



Northern Ireland  
Assembly

Committee for Agriculture and Rural  
Development

# OFFICIAL REPORT (Hansard)

Bovine TB Review: Ulster Wildlife Trust

19 June 2012

# NORTHERN IRELAND ASSEMBLY

## Committee for Agriculture and Rural Development

### Bovine TB Review: Ulster Wildlife Trust

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#### **Members present for all or part of the proceedings:**

Mr Paul Frew (Chairperson)  
Mr Thomas Buchanan  
Mr Trevor Clarke  
Mrs Jo-Anne Dobson  
Mr Chris Hazzard  
Mr William Irwin  
Mr Kieran McCarthy  
Mr Oliver McMullan  
Mr Robin Swann

#### **Witnesses:**

|                    |                       |
|--------------------|-----------------------|
| Ms Jennifer Fulton | Ulster Wildlife Trust |
| Mr Joe Furphy      | Ulster Wildlife Trust |
| Mr Conor McKinney  | Ulster Wildlife Trust |

**The Chairperson:** I welcome Jennifer Fulton, Joe Furphy and Conor McKinney. You have tabled a document, which I assume all members have. Without further ado; Jennifer, Conor and Joe, you have a briefing for us.

**Mr Joe Furphy (Ulster Wildlife Trust):** I will start. Thank you very much for the invitation to be here and for the opportunity to speak on this subject. The Ulster Wildlife Trust is the only conservation organisation that is entirely based in Northern Ireland. We are also the only organisation that deals with all aspects of the environment. We are particularly glad to be here today because the issue that we are dealing with covers a wide range of interests and activities and involves a large number of people. We are only too glad to be part of the process of helping you to come to a proper conclusion on the matter. I will now hand over to my cohort.

**Mr Conor McKinney (Ulster Wildlife Trust):** Good afternoon. The presentation will be in two parts. I am going to cover general information on badger ecology, social behaviour, bovine tuberculosis (TB) in badgers and the transmission of the disease, and I will then hand over to my colleague Jennifer, who will discuss ways forward.

One of the most notable things about the badger is the black and white colouration. That is a warning sign, generally to attract attention to the powerful jaws. It is just a measure to intimidate. It is a very heavy animal. It can be up to about a metre long and can weigh from 9 kg to 17 kg. You will notice that it has short sturdy legs, on the end of which are very pronounced claws, which are an important evolutionary adaptation to help the animal dig its sett out. It has a greyish colouration, due to dark hairs that are a little bit lighter near the tips. It has great hearing but fairly poor eyesight. It has

monochromatic eyesight, which means that it can see limited colours, but it can make out breaks in the horizon. It has an exceptional sense of smell and a muscular snout, which is used to probe and snuff around in the soil for prey.

It is also important to note that, in Northern Ireland, the badger's habitat is generally hedgerows. It is generally woodland elsewhere, but we have such low woodland coverage in Northern Ireland. For that reason, badgers here tend to be found in hedgerows and tall and low scrub. Within Northern Ireland, there is a population of roughly 38,000 badgers. Corrections have been made to that to bring us up to 41,000; I saw that in evidence from Queen's University. In the Republic of Ireland, there are believed to be around 84,000 badgers, and, in Britain, there are believed to be 302,000 badgers. That population figure will become important when we talk about perturbation effects. I will not go too much into the year of the badger. You have that in the presentation in front of you.

The social structure is an important concept in the management of the disease, because badgers will live in social groups that are centred around a main sett, and they will defend the territory in which they feed. These groups are relatively stable and discrete. For example, in Woodchester Park, we found that there was no change in badgers' social groups over a period of around 30 years. This situation has evolved not because of the co-operative benefits but because of the reduced effort when it comes to sett excavation, which badgers do when the cubs are born. Also, as they have a set territory, it gives them a range of different woodland habitats. That means that they can forage for fruits, nuts and berries in the autumn, and it will give them some pastoral habitat so that they can forage for invertebrates in the wet weather. It gives them year-round feeding. Territories can range from around 38 hectares in good habitats to around 416 hectares in poorer habitats such as bog and moorland.

