Thinking Through Badgers:

Researching the Controversy Over Bovine Tuberculosis and the Culling of Badgers

Stephan Price
University of Exeter

Vernon Series in Communication

VERNON PRESS

www.vernonpress.com

In the Americas:
Vernon Press
1000 N West Street,
Suite 1200, Wilmington,
Delaware 19801
United States

In the rest of the world:
Vernon Press
C/Sancti Espiritu 17,
Malaga, 29006
Spain

Vernon Series in Communication

Library of Congress Control Number: 2016958914

ISBN: 978-1-62273-187-9

Table of Contents

List of tables

List of figures

Acknowledgements

This book relies on the commitment, courage and goodwill of those who shared their views and participated, even though it was a stressful situation. Strenuous efforts have been made in the text to maintain their anonymity, but for their contribution, I am very grateful. The research reported in this book was envisaged and designed by Clare Saunders, Robbie McDonald and Steve Hinchliffe at the University of Exeter, and I am grateful to them for their leadership, openness, and collaboration. We worked closely with the argument by design, Dialogue Matters, and Marketing Means on important parts of the project, and greatly appreciate their professional help. The research was partially funded by the UK Economic and Social Research Council (Grant no. ES/L008106/1). I owe a huge debt to Clare for her continued support, and I am grateful to Professor Gail Davies, Professor Henry Buller, Dr. Kezia Barker, and Dr. Daniel Keith for their interest and engagement at various times, and Dr. Isobel Tomlinson, whose idea this was, for her comments on the text, and patience.

Foreword

Clare Saunders

As this book goes to press, the culling of badgers as a strategy for managing bovine TB (bTB) is once again prominent in the news. In late August 2016, badger culling was extended beyond the initial trial culling areas of Gloucestershire and Somerset into Hereford, Cornwall and Devon. The debate is as controversial as ever. Those who are staunchly for or against badger culling appear, on the face of it, to have increasingly entrenched views. The Independent Expert Panel that reported on the outcomes of the trial culls could easily be characterised as being doubtful of the humaneness and effectiveness of shooting badgers. Yet different sides of the debate continue to interpret the evidence in different ways. Those in favour of culling might question the doubts raised about effectiveness by quite rightly pointing out the impossibility of knowing the percentage of badgers that were culled. They might, alternatively or additionally, blame protesters for getting in the way of effective culling. In contrast, those against culling might more easily come to the conclusion that the culling was not humane, and that the target to remove 70% of badgers was, in any case, arbitrary. In my role as a social scientist, I have never seen it as my job to prove which 'side' of the debate is right or wrong. Instead, I see it as important to understand how people come to hold different 'knowledges' and what might be done to resolve the conflicts that result.

Badger culling caught my professional interest for two key reasons. First, it resonates significantly with my long-standing interest in protest politics and political participation. The Badger Trust and the League Against Cruel Sports mounted strong anti-cull campaigns. Hunt saboteurs joined with other more conservative wildlife lovers to disrupt the cull in peaceful and less peaceable ways. A petition against the cull, supported by musician Brian May, received the then largest known number of signatories ever for a parliamentary poll, reaching 300,000 by the Autumn of 2013.

Second, the issue reveals interesting tensions in the generation and use of evidence-based policy making. The National Farmers Union, the Department of Environment Food and Rural Affairs and the government have a pro-culling view that can be juxtaposed against the anti-culling stance of many countryside groups, the Badger Trust, the Wildlife Trusts and The League Against Cruel

Sports. The nature of the polarisation is interesting in itself, even if exaggerated in the media. But what might be seen as more interesting still is the way in which different sides of the debate tend to mistrust science that does not fit their preconceived ideas about the topic. This makes it difficult to trace any semblance of a straightforward line from objective science to individuals' positions or to government policy. In the recent past, the same scientific evidence was used to support different policy options for bTB management across England (badger culling), Northern Ireland (badger vaccination) and Wales (selective vaccination or removal). Similarly, the same evidence, or different snippets of the same scientific paper, can be used simultaneously by those for or against culling.

The badger culling debate seems to exemplify a hybrid of post-truth politics and post-normal science. Post-truth politics is a term that characterises political decisions that are seen to sideline experts and are considered to be based on lies. Post-normal science is an approach to science that recognises tensions of knowledge across disciplines and among actors. It seeks to democratically bring them together to find solutions to difficult problems. Anti-cull campaigners would argue that DEFRA has engaged in post-truth rhetoric: sometimes apparently contravening advice from policy-makers. Pro-cullers might bring their knowledge to bear to support (or contrast with) that of so-called experts, stressing the need for moving beyond a narrowly defined set of experts. Both sides and the policy-makers who need to act as intermediaries will, I hope, come to realise that the post-normal approach has the highest potential for a non-conflictual means for managing bTB.

