiversity is especially at odds with global efforts to preserve it.

Particularly scurrilous are the attempts to try and deflect criticism away from ‘culling’ badgers by claiming that removing them will help other wildlife – such as songbirds and hedgehogs – thrive. In a letter to the *Daily Telegraph* (April 29, 2013) David Williams, Chairman, Badger Trust challenges these assertions:

“[badgers are] … comparatively cumbersome and ill-equipped to hunt; they are primarily diggers and are not “known” to catch and kill small birds and other mammals. As opportunist omnivores

they will of course take carrion, immobile fledglings and eggs of ground-nesting birds – hence the stomach contents referred to in the article. Until the agricultural revolution of the last half century the badger had lived in equilibrium for hundreds of thousands of years alongside birds, hedgehogs and the rest of its so-called prey species."

Mr Williams also points out the irony that trampling and even predation by cattle could be a significant factor for nest damage. He concludes: "But what industry other than agriculture could persuade a government to inflict such a policy with such small and transient benefits – if any? Bovine tuberculosis remained almost eradicated for two decades from 1970 until a reckless cattle industry brought economic disaster upon itself through stubborn resistance to cattle control measures and carelessness about biosecurity."

Non-violent approaches

The rush to slaughter ignores new, non-lethal solutions. An injectable badger vaccine was scheduled to be trialled in England throughout 2010, but the coalition scaled back plans in June of that year. Out of the six planned trials only one survived in Stroud, Gloucestershire, where badgers are being trapped and injected with the BCG vaccine over a period of five years (76).

This reduction in funding to alternatives is especially short-sighted as, in November 2010, Defra research showed the outcome of some trials that showed that vaccinating wild badgers over four years resulted in a 74 per cent reduction in the proportion testing positive to the antibody blood test for bTB (72). As natural prevalence of bTB is just 15 per cent then widespread vaccination could be of significant benefit. Especially as there is an annual turnover of badgers of around 30 per cent (badgers have a life span of 3-5 years). Theoretically, the number of infected badgers would decrease each year and new infections would be rare (101).

Additionally, laboratory studies with captive badgers demonstrated that the vaccination of badgers by injection with BCG significantly reduced the progression, severity and excretion of Mycobacterium bovis infection. This seems to strongly support the claim that vaccination alone could reduce bTB infection in badgers by a significant amount (in the same time period of 4-5 years that has been suggested for 'culling'). It would not lead to perturbation and would also be cheaper than the Government's current plans (see The Cost Section).

As it stands, despite the findings, this Defra study concludes that vaccination should take place alongside badger 'culling', which appears to go starkly against the results of these trials which show that non-lethal approaches will be enough to protect badgers from the disease.

There is now confusion about both an oral vaccine for badgers (which is being developed in the Republic of Ireland and New Zealand) and a cattle vaccine, with some reports suggesting that an oral vaccine for badgers could be ten years away – or available as soon as 2015 (101).

The real reason why an injectable vaccine is unlikely to be used in a widespread way in England is that the Government deems it too expensive to implement (although it is being used in Wales and is likely to be cheaper than current plans. See The Cost). This shouldn't overshadow the fact that badgers are not a major vector for bTB, but is being put forward by the Government as an excuse to push ahead with a 'cull'.

A 2009 Defra report – *Options for vaccinating cattle against bovine tuberculosis* – admitted that a cattle vaccine would not be a cure-all, but did say that it: "… has potential benefits to reduce prevalence, incidence and spread of bTB in the cattle population" (63). Recent research into the efficacy of a cattle vaccine against bTB in trials in Ethiopia and Mexico have demonstrated the protective effect between 56 per cent and 68 per cent (101). It should also not be forgotten that although cattle have a natural lifespan of approximately 25 years they are killed much earlier than that (for beef at 1-2.5 years and dairy at 5-10 years). This means that a cattle vaccine would have a positive cumulative effect over a relatively short period of time.

A cattle vaccine would be a sensible approach, as bTB is a cattle disease and cattle remain by far and away the largest vector (or carrier), for the disease. Surprisingly, there appears to be little support within the farming lobby for a cattle vaccine – probably because it may inconvenience

them financially. Presumably, Britain could implement cattle vaccination unilaterally but, as the situation stands, the EU would not accept milk from cattle that have been vaccinated (which is ironic considering that pasteurised milk from infected, but not detected, cattle is almost certainly currently being traded with the EU). It would also prevent the trade in beef (although Britain actually imports more beef products than it exports according to Defra figures) (132). Also, a vaccinated cow is indistinguishable from a cow with bTB when tested, so it would stop the trade in live cattle under current rules. In 2012, 38,000 live cattle were exported to the EU – mostly to the Republic of Ireland and Spain (133). It is also worth noting that Defra's current testing regime costs around £90 million a year – yet the live export trade has never been worth more that £3.3 million since the lifting of the BSE export ban in 1998 (87).

However, in parallel with developing bTB vaccines, AHVLA (Animal Health and the Veterinary Laboratories Agency) is currently developing a test to differentiate infected from vaccinated animals (the so-called DIVA test). This test, based on the gamma interferon blood test, can be used alongside the tuberculin skin test in vaccinated animals to confirm whether a skin test positive result is caused by vaccination or bTB infection (102). Although Defra claims to be working towards this, publically there appears to be little momentum – and the farming unions are clearly fixated on badgers.

Further limits on cattle movements, tighter on-farm biosecurity and improved testing would help curb the spread of bTB greatly.

Approaches abroad

New Zealand

The insistence on targeting wildlife is based on other eradication programmes overseas. This includes New Zealand, where the non-native Australian possum has been blamed for the spread of bTB – although only two per cent of New Zealand possums have the disease (52).

New Zealand controversially uses poisons including the indiscriminate 1080 (sodium fluoroacetate), which is fatal to most animal life and is dropped from helicopters into areas of high bTB prevalence. This practice has been widely criticised by those living in these areas, as well as the tourism sector which feels that it is being ignored in favour of the dairy and beef industries (53). Once an area has been decimated of possums, it is put into 'maintenance mode' – meaning that less than 30 per cent of the numbers of the original population remain. Even then, the Government there has admitted that very few areas are now bTB-free (54).

It is dangerous to model any eradication scheme on what has been done in other countries. It is stated that cattle have a tendency to lick sick possums (55), but there is no evidence that such contact happens between badgers and cattle in the UK. The scorched earth policy in New Zealand, if repeated here, would mean that badgers would be wiped out in large areas – and this imbalance would have to be maintained in the long term. In essence, the UK has a choice between removing indigenous wild animals almost completely, or tackling the livestock industry which is at the heart of the problem. The final irony is that New Zealand is moving away from 'culling' and moving towards vaccination of wildlife – just at a time when England is moving in the opposite direction.

The Republic of Ireland

Increasingly, the Republic of Ireland's (ROI) bTB policy is being held up as a beacon of good practice by pro-'cull' politicians and farmers in England.

Whilst it is certainly true that incidences of bTB have reduced in ROI (at least on paper), questions have been raised about the validity and accuracy of those figures. Accusations have also arisen regarding farmer and vet fraud (leading to marked increase to cases of bTB in 1998). A former practising vet in Donegal has questioned official figures. He suggests that there has been a potential cover-up to hide widespread perturbation in Ireland (115). Which, if true, would

make the UK Government and the English NFU's trumpeting about the ROI's figures even more ludicrous.

Research has also shown that badgers in England and the ROI are different in a number of ways, both in behaviour (most significantly their movement) and diet. It is also worth noting that in ROI every herd is required to undergo a once yearly bTB test, but in England the frequency varies from one to four years.

In other words, there are fundamental differences between the two countries enough to make basing English policy on the ROI foolhardy at best and disastrous at worst.

It is estimated that there are around 60,000 badgers in the ROI (112). Badgers were first identified as being 'hosts' of bovine TB in 1974 (113). As part of the Government's bTB eradication scheme there, badgers have been 'culled' since the 1980's; with around 115,000 badgers 'officially' killed since 1984 (112). The method currently used is snaring and shooting. 6,000 snares are set across the ROI nightly (112). Up to 80 per cent of the badgers killed were free of the disease (114). When you dig below the figures the brutal badger eradication programme in ROI has actually yielded remarkably little results compared to the bloodshed caused. In 2012, some 6,900 badgers were killed (which cost in the region of £3.4 million) – yet bTB reactors (cattle that give a test result consistent with their being affected with bTB) in cattle reduced by just 55.

Whilst there has been some public outcry (orchestrated mostly by Badgerwatch and the Irish Wildlife Trust) in the ROI over badger 'culling' it has been surprisingly muted.

The Irish Wildlife Trust say on their website that *"… years of negative propaganda and our economic reliance on export beef has relegated our Irish badgers to near 'vermin' status in the public eye. Farming is critical to Ireland and its economic future but farming groups have become very powerful and their voice very strong in the corridors of power. The inexorable drive for higher yields and increased profits has put our wildlife and habitats on the back-foot as the intensity of farming increases"* (112).

A 2012 review by Teagasc (The Irish Agriculture and Food Development Authority) of the ecology of badgers in the ROI found significant differences to those in England. Irish badgers are less reliant on earthworms as a staple food. Dr Gráinne Cleary of Trinity College Dublin concluded that "… this feeding behaviour is more similar to that of badgers in Italy and Spain than to badgers in England" (and they theorise that badgers could have even colonised Ireland through land exposed in the Ice Age). Irish badger groups are smaller (3.9 compared with Britain's 5.9). These smaller groups favour setts in hedgerows as opposed to British badgers that tend to create larger setts within tree roots. The report also says that Irish badgers move around more than their British counterparts, their social groups are more fluid and female reproductive cycles have a different timing. It also states that Irish setts are illegally disturbed more often in Ireland than Britain (113).

bTB Fraud: A Dirty Business

A 2009 report by Northern Ireland Audit Office made clear the suspicion that there might be widespread fraud for claims for bTB compensation (62). With compensation at sometimes 100 per cent the market value, it raises the question whether cattle herds might purposefully be put in contact with bTB for considerable financial returns. In fact the report stated that, "... the inherent risk of fraudulent claims is clearly very high".

This raises the question of whether fraud takes place elsewhere in the UK. In other words, it raises a potential concern that cattle may be deliberately infected for compensation. This suspicion was given credence in 2011 when it emerged that some British farmers had been illegally swapping cattle eartags in order to retain highly productive bTB reactors (77).

The evidence, gathered during a regional slaughterhouse survey undertaken by Gloucestershire Trading Standards, was so damning that it spurred Defra's then minister Jim Paice into urgent

action so that DNA tags would be inserted in the ear of cattle that test positive for bTB at the time of the test. Additional investigations are now taking place in other counties, and the problem could be widespread. The British Veterinary Association admitted that “[it put] … the national bTB eradication strategies at risk”. It also poses the question of how a badger ‘cull’ can be justified in light of this wholesale failure of the industry to manage itself.

Cattle Movements and testing

In 1990, there were 173 recorded outbreaks of bTB in cattle herds but by 2007, that had increased to 2,229 with 27,598 individual cattle slaughtered (3). This followed the rapid re-stocking of farms after the 2001 foot and mouth disease (FMD) epidemic. Under EU regulations cattle must be routinely tested for bTB, with infected animals slaughtered and movement restrictions placed on the farms. During the 2001 FMD outbreak, most bTB testing was suspended and in breach of EU regulations, Defra failed to impose movement restrictions on those herds not tested (10).

Despite several highly-contagious diseases among UK cattle, 40 per cent of all British cattle are moved annually; with over 14 million cattle movements take place every year as farmers buy and sell stock. The UK has more movement of cattle than any other country in the EU. Closely mirroring the historical rise in bTB cases is the rise in cattle movements, with 480,294 more cattle moved in 2010 than 2009 (39). Cattle movements have more than quadrupled between 1999 (3,373,646) and 2010 (13,690,294) and have involved over 127 million animals since 1998 (39) (101) (Note: Defra have failed to publish so far any newer figures at time of writing). Again, the figure that 22 per cent of all new bTB cases are discovered at time of slaughter in animals from officially disease-free herds it is unbelievable that cattle movements on such a scale are allowed at all whilst tests remain so unreliable (119).

The ISG report also made clear that present methods of control – surveillance, testing and slaughter – are not working. The evidence shows that tests are highly inaccurate, missing around one third of all infected animals, leaving them to re-infect other cattle (35). The report went on to say that better farming practices and not 'culling' were likely to reverse the increase in bTB (25). Even former Defra Minister, Ben Bradshaw, highlighted the near irrelevance of badger slaughter by admitting that 80 per cent of bTB outbreaks are caused by cattle (11).

Using Defra figures for 2009 a report by Rethink TB showed just how badly things were going wrong and how the ‘skin test’ was compromised by shortcomings. Their analysis showed that 1 in 5 cattle were incorrectly identified as being reactors when they were in fact free of the disease (and so were killed and compensation paid to the farmer) (it was 1 in 6 in Wales and a staggering 2 out of every 3 in Scotland). Even more worryingly, the ‘skin test’ missed 1 in 5 reactors (leaving them free to infect other cattle) (103).

Movement of cattle in the periods between routine herd bTB tests has long been recognised as a cause of new infections, even in relatively disease-free areas.

Bad biosecurity

As with any disease, all it takes is one host for it to spread. An infected animal at market could infect others and spread the infection exponentially to other herds and farms. Whilst bTB is often spread via breath-to-breath contact between an infected animal and a non-infected one, bad biosecurity also plays a role in spreading bTB.

Infected material can be spread from farm-to-farm with alarming ease if biosecurity measures are relaxed (or not observed at all). A risk may be small, but all it takes is one spark to set the whole herd ablaze with bTB.

Compensation pay-outs to farmers are the same for those that employ good biosecurity as to those who do not. In other words there is little incentive – and without making it a legal requirement to undertake certain biosecurity measures many farmers will simply not do so.

Hence the vicious cycle of bTB infection in cattle – and once again the fault lays with farmers, weak Government and legal loopholes not badgers.

Defra and the NFU currently offers this non-mandatory advice to farmers: “Cleansing and disinfection (C&D) is an important disease control measure and may help reduce the risk of infection spreading to other cattle or to other susceptible animals on your farm. Under certain conditions, M. bovis can survive in the environment for a long time, so it is good practice, and will be a requirement under notice, served by Animal Health, to cleanse and disinfect thoroughly all buildings where reactor cattle have been kept. It is particularly important to clean and disinfect any fittings or equipment that may have come into contact with sputum, faeces or milk from TB reactors” (88).

Despite this advice "a catalogue of failures" were uncovered in September 2011 by an official European Commission inspection into how England's farmers prevent their cattle spreading TB between herds. They found numerous "shortcomings", which included missed targets on both the rapid removal of cattle with bTB and the follow-up of missed tests. Also, a "weaknesses in cleaning and disinfection at farm, vehicle, market and slaughterhouse levels, exacerbated by lack of adequate supervision". All of which can increase the risk of spreading bTB to both cattle and wildlife (120).

The bTB bacterium may only be infectious on pasture for a few days (but potentially more depending on the weather) but it can remain infectious in cattle faeces for up to 2 months in the summer and 6 months in the winter (138, 15, 22, 89). It can remain infectious in soil for over 12 weeks (90). Incredibly, it is not illegal to spread slurry from cows that are under movement restrictions on a farmer’s own land. Indeed, Defra merely tells farmers that they: “… should consider the risk of spreading the disease to other stock or wildlife”. Stored slurry can be infective for 6 months (138) and whilst Animal Health suggest slurry is not used before that time it does not appear that it is illegal to do so. Research also shows that bTB bacterium would not be destroyed by anaerobic digestion, which is becoming increasingly popular (138). This means that slurry containing bTB bacterium could become a vector for spreading the disease not only to badgers but other cattle. Research from Northern Ireland, from 2011 and 2014, has suggested that excrement could aerosolise (i.e become dust particles) which could be breathed in by animals and further facilitate bTB spread (91, 138). Slurry can also run off into waterways – and the bTB bacterium can remain active in water for up to 58 days (88) – meaning that cross contamination to neighbouring herds and wildlife could be a potential vector. One 2013 study in Northern Ireland showed that there was a higher risk of bTB associated with the use of slurry contractors: “The authors concluded, with few contractors washing and disinfecting their equipment after use, the potential of M. bovis spreading between farms and possibly even the establishment of a wildlife reservoir appears to be plausible” (140). This raises an even greater concern: what of the milk containers and animal transporters that visit multiple farms on a regular basis? If slurry contractors are implicated in spreading bTB what role do they play and why has this not been looked at in detail?

Also, what better way of churning up infected soil and acting as a giant muck-spreader than 20 horses and 40 dogs crossing large swathes of land? In January 2012, Viva! identified hunting with dogs as a potential vector for the spread of bTB following grudging admittance that it could be by Wales’ Chief Vet Dr Christianne Glossop. Even though hunting foxes with hounds has ostensibly been banned, there are still around 172 trail and drag hunts across England and Wales. The areas with more hunting (the South and Southwest of England and Wales) also have the highest incidence of bTB. Coincidence? Hunting was banned during the Foot and Mouth crisis in 2000-2001, but the Government has admitted that it has not even considered it as a vector this time – and has failed to answer questions about what controls are in place to prevent hunts from crossing areas that are under restriction. In other words there may be none. Read more on the potential link between hunting and the spread of bTB.

Lax biosecurity at markets was also highlighted by an investigation by Viva! at three cattle markets in Wales in 2011. Despite the danger of spreading bTB via footwear only 3 per cent of visitors to one market dipped their feet in the provided disinfectant foot dip, despite having to walk across animal run areas that would have undoubtedly been awash with urine and faeces.

Unbelievably, our concerns were dismissed by the authorities because there was not the legal framework to ensure that visitors observed good biosecurity because the law had been relaxed in 2010 to remove red tape for farmers. Quite how spending two seconds to dip feet is considered cumbersome is anyone's guess. You can read more and watch our damning footage at www.viva.org.uk/campaigns/badgers/biosecurity.html.

The Cost

The farming lobby has long decried the financial costs of the bTB epidemic, yet they are compensated for every animal that is slaughtered – up to £1,924 for dairy cows and up to £3,755 for beef cattle (32). There is also growing evidence that a 'cull' of badgers – quite apart from the welfare implications and futility of its aims – would be difficult to conduct and could cost more than triple the supposed savings to the industry. In other words, it would be a colossal waste of money.

In 2007, Defra research concluded that "... no method of badger culling gave a certainty, or even a high probability, of a net economic benefit over 15 years" – this despite simulating 'culling' in areas up to 400km^2.

The assertion that better biosecurity on farms would be a more cost-effective way of tackling bTB was born out by experiments undertaken by The Central Science Laboratory in York between 2005 and 2009. They concluded that, on average, a farmer could keep badgers apart from cattle with better biosecurity for just over £4,000 (compared to the average herd breakdown of around £30,000) (101). Considering that there are around 14,500 dairy farms in the UK, the cost of these improvements would be in the region of £58 million if all were done – but considerably less if only areas where there was high TB incidence (and a buffer zone around them). Although it sounds like a lot of money – and it is – it is certainly a lot less than the projected £1 billion that the Government says that bTB will cost the British economy over the next decade.

A 2010 survey by Imperial College London and the Zoological Society of London found managing badger populations to stop them spreading bTB to cattle cost more than the impact of the disease (43). Professor Christl Donnelly, senior author of the study from the MRC Centre for Outbreak Analysis and Modelling at Imperial College London, said any supposed benefits of 'culling' vanished after four years – and the cost of 'culling' badgers was up to three times as much as the potential savings to the industry (59). She went on to say: "I would suggest people seriously consider badger vaccination over a long period". Lord Krebs, who initiated the original badger trials, also expressed similar opinions on the cost-effectiveness – or lack of – of badger 'culling' (41).

The coalition Government has now side-stepped the issue by pushing the cost onto English farmers themselves. Despite this, there are likely to be considerable costs that will be picked up by the tax payer, including policing and increased compensation to farmers by initial herd breakdowns caused by the perturbation effect once the 'culling' of badgers gets under way (101).

The total cost of policing the badger 'cull' pilot areas in 2013 was confirmed as nearly £2.5m – or about £1,311 per badger. In Gloucestershire, police and crime commissioner (PCC) Martin Surl tweeted the cost as "around £1.7m", while Avon and Somerset chief constable Nick Gargan said its costs were £738,985 (150).

Previous plans in Wales estimated the cost of 'culling' to be at least £10 million. This was with a projected 'cull' number of 1,500 over five years; which translates to costing a staggering £6,666 per badger.

In 2010, Paul and David Torgerson argued in the journal *Trends in Microbiology* that bTB is a negligible health risk to humans in the UK, providing that milk is pasteurised – the process which cut infection in humans drastically since the height of infection in the 1930s (58). They said that cow to human infection was extremely rare. Therefore, the cost of a bTB eradication programme in the UK was of no benefit to society and was a huge waste of money. Indeed, they even argued that eradication showed little evidence of a positive cost benefit to the livestock industry.

A rarely talked about cost would be that to tourism in areas where badgers are being hunted and killed. Tourism to the South West is worth over three times as much as the dairy industry is to the whole of the UK economy (see Viva! media release for more details). A dip in tourism to these areas is almost inevitable during periods of badger 'culling', but this cost has not been acknowledged by the Government.

In March 2012, The Conservative think tank the Bow Group published a report calling on the coalition to abandon plans to 'cull' badgers in favour of vaccination. The report's findings show that 'culling' had associated costs of an average of £51 per hectare, whereas vaccination alone would cost around £34 per hectare. It also found that 81 per cent of the public were against badger 'culling'.

The bottom line is that vaccinating badgers would be cheaper and much more effective.

Cattle Husbandry

The demand for badgers to be killed has diverted attention away from the many serious health problems faced by intensively-reared cattle – pneumonia, *E. coli*, coccidiosis (fatal diarrhoea), salmonella and mastitis. They are all increasing and are attributed to 'poor nutrition', 'poor management' and 'poor welfare' by the Government's 1997 Animal Health Report (12). Similar considerations must apply to the spread of bTB.

Disease does not solely result from contact with a pathogen but also from an animal's inability to combat that pathogen. Stress reduces the body's ability to fight disease and intensive farming produces animals who are physically and mentally stressed – none more so than the modern dairy cow (65).

High stocking densities increase stress, as do high milk yields and both have increased dramatically over the last 30 years. According to the dairy industry's own figures, the average British cow now produces 1,187 litres more milk a year than they did than even a decade ago (118). For the modern, high-yield Holstein Milk cow the yield has gone up from an average of 3,700 litres annually to 8-10,000 (16). Forced to give birth to a calf every year in order to keep this enormous milk supply going, dairy cows spend seven months out of every year simultaneously pregnant and producing large quantities of milk.

This crushing double burden results in a quarter of the national dairy herd being killed every year – physically exhausted at only four to five years old when they could naturally live to be at least 20 (17). On top of this immense physical stress, dairy cows also suffer the repeated emotional trauma of having their new-born calves torn away from them within 48 hours of birth. An unbearable anguish that would take its toll on any mother.

Although dairy cows graze outdoors from April to October, for the remaining six months of the year they are confined in indoor cubicles (18). The overcrowded, unsanitary conditions and high humidity lead to high levels of lameness and mastitis. It is also an ideal environment for transmission of bTB; the Irish bTB study confirms this (15).

Cows who once grazed mainly on grass are now also fed concentrated, high-protein feeds such as soya and maize to increase their milk yields, typically forming 30-50 per cent of their diet. This seems to affect their health as grain-fed cattle can have *100 times* more *E. coli* 0157:H7 in their gut, for example (19). This, combined with a fall in the nutritional quality of animal feed, appears to have reduced their ability to fight disease. The lack of genetic diversity in modern farmed animals also plays a part (12).

Badger 'culling': a recent history

In 1998, the Independent Scientific Group on bTB (ISG) was formed after a report by Sir John Krebs (Oxford University) which claimed there may be a case for badger 'culling'. However, Krebs was clearly not sold on the idea even then, as he said in his 1997 report that: "The best prospect for control of TB in the British herd is to develop a cattle vaccine" (48). The ISG's

investigation included the Randomised Badger Culling Trial (RBCT), costing £34 million and taking 12,000 badgers' lives (24). The report was published in 2007 (25) and ISG chairman, Professor John Bourne (Animal Health, University of Bristol), reported that: "badger culling cannot meaningfully contribute to the control of bTB in Britain".

The report also found that 'culling' would increase the spread of the disease as surviving badgers would wander outside their normal range after their social group had been destroyed. bTB infections in cattle increased by 27 per cent after the 'cull' in areas where badgers were the main suspects (27). This finding has continued to be supported by the research done into badger behaviour at the Government's badger research centre near Stonehouse, Gloucestershire, where tracking and testing of badgers has continued since the mid-1970s. The head researcher there is adamant ‘culling’ badgers will make bTB worse and that farmers need to start backing the vaccination programme (67).

At the time, the Government's Agriculture Committee believed that cattle movements and husbandry played a much greater role in the spread of the disease than infected wildlife (7, 8). The ISG also identified herd size and cattle movements as having "particular relevance" and that cattle-to-cattle transmission was the "main cause of disease spread to new areas" (25). Average herd size has more than doubled to 107 since bTB was at its lowest in the 1970s and the ISG recognised that infections increase with larger herds (25).

The same year, Bourne's categorical findings were challenged by the Government's Chief Scientific Advisor, Sir David King, who rushed out his own report within months, urging a 'cull' (41). The King report was smaller, had fewer experts – and only met for a single day. Bourne and *Nature*, a leading science journal, heavily criticised the King report as "hastily written", "superficial", riddled with "small mistakes" and appeared to have been "written to please the farmers" (26). The result is that it gave the Government an excuse to instigate a 'cull' should they want to appease farmers who still clamoured for one.

Lords Krebs, who founded the original badger 'cull' trials, was also highly critical of the King report. He has stated that simple measures such as improved cattle testing and keeping badgers and cattle apart would cost less than a 'cull' and are "as likely to work". He also expressed concern that a badger 'cull' across the UK could kill at least 170,000 animals – more than half the UK population (41).

In July 2008, Environment Secretary Hilary Benn announced that licences would not be issued for killing badgers in England, as he believed that 'culling' could make the situation worse. However, in Wales, the intention to kill badgers was announced in April 2008. Wales' Chief Vet, Dr Christianne Glossop, admitted that badgers could be wiped out in certain parts of Wales and a wider 'cull' could last into the 2030s (36). The move was denounced by Viva! and many other groups, including The National Trust, Save the Badger and The Badger Trust, as a blatant move to appease farmers. Partly because of campaigning by groups such as Viva! the decision where to hold any trial 'cull' was delayed until early 2009. However, the Welsh Assembly subsequently announced that a trial 'cull' was to take place in north Pembrokeshire and neighbouring parts of Ceredigion and Carmarthenshire, with the killing then due to start in early summer 2010. The Badger Trust tried to get a Judicial Review to look at the legality of the 'cull', but that was refused in April 2010. However, in July 2010, the Appeal Court ruled to squash the Welsh Assembly's plans to 'cull' badgers in Wales.

At the time, Assembly officials in Wales said the intention was to reduce the badger population "as far as we can" during 'culls' over the next five years (42). The proposals also included extra stringent cattle controls. However, it was clear that there would be no way to determine the success, or otherwise, of either approach. This meant that a reduction in bTB could have been attributed to falling badger numbers, whereas stricter cattle control methods would, undoubtedly, be the real reason for a reduction. The fear was that this scattershot approach would have been used to skew figures and push for a wider 'cull' across the rest of Wales.

This was backed up in February 2010, when ex-senior scientific adviser to the UK Government, Dr Chris Cheeseman, called the 'cull' in Wales "perverse", and said the decision "flies in the face of the science" (44). The bTB figures for Wales revealed a steep decline in 2010, with almost 200

fewer herd incidents and a 45 per cent decline in cattle slaughtered. Despite this – and the public consultation that showed the overwhelming amount of the public were against such a move, the Welsh Assembly introduced new plans to ‘cull’ badgers in the same area, and voted to ratify these plans in March 2011 (74). Plans were eventually dropped in favour of vaccination in March 2012 after a change of Government.

In England, the threat of a badger 'cull' returned with the election of a Conservative/Liberal Democrat coalition in May 2010. Both parties backed 'culling' badgers as part of their manifestos, despite the Liberal Democrat leader, Nick Clegg, previously opposing a 'cull'. He said in 2008, "The bias and evidence of that ten-year review was badger culls simply move the problem to other areas". He added, "Secondly, Defra just doesn't have the money to do it. We can't move forward in the absence of clearer evidence and in the absence of better resources for Defra" (45). Clegg has never explained his U-turn.

In May 2010, confusion seemed to reign within the coalition, as the new Defra secretary, Caroline Spelman, ruled out an immediate 'cull', saying that she needed time to examine the science and wanted to observe the results of the Welsh trial – even though that was due to last for five years. The next day, Defra farm minister, Jim Paice, announced that a 'cull' would take place as soon as bTB hot-spots had been identified and revealed that the Conservatives have spent the last year of opposition planning for this eventuality (47).

Late in May 2010, updated data from Imperial College London appeared to show that 'culling' could reduce bTB incidences in cattle. What was under-reported was that this was an apparent anomaly and the scientists behind this research still held firm to the findings of the ISG report that 'culling' of badgers could not meaningfully reduce the disease in badgers (68).

Although described as ‘science led’ none of the 5,000 badgers earmarked to be killed over the two areas during these six week trials will be tested for the disease (past data has shown most will not have it).

Back in July 2011, Defra minister Caroline Spelman announced that she had authorised two ‘science-led’ pilot ‘culls’ of badgers in England, that were due to take place from June 2012. Almost immediately, Lord Krebs – the architect of the earlier Randomised Badger Culling Trials (RBCT) – attacked the decision and said that: “[it] … can hardly claim to be based on scientific evidence” (83). He also attacked the derisory ‘benefit’ that the Government announced it would expect. He said: “You cull intensively for at least four years, you will have a net benefit of reducing bTB 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” (84). In early 2012 it was leaked that the two areas chosen would be in West Gloucestershire and West Somerset.

However, in a major embarrassment for the Government plans to ‘cull’ badgers were delayed in late 2012 after everything from the Olympics, to the weather, to the lateness of the year, to there being more badgers in the two areas than previously thought was blamed. However, present Defra minister Owen Paterson soon reiterated the coalition’s commitment to still press ahead with the ‘culls’ in 2013 (109).

In October 2012, MPs voted 147 for a motion to stop the ‘cull’ with only 28 voting against. The debate had been prompted by an official Government e-petition started by Brian May of Save Me which at the time had exceeded 150,000 signatories (and finished beyond the 300,000 mark).

A consultation after the initial decision by Caroline Spelman was launched to assess not whether to kill badgers (that had been decided), but on how “effective and humane” a policy of “controlled-shooting” (i.e. free shooting with guns) will be.

Despite a largely negative response to the consultation the Government said it would push ahead with plans for shooting (and in lesser amounts cage trapping and shooting was considered). This was hardly surprising as cage-trapping and shooting costs about £2,500 per square kilometre of land per year, as opposed to about £200 for shooting only (82) – this almost certainly means that farmers will choose the cheaper option if rolled out across the country.

In effect, ‘controlled-shooting’ means granting farmers or employed gunmen licences to kill badgers with high-powered rifles on their land in allocated areas. The only qualification needed is ‘Deer Stalking Level 1’ (79). Badgers are nocturnal and so this means that most will be shot at night, which adds obvious difficulty. Also, because of their unique physiology, killing badgers with a single shot is going to be difficult. Spelman previously said that shot badgers would be collected to assess how humane this method of killing is (although this was misleading as only a tiny percentage will be checked, as mentioned above). The obvious flaw with this is that badgers that are not killed with a single shot may simply be dumped by farmers, whilst others will undoubtedly be maimed and left to die in agony. These fears were bore out by a dead badger in Somerset, which was passed to Secret World Wildlife Rescue during the 2013 trial ‘cull’. The animal had been shot and the bullet had crossed the chest at an angle and forced the stomach and part of the liver through the exit wound. Even worse is the indication that the badger had survived long enough to escape. Pauline Kidner of Secret World told the local paper: "The fact that the badger was not picked up immediately by licensed operatives and was found some distance from where it is believed to have been shot, suggest a period of 'flight' after the shot was made, indicating that death was not instantaneous" (135).

A panel of ‘independent experts’ to oversee the ‘cull’ was announced in March 2012 (86). If Paterson was convinced that this policy is humane – and it is difficult to see how he or the panel will truthfully come to that conclusion considering Defra’s own Chief Vet has no idea how they are going to measure that – then the policy is to roll out ‘culling’ across England. Details about the progress of the ‘cull’ are shrouded in secrecy, which have led to claims by both the press and groups campaigning against the policy that the Government policy lack transparency and is undemocratic (131).

The National Farmers Union has already identified 33 areas where it wants to kill badgers in England (78). These areas would be at least 150km^2, but Defra estimates that the average area will be 350km^2 (79). This would equate to 11,550km^2 of England where ‘culling’ could take place – an area larger than Devon and Cornwall combined. The number of badger casualties is difficult to estimate, but Spelman said that between 1,000-1,500 would be killed in each of the two trial areas (which are both 150km^2) over four years (this, as it turned out, was vast underestimation, as 5,000 badgers were to be killed across the two trial areas in 2013 in one period of six weeks alone). At least 70 per cent of the wild badger populations in each area would be killed. Government policy could lead to around 115,500 badgers killed over four years in England alone. This would be a shocking toll on wildlife, which could mean annihilating over a third of the national population of English badgers. There is also the real possibility of badger cubs being left to starve to death in setts (25).

The policy also fudges the problem of perturbation. This effect is likely to be pronounced, as the first shot is certain to send surviving badgers scurrying for cover and potentially abandoning setts. This is why most reliable science has categorically stated that a badger ‘cull’ could make the problem of bTB worse not better. Indeed, Dr Rosie Woodroffe, a badger ecologist at the Institute of Zoology in London and who worked for a decade on the largest ever UK study of badger 'culling', said of licencing farmers to kill badgers: “I think it is scientifically among the worst options they could have chosen” and said that she did not believe that the announcement from the Government was scientifically based (80) (81).

Natural England – the Government’s statutory wildlife advisers – warned the Government about the problems inherent with their plans (a Freedom of Information request by the Labour Party in March 2012 showed to what extent). It said that the plans for ‘controlled-shooting’ were not comparable to the RBCT, as this approach was as-of-yet untested. It also warned that badger populations could be seriously affected and they could become virtually extinct in certain areas of the country – and that in turn could risk breaking the EU legislation on wildlife. Natural England specifically warned the Government: "If implemented on a large scale... it is our opinion that culling poses a significant risk of contravening Articles 8 and 9 of the Bern Convention” (92) (93). Presumably under pressure, Natural England later recanted these criticisms.

To sidestep the issue of cost, the English Government is making farmers pay for the ‘cull’ themselves (the NFU had previously offered to underwrite costs). This in itself opens up a whole

range of problems – not least of all the fact that figures show that a ‘cull’ will cost farmers more than if they did nothing at all (81). This leads to the possibility of them abandoning plans part of the way through – and the cost being passed to the taxpayer. Already the Government has conceded that it will foot the bill for policing the trial ‘culls’ – likely to run into millions (108). In other words, the taxpayer will foot the bill – the majority of whom do not want to see the ‘cull’ go ahead.

Questions remain, but what is clear is that any widespread ‘cull’ will be an animal welfare disaster on a scale that Britain has never seen before – and won’t even work.

[See The Latest Positions in Wales, England and Northern Ireland for more recent history]

Summary

Despite science and common sense prevailing in Wales badgers are still under threat in England and NI. As this report shows, the science does not stack up. It is clear that politicians are willing to kill British wildlife for self-serving reasons (i.e. bowing to core interests) and that many farmers are so fixated on badgers that they refuse to see that bTB is a mess of their own making.

The ‘culling’ of badgers is morally, financially and scientifically bankrupt. Vaccination of cattle and badgers is the medium term answer, but we must also look at the negative impact modern agriculture has on animals – both farmed and wild.

The bottom line is that British wildlife would not have been infected with bTB in the first place had it not have been infected by mass cattle movements, appalling biosecurity and a Government that refuses to challenge farmers and take them to task over their failures. In other words, wildlife would not be under threat of annihilation were it not for the milk and beef industries.

The Vegan Solution

If, like us, you are outraged by this scapegoating of badgers as a cover for cruel, incompetent and unsustainable farming practises, there is one blindingly obvious solution – reject meat, milk and other dairy products and switch to a vegan diet.

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