Badgers are a very heavily protected species, partly because they have been subject to such persecution in the past. We have a significant percentage of the European badger population. I think that over half of the European population can be found within three countries: the UK, the Republic of Ireland and Sweden. They were first protected by the Badgers Act 1973, which was consolidated by the Wildlife (Northern Ireland) Order 1985 and then amended by the Wildlife and Natural Environment Act (Northern Ireland) 2011, known as the WANE Act, which makes it an offence to intentionally or recklessly disturb badgers, obstruct access to their place of refuge or destroy or damage anything that conceals or protects their place of refuge. Badgers have international protection under the Bern convention. It states that any exploitation of wild fauna specified in appendix III, which covers the badger or *meles meles*, shall be regulated in order to keep the population out of danger, taking into account the requirements of the legislation.

It is important to note that there is a significant reservoir of bovine TB in wildlife. We are not disassociating ourselves from the science. There is a table in members' papers that gives a general overview of bovine TB in wildlife. Another point to note is that, although a lot of wildlife is a reservoir for bovine TB, only badgers, deer and feral ferrets are able to transmit the disease.

There are generally considered to be five different classifications of bovine TB in badgers: those that have been exposed to the disease; those that have been exposed to it but have not become infected; those that are infected but are not infectious; those that are infectious but do not show any symptoms; and those that are severely debilitated and highly infectious. The severely debilitated and highly infectious badgers make up a very small proportion of the badger population. I have read that it is between 2% and 5%, but that varies.

There are a couple of pictures in our paper of what bovine TB in badgers looks like. They show the very progressive stage of the disease. In this state, you see severe emaciation and overgrown fore-claws. The fore-claws are very important for digging, as a badger will dig to clear out the sett and find prey. In this stage of the disease, the badger will become very weak and will have to find easier sources of food. For that reason, they suffer this fore-claw overgrowth, and you will also see that they have sunken eyes. Once badgers are in this state, it is calculated that the mortality rate will double. From about the age of one, it has a relatively constant probability of dying in any subsequent year — about 0.31. In these more aggressive stages of bovine TB, that rate can increase to up to 0.67, so it more than doubles the mortality rate.

As regards the transmission of bovine TB, it is important to realise that this disease is viable in the environment. It can survive within urine for up to three days in the summer and up to 14 days in the winter. Underground, it can last for up to four weeks if there is 80% shade and sterile, moist conditions. So, within setts, this disease can be very viable. You will also find that badgers normally remain two to three metres from cattle. I think that Dr Judge spoke to you about that research. She

also mentioned the fact that radio-collared cattle and radio-collared badgers do not normally come into close proximity to one another.

We have also found that badgers found in farm sheds are three times more likely to be infected with bovine TB than roadkill. That comes back to the fact that badgers that are severely debilitated by the disease will roam a lot further to find easy sources of food so that they can survive. That is linked to the fact that they are very weak. There is some debate about whether the majority of infection occurs in pasture or in sheds. That has yet to be proved conclusively. It is important to remember that cattle-to-badger infection will also occur, and results have shown that that can have a significant impact on badger populations. For example, a failure to control bovine TB in cattle during the foot-and-mouth disease crisis was found to lead to a tripling of the incidence of bovine TB in badgers. That makes sense as a lot of invertebrates are associated with cattle dung, and badgers will dig through that excreta to find sources of food. It is a two-way process.

I am not going to go into too much detail on the perturbation effect as the text on that is in our submission. I am sure that you have heard quite a bit about the notable research in that area, and that is also outlined in our submission.

I am conscious that I am running short of time. I will pass over to Jennifer, who will take you through the toolkit.

**Ms Jennifer Fulton (Ulster Wildlife Trust):** I will discuss the toolkit and what the Ulster Wildlife Trust sees as the way forward. We looked through the evidence that has already been given to the Committee, and the first thing that struck us was that, although there is quite a lot of research, there are large gaps in the science. We are very encouraged to see that the Department of Agriculture and Rural Development (DARD) has set aside £4 million in the Programme for Government for that research. There are regional differences in farming practice in Northern Ireland and differences in the density and the social structures of our badgers, so the solution we need for Northern Ireland may be different from the solutions in other parts of the UK. We feel that there should be a bespoke solution for Northern Ireland that allows the agrifood industry to maintain its ethical and environmental credentials, because that is what that industry trades on.

One tool that is ready and that can be considered right now, if you wish to do so, is badger vaccination. The vaccine is approved for use and is available by prescription. The process would involve trapping, vaccinating and releasing badgers annually. The vaccine confers a level of immunity to offspring, significantly reduces the progression, severity and excretion of bovine TB and avoids all the issues that go with perturbation. The vaccine has to be administered by a vet or licensed lay operator. You may have noticed that a vaccination programme is under way in Wales. We think that it may be worth considering the creation of a vaccination fund for Northern Ireland, similar to that in England and Wales, which would give farmers and others some financial incentive to vaccinate badgers. One option that may be worth considering is the inclusion of such a fund under an agrienvironment scheme, but you would need to discuss that with Brussels. The Committee members who are going to Gloucestershire tomorrow will see that the costs there have been worked out on a per hectare basis. That may be an option to consider.

The second tool is biosecurity, which was covered during your last evidence session. Our view is that biosecurity is key to addressing the problem, as it would reduce the opportunities for contact and transmission between cattle and badgers. The farm modernisation programme has recently been in the press, and it has a budget of £5.5 million, which could contribute to resolving some of the situation. The uptake of biosecurity training has been disappointing. One option that may be worth considering is the network of focus farms that we have across Northern Ireland. Those events have been very well attended, and I read recently that 10,000 participants visited those farms over 31 months. That would be a good way of demonstrating best practice. There is also a need for information and practical advice on biosecurity products and technology to help farmers to work out a way forward.

I will now move on to improved diagnostics and movement restrictions. You have heard from the Northern Ireland Audit Office (NIAO) that one in four infected animals is not identified through the current testing regime. You may also have seen the recent research by the University of Liverpool that indicated that about one third of bovine TB cases in England and Wales are masked by the skin test because of liver fluke. Clearly, options to improve the efficacy of the testing are a priority in any eradication strategy. The greatest risk of transmission comes from cattle-to-cattle contact, and we had 600,000 movements recorded on the animal and public health information system (APHIS). That is further complicated by the situation in Northern Ireland, where we have our conacre system, small farms, intensive grazing and boundary fences. Those issues are not easy to resolve.

Something that struck us was farmer support and the possible need for additional farmer support. I know that those of you who are heading over to England are going to see Department for Environment, Food and Rural Affairs (DEFRA) officials. A TB support and advice service for farmers was launched by DEFRA in November 2010. That service provides enhanced support, mainly through private vets, to TB-infected farms and their neighbouring farms. There is also a need to increase support by providing financial advice to help those who are experiencing hardship as a result of TB, because it can close your herd for significant periods of time. There may be the opportunity to look at joined-up service delivery in government, maybe by discussing with Her Majesty's Revenue and Customs (HMRC) issues such as the acceleration of working tax credit applications, where the farmers are eligible. There is still a very low uptake of working tax credits in rural communities.

In the medium to longer term, you have cattle vaccination. I know it has been talked about for a very long time, but DEFRA has invested around £23 million to date in the development of cattle vaccination and the associated differentiating infected from vaccinated animals (DIVA) skin test. Recently, there have also been field-scale trials in Ethiopia and Mexico, which have shown 56% to 68% efficacy when it comes to full protection and a further 30% when it comes to partial protection.

A vaccine reduces the progression, severity and excretion of TB in cattle. The Food and Environment Research Agency (FERA) has put forward a marketing authorisation, which was submitted to the Veterinary Medicines Directorate in Brussels in January 2012. It assesses the safety, quality and efficacy of the vaccine. The outcome is anticipated later this year, and you will probably get an update when you meet officials from FERA or DEFRA tomorrow. Even if the vaccine is assessed as being effective, a change in EU legislation is still required before a licence for use can be granted on a regional scale or within Europe. Also, international accreditation with the World Organisation for Animal Health is required.

A new animal health model is being developed by the EU, which should alleviate some of the issues around existing directives.

The last thing for the future is —

**The Chairperson:** Jennifer, sorry to stop you. I will give you one more minute if that is OK. I am deeply sorry for having to stop you, but we are stuck for time.

**Ms Fulton:** That is fine.

Finally, we have oral vaccinations, which are something for the future and are not likely to be here until 2016.

That is the bones of what we wanted to say. You will see in our paper the conclusions that the Ulster Wildlife Trust has come to on suggestions for the way forward.

**The Chairperson:** Thank you all very much for your presentation. I remind members that we are stuck for time today. So, please keep to one question — no statements, just one question — and if we can go round again, we will.