The Economic and Social Research Council (ESRC) funded research project on which this book is based took place during the last issue attention cycle on badger culling (2012-13). At that point, the Conservative-Liberal Democrat coalition government had given the go-ahead for trial culling of badgers as part of a package of management tools for controlling bovine TB (bTB) in Gloucestershire and Somerset. In the run-up to the trial culls, I joined the Environment and Sustainability Institute, University of Exeter, Penryn Campus as a Senior Lecturer. It was there that I met the bioscientist Professor Robbie McDonald who has extensive experience of researching human and wildlife interactions, including the management of bTB. He encouraged me to think about research on badgers and protest and introduced me to Professor Stephen Hinchliffe, whose work I had read as an undergraduate. Together we

were awarded an ESRC Rapid Response Mechanism Grant. These are grants available to generate data at relatively short notice on urgent social, economic or political matters. I had previously worked with Stephan Price (the author of this book) on topics as diverse as climate policy networks (www.compon.org), street demonstrations (www. protestsurvey.eu) and community-based initiatives for saving energy (www.southampton.ac.uk /engineering /research/projects/community_based_inititatives_in_energy_s.page) and was delighted when he agreed to help us out.

Our project, entitled Doing TB Differently (ESRC grant reference: ES/L008106/1) had two key aims: (1) to investigate the way in which knowledge is articulated and enacted in a critical environmental policy arena during an acute episode; and (2) to explore the extent to which it is possible to bring together a range of knowledges in dialogue to intervene in and even provide solutions or avenues for progress for seemingly intractable policy problems.

A range of research methods was deployed in order to achieve these aims. I will only briefly introduce them because Stephan does an excellent job of talking the non-novice through them in subsequent chapters. Stephan's first task as our post-doctoral research fellow (or 'dog's body', in more or less his own words) was to interview a range of people who were pro- and anti- cull in and around Gloucestershire and Somerset. These interviews were used as the basis of a 'concourse' (a set of statements) that were used in a Q-set. A Q-set is a set of statements to which individuals can agree or disagree to varying degrees. Q-methodology was used to map the different viewpoints of a range of publics. We mapped the viewpoints of groups of individuals before and after an online deliberation. Finally, we ran a face-to-face forum of Devon-based TB stakeholders using a conflict resolution expert to help participants begin to tease out areas of common ground and potential ways forward for the debate. We surprised ourselves and our participants by reaching a degree of consensus that participants would like to share information with one another (after realising that they were sometimes reading the same sources differently, but on most occasions reading different sources entirely). We plan to follow this work up with future attempts to facilitate such co-operation.

In this book, Stephan takes the reader on a journey with him through the minefields of researching the social science of bTB. It is a fascinating journey of personal discovery in his role as our 'dog's body'. At universities, we usually present our work in a somewhat

sterile fashion, largely devoid of our own thoughts and feelings. We are encouraged to strip out the subjectivities. True to the notion of post-normal science, Stephan not only reveals what it is like to work on a social science project as a post-doctoral research fellow, but he also lets the interviewees speak for themselves. The interview excerpts are only lightly edited and some of them are lengthy. This allows us to read in some depth contrasting points of view. This, too, is an unusual outcome from an academic project. However, it is one that I welcome given the need for policy to incorporate multiple viewpoints. Stephan masterfully describes how he traced the range of interviewees with whom he had conversations: badger protectors, farmers, vaccinators, vets, a shooter and even police officers. Never openly taking sides, he is able to adjust his questioning to suit the research participants. He cleverly adapts the questioning to new lines of inquiry as they emerge. His interviewees clearly show that this is not a straightforward debate with only two sides.

Stephan claims that he is not an ethnographer, but this is as close to an ethnographic account of the research process as I have ever seen, replete with discussions of awkward moments through the pure joy of discovery. His very personal encounters with social theory are discussed as openly as his encounters with research participants, making for an usually detailed foray into the research process. It is all-too-rare for an academic to step back and be honest about things that s/he struggles to understand. We often wrongly present ourselves as know-it-alls, when the history of science itself confirms that we can always ever only know a part of every story.

Stephan's portrayal of the career minded academic as someone who does little but work and sleep appears to be not far from my personal experience. Stephan reminds academics that there is more to life than working, and, moreover, that there is more to writing that being a research machine. Let's not forget that all researchers have their own subjectivities. To see Stephan's subjectivities revealed so openly and honestly is fresh and novel. It also makes for a blisteringly good read. The outcome is not an academic book in the strict sense. Indeed, some academics may struggle with its frankness. But it is an interesting story that has appeal for multiple audiences. The audiences include post-docs struggling with a high level of responsibility in temporary research positions, anyone interested in the philosophy of social science, and all those people across the country who are dedicating – in many different ways and from multiple points of view – time and effort to the eradication of

bTB. It is important to take note that the approach taken by Stephan in this book means that this book is not only for those seeking to eradicate bTB, but is also, in a sense, written by them. The whole research team is exceedingly grateful to everyone who participated in our research: the interviewees, the online forum participants and the deliberative forum participants.

Tenured academics rely heavily on post-doctoral researchers to aid them and the quality of projects often depends heavily on their competence. We were glad to have Stephan on the team, but in the book he expresses a tension about working in academia that other post-doctoral researchers share. We are lucky that Stephan has persisted despite academia not feeling like a natural home. He is one of many promising researchers who feel alienated or side-lined by the competitive nature of academia. I know several inspiring and intelligent individuals who have not made it so far as secure tenure and have consequently left before they reach their full potential to develop or communicate interesting ideas. In addition to telling interesting stories about badgers, bTB and Stephan's personal research journey, I hope that this book will also be a step towards encouraging universities to create more nurturing environments in academia for researchers to work with important ideas and subjectivities within a critical post-normal approach to the (social) sciences.

Clare Saunders

Penryn

September 2016.

Introduction

The one thing that hits me as I put down the phone is his pride. The whole atmosphere around the badger culls has been one of resentment and at times even ridicule. In 2011, shortly after coming to power, the Conservative Secretary of State for the Department for Environment, Food, and Rural Affairs (DEFRA), Owen Paterson, announced pilots for the culling of badgers in the south and west of England. Bovine tuberculosis (bovine TB or just 'bTB') is a variant of tuberculosis, a tough bacterial infection that usually affects the lungs, nasal passages and immune system. Although the 'bovine' name refers to cattle, it's a zoonosis, which means it can affect humans. Pasteurization prevents cross-infection to humans through milk, but in the 1930s in Britain as many as 2,000 people a year died of bovine TB transmitted through milk. Although farmers, vets and dairy workers can still be at risk, it's mostly animals that now suffer in the UK: cows, sheep, pigs, llamas, alpacas, cats, dogs, deer and badgers. Over the last ten years in particular, bovine TB has been a growing problem for cattle farmers, especially in the south and west of England and Wales. Herds of cattle are tested for bovine TB, one or more cows show a positive response to the test, they're slaughtered, and the farm is 'shut down', unable to move cattle until it has passed two tests without a positive or 'inconclusive' result, at intervals of sixty days. Some farms, once shut down, stay shut down, destroying farmers and their livelihoods. The incidence of the disease in cattle has been rising since the mid-1980s, but the problem has become much larger in the last fifteen years (Godfray et al. 2013). Since 2003 the number of cows showing a positive reaction to the test has increased by around 50%, from just under 21,000 animals to just under 32,000 in 2014 (Baker 2015) or around 95 cases for every 10,000 cattle in the national herd (DEFRA 2015)[1]. For a while, even the rate of spread of the disease seemed to be increasing, as were the costs to government: £90 million in 2009. To put that into context, back in 1964, we thought we'd got on top of the

[1] Total cattle herd on 1st December 2014, 3.4 million. 3.4m/10000=340 32,000/340=94.1

disease: cases of bovine TB were down to 6 in every 10,000 cows in the national herd. Then it came back.

What's needed, the man on the phone believed, was a cull of badgers. He didn't just believe it. He'd been going out, at night, with a rifle, doing the job. He was proud to have been doing something for his community that was difficult, dangerous, and desperately needed to be done. He wasn't going to brag about it. In fact, he wasn't even going to tell me his name, so concerned was he about the risks of being attacked by animal rights activists. Since 1971 we've known that badgers in Britain – especially the south and West of England and Wales – are infected with bovine TB. In the areas where the disease seems to have got out of control, anywhere between 2% and 40% of badgers are infected (although some think it may be more in some places) (Godfray et al. 2013). Cattle give bovine TB to badgers, and badgers give it to cattle, though it's not fully clear, and it's very difficult to pin down, exactly how (Godfray et al. 2013, although see Woodroffe et al. 2016). The culling of badgers goes back to the 1970s, but the most recent attempt to answer the question of whether it had a positive impact on reducing the incidence of bovine TB in herds of cattle, the Randomised Badger Culling Trials (RBCT), has become grounds for dispute among scientists, farmers, government, and animal welfare and wildlife campaigners. Culling may or may not improve the situation with bovine TB. Meanwhile, determined campaigners work to oppose the culling, and some of them have got such a scary reputation that meetings about the prospect of culling happened under police guard, and anyone involved is kept anonymous. Or is supposed to be.

It's a raw contrast; the rage at the situation farmers are in and the pride at being able to help them, the rage at the scapegoating of badgers, and the pride in standing up for them. Delayed a year by the need for proper estimates of the badger population in the target areas, the pilot culls finally began in August 2013 in West Somerset and West Gloucestershire. The National Farmers Union (NFU) and the companies organising the culling took out a court injunction against several named individuals and groups, trying to prevent them from disrupting the operations and harassing people. Problem was, there was also a popular and entirely legal campaign led by the Queen rock-star and animal rights campaigner, Brian May. There were members of the public, exercising their legal right to walk public rights of way, out at night, on patrol, looking for wounded badgers, getting in places my anonymous source didn't

want them to be. The cull contractors were given six weeks to kill 70% of the badger populations in those areas. They failed, in part due to the level of disruption caused by civic resistance the law couldn't or wouldn't do anything about, while Owen Paterson claimed that the population of badgers was not as high as expected, issued revised targets and extended the culls. More precisely, he said 'the badgers moved the goalposts'. The derision could be heard underground.

But there was to be no backing down. Compared to other countries in the EU, the UK – or to be precise, England and Wales, as Scotland is 'Officially Tuberculosis Free' – looks like a bad place to be a cow. In 2012, double the proportion of its national herd tested positive for the disease, 10%, compared to the next worst EU member-state, the Republic of Ireland (EFSA 2014). The five member states with the highest levels of the disease in their herds, the UK, Ireland, Spain, Italy, and Portugal (in that order, as of 2012), receive money from the EU to tackle it. Of these five, only the UK's stats were deteriorating. The message coming from EU commissioners to the government was clear: do something about the disease in wildlife (DEFRA 2013a). The subtext was '- or lose the money and have your exports banned (again!)' (*The Times 2013*). While Spain, Italy and Portugal had some problems with bovine TB in wildlife and big game such as deer and wild boar, Britain and Ireland are the true homelands of a much smaller, much tougher animal whose whole ecology has become intricately interwoven with the cows that are an important part of the agricultural industries of those two countries. While the rest were reducing bovine TB in their herds by testing the cattle and removing the cows showing a positive result, Ireland was culling its badgers. Now Britain would too.

Culling is a routine way of dealing with unwanted animals. Within herds of livestock and flocks of poultry, it's not just used to control disease, but also to get rid of unproductive or infertile females or economically useless males. Though lots of us feel uncomfortable about this, many carry on eating animal products as long as they don't think about it too much. It's when it comes to culling wildlife that the big controversies occur – and yet, even then, the rule is inconsistency. Deer have been culled in the UK at a rate of three thousand per year since the 1980s as a way to keep a lid on population numbers in the absence of any other predators. Recently, calls have been made to lift this cap, as the population of deer in Britain

has exploded anyway and is doing serious damage to crops and woodlands (*Countryfile* 2015). Response?

Nothing much. Increasingly, people are saying that instead of culling we should reintroduce the natural predators of certain animals where there's a population problem (for example, Monbiot 2013). Others point out that Britain is a very different place to what it was when wolves last roamed the land, and there's not the economic and ecological space for them (*Farmers Guardian* 2015). Even in France, more space hasn't stopped wolves being culled as a result of a series of clashes with farmers and rural inhabitants (*Independent* 2015).

Economics, disease, population, conservation and landscape management and conflict with human inhabitants or interests are all reasons animals are culled. In Britain, deer, wild boar, cormorants, grey squirrels, foxes, and seagulls have recently been, or are being discussed as, the subject of culling. The animal rights lobby never agree with any of it, but threaten badgers and enter a storm. In 2013 a record 300,000 people signed a Downing Street petition against the culling of badgers (Team Badger, 2013). For some it was bad policy; for others, badgers are special. For a few, badgers stand for them all.

This book isn't a work of popular science. We'll discuss science research about bovine TB when it's necessary, but there is no pedestal for scientists here. The research that this book is based on – UK research council-funded work carried out at the University of Exeter – starts from the premise that science can't on its own give us all the answers about what should be done, can't on its own help to resolve the social conflict that has emerged around the issue, and so can't on its own help create a viable long-term policy that delivers, as the NFU's strapline goes, 'healthy cattle, healthy badgers'.

It isn't nature-writing either – or at least, it's not the kind that we've got used to, publicizing at length the enchantments of the countryside, wildlife or the wilderness, trying to stir up, maybe, a bit of concern or action, or stimulate a sense of nostalgia, or, