

UK official defends badger cull

Top government environmental scientist says wildlife control still necessary to stem bovine tuberculosis.

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England's badgers are once again in the firing line, as pilot culls to control the spread of bovine tuberculosis begin. As protesters descended on the nation's capital last week, the chief scientific adviser of the Department for Environment, Food and Rural Affairs (Defra), Ian Boyd, talked to *Nature* about why he thinks the cull is scientifically sound, what else will be needed to control this disease and what happened when he got the country's leading experts together for a workshop meeting on this subject at the end of April.

What was your message to the meeting?

My basic message to the meeting was we've basically lost control of tuberculosis (TB) in the countryside. It's doubling every 10 years or so. The status quo with the management of TB and the direction of TB is not acceptable in the long term because we will have increasing TB in our cattle, increasing TB in our wildlife, and that will cause spillover of TB to other livestock, to potentially domestic animals and potentially to humans. In the process of doing something about it we have to use all the tools we have in the toolbox available to us. That includes cattle movement controls, increasing biosecurity, development of vaccines and control of the wildlife reservoir. And in our case the wildlife reservoir is badgers.



CARL COURT/AFP/Getty Images

Demonstrators take part in a protest in London on 1 June against the government's plans to cull thousands of badgers in two pilot areas.



Ian Boyd

Defra

Have we got too hung up on the badger side of things?

The problem is tuberculosis, not badgers. Badgers happen to be in the middle of this, and unfortunately the methods for dealing with that problem mean we need to reduce the densities of badgers. We don't have an alternative to that at the moment.

What would you say to people — including some eminent scientists — who say this isn't evidence-based policy?

I would say, and I have said to them, that it is evidence-based policy. The first line of evidence is the RBCT [the large-scale Randomised Badger Culling Trials run in the 1990s and 2000s] that we carried out, which were very extensive and showed the effect that sustained removal of badgers can have on reducing bovine tuberculosis in cattle. The second main line of evidence is the comparison with other countries that have had similar problems. Australia probably has eradicated TB. New Zealand is certainly well on its way to TB-free status. Ireland also is getting its TB problem under control. And the only difference between Ireland and ourselves is that Ireland is reducing its badger densities.

Some of the people who have been publicly opposed to [badger culling] were at the meeting. A significant part of that meeting was

supportive of the approach that is being taken. I think we are faced with some pretty stark choices and I think the majority of the scientific community understands and probably supports the approach we're taking.

What area of research needs most work?

We need to understand the point of contact between the vector and the susceptible animals. Whether those vectors are cattle or badgers and the susceptibles are cattle or badgers doesn't matter. It's the badger–cattle interface we need to understand. And if we understand that well, then we can start to manage it. I would also point to vaccines as well. Vaccines, at the end of the day, are going to be what allows us to actually eradicate TB. Clearly reducing wildlife populations and killing cattle is not going to actually produce the elimination that we're really striving for.

We're already moving as rapidly as we can towards getting a vaccine for cattle. I'm hopeful that within a few years we'll have field trials in place, so we might have pilot vaccination trials. However, the BCG vaccine [bacillus Calmette-Guérin, the common vaccine for TB] is probably only going to be about 60% effective, so it's not going to be the silver bullet. We probably have to also move to vaccination of badgers. There's an injectable vaccine available at the moment, but it's far too expensive to roll out on any wide-scale basis. So we need to get an oral vaccine for badgers, and we're still some way from doing that.

Are there social science areas for research?

I think social science has a major role to play in this. This isn't just about badgers and cattle. It's about badgers, cattle and farmers. And other members of the public as well — they have choices to make. We have to understand those social dynamics as much as we have to understand the epidemiological dynamics of the disease.

[For example,] we designate high-probability TB areas and low-probability TB areas, and some farmers will trade cattle out of the high-probability TB areas into the low-probability TB areas, and farmers in the low probability areas will buy them. For some reason, that occasionally happens. We need to understand these behaviours and try to incentivize non-risky behaviour. You cannot regulate for absolutely everything. But if you incentivize the farming industry in the right way, what they will tend to do is multiply the benefits more than regulation will do.

How do you rate the chances of success within your tenure?

The chances of TB eradication or TB-free status within my tenure at Defra is zero. My tenure at Defra is another few years; we're talking about decades here. I think that we can eradicate tuberculosis, but it all depends to some extent on resources — but, more than that, on the determination of people generally. And that doesn't just include farmers; it includes other people who care about the countryside and about wildlife.

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