**Mrs Dobson:** Thank you very much for your presentation. In your briefing, you say that the priorities should be farm biosecurity, a badger vaccine and a cattle vaccine. How do you view DARD's performance to date on each of those three priorities?

**Ms Fulton:** There is certainly a need to do more. Considerable effort and work have been put in to date, but, to move the industry forward, there is a need for a concerted and focused effort in each of those strands.

**Mr Swann:** Thanks for your presentation, folks. Conor, the statistics that you present show that badgers found in farm sheds are three times more likely to be infected than roadkill. Where are you getting that science from? That is something new; we have not heard that before.

**Mr McKinney:** There is science there. I should be able to get a quote for you. I do not have the reference in front of me at present. However, that was something that we found in the literature. I reviewed the literature that we have, and that fact came up within that review.

**Mr Swann:** As I said, we took a lot of evidence from the Department and DEFRA. We have seen statistics on the testing of roadkill, but I have never even heard of a scheme where dead badgers are collected from farm sheds for testing. I know that the Department picks up roadkill to test for TB, but I have not heard of that before.

**Mr McKinney:** I can dig out that paper and send it to the Committee, if you want to see it.

**The Chairperson:** I would be grateful if you could furnish us with that information. We would be interested to see it.

**Mr Irwin:** We all agree that there are a number of issues, badgers being one of them. A leading scientist in Wales recently resigned from the TB eradication board because Wales decided to go down the route of vaccination instead of culling. What is your view of that? Would you agree, for instance, to a cull of infected badgers?

**Ms Fulton:** That research may be one area that you would wish to look at. As a science-based organisation, the Ulster Wildlife Trust bases its decisions on the science that is there at any particular moment. Certainly, from what we read, we see no significant benefit in a blanket cull across Northern Ireland. In particular, given that we are in the midst of a recession, we do not feel that it would be a good use of public funds. Vaccination is the mainstay of our suggested way forward. The research that has been done on the vaccination programme shows that it provides an efficacy rate of 74%. The issue of heavily infected badgers is one that merits research in the future, and it should be a part of the research programme.

**Mr McKinney:** Chair, could I perhaps return to the previous question? The research paper was by Cheeseman and Mallinson, published in 1981. I will provide a reference for that afterwards.

**Mr Swann:** Where was that from?

**Mr McKinney:** It was in the 'Journal of Zoology'. I believe that it was based on research in England.

**The Chairperson:** We will have another round of questions, so everyone will have another opportunity.

**Mrs Dobson:** I see that you support a cattle vaccine. Can a realistic date be set for when it will become available? Can you give me a wee bit of background on it? Is it correct that a workable cattle vaccine would make the skin test obsolete? I see the reference in your paper to a DIVA test. Will you expand further on that?

**Ms Fulton:** Yes. A new test has been developed to coincide with the vaccination of cattle, and it meets the requirement of differentiating between vaccinated cattle and infected cattle. That was the issue that caused the problem in the first place. As for the timescale for the vaccination, DEFRA had originally hoped that some sort of progress would be made before the end of 2012. I am not exactly sure how that has gone, but no doubt you will find that out when you are in England tomorrow.

**Mrs Dobson:** Is the DIVA test similar to the skin test?

**Ms Fulton:** It is quite similar. There is some differentiation. It is quite a complex research issue. No doubt you will get a full briefing tomorrow.

**Mrs Dobson:** A cattle vaccine would need to be 100% accurate, otherwise the skin test would be obsolete, so I think it would be useful to get more details at some point.

**Ms Fulton:** You will get a full briefing from DEFRA when you are in Gloucestershire tomorrow.

**Mr Swann:** Conor, you mentioned the five types of badger classification, and you said that one was infectious but showing no sign of it.

**Mr McKinney:** Infected but not infectious?

**Mr Swann:** You indicated that a badger could show no sign of having TB but still be infectious. In other words, it would be a carrier. If vaccination against TB creates a badger that, in your words, confers a level of immunity to its offspring, is there a chance that we could create a strain of badger that would be immune but could become a carrier, spreading the disease without suffering from it?

**Mr McKinney:** I do not think so. From what I know of the disease, it does not become infectious until it has advanced and progressed. The disease creates lesions from which bacteria erupt. If, for example, those lesions are in the lungs, the disease will be spread by aerosol transmission, which is how 80% of the disease is transmitted. I believe that vaccinated badgers can transfer some immunity to badger cubs. Have I got the gist of your question?

**Mr Swann:** Perhaps I picked you up wrong, but I thought that you said that badgers could be infectious but not be infected. Does vaccination create an immunity in badgers so that they become carriers but are not infected?

**Ms Fulton:** Yes. It is a bit like the BCG vaccine that is given to schoolchildren. It is the same sort of process. The vaccine confers immunity to stop you picking up the disease.

**Mr McKinney:** It is more of a preventative measure and limits the progression of the disease.

**Mr Irwin:** Is the problem not those badgers that are already infected and then vaccinated? Those badgers are still carriers and can live for a number of years. I think that that is the issue.

We have to cull animals, such as dairy cattle, that have TB. Many of those are good animals and seem perfectly healthy, yet they have to be culled. Do you support a similar cull of infected badgers?

**Ms Fulton:** First, we need a way of knowing that animals are infected.

**Mr Irwin:** That is what I mean. Would you support a cull if you knew that the badgers were infected?

**Ms Fulton:** It depends on the methodology used, and there is still a bit of research to do in that area. As an organisation, if the science is there, we will consider it. However, we would have to look at the research and the efficacy of any tests suggested.

**Mr Clarke:** I had a similar question. Jennifer said that she would not support a blanket ban, and I took from that that she might support a cull. However, Willie then probed my question further, so I suppose that my question has been answered somewhat.

**The Chairperson:** In the event of there being a way of quickly telling whether badgers are infected, have you done any research on the estimated cost and the differential between following a vaccination course and a vaccination/cull course?

**Ms Fulton:** That is one of the gaps in the research. Quite an area of the research, and the economics behind it, needs to be looked at so that we can make best use of it in a strategy for the way forward. The methodology used is key.

**Mr Hazzard:** Thanks for your presentation. Is there any indication of how long the TB virus remains active in badger carcasses?

**Mr McKinney:** I have not come across any research on that. The virus is very viable in the atmosphere, and around 94% of it remains viable after it is exuded from a badger in aerosol form. After that, it has a half-life of around one and a half hours. Therefore, it can remain very viable, and research has shown that it is possible to culture the virus in tissues from one bacillus. It is extremely infectious.

Urine is the other main factor, although it is not as significant a pathway, and tests have shown that the virus can remain viable in urine for up to three days in the summer. That is due to the effects of UV light, and significant UV light will increase the mortality of the disease. In the winter that increases to roughly 14 days. I am unsure how long the virus remains viable in a carcass, but those are indications outwith, when it mixes with air.

**The Chairperson:** I have one further question. In your paper, you referred to joined-up service delivery in government. What discussions, if any, have you had with Departments about some of the issues that you have raised, such as the fast-tracking of applications for working tax credits and farm modernisation schemes? What discussions have you had with government on the reality of those ever happening?

**Ms Fulton:** The involvement of the Ulster Wildlife Trust has been on the Northern Ireland Badger Group, which has predominantly looked at the issue and the science. Our suggestions emerged as we thought through the issue from an organisational perspective, and we will discuss those with the various Departments over the coming months.

**The Chairperson:** Dr Judge said last week that £4,000 could go long a way towards introducing biosecurity measures on the average farm. Sheds could be blocked and gates made solid. Would you support government incentivising the farming community to do that?

**Ms Fulton:** We certainly would. That would be the cornerstone in moving the issue forward, because quite a lot could be resolved through relatively small investment.

**The Chairperson:** Would you consider that to be of higher importance than vaccinating badgers?

**Ms Fulton:** A suite of measures would probably be needed. Vaccination and biosecurity would be two of the top measures in that list, although there are issues around the testing of cattle that also need to be addressed.

**Mr McKinney:** As I said, the disease can also be transmitted from cattle to badgers. A firewall would prevent the two reservoirs of disease from intermingling, especially when we know that the skin test can miss out one in four infected animals. If you focus on separating those two reservoirs, you will stop the disease from intermingling and passing from one source to another. That would definitely be a way forward.

**The Chairperson:** Thank you very much for your time and presentation. I am sorry that we had to push you for time, especially you, Jennifer, but we do value your contribution on this important issue.

**Mr Furphy:** Thank you very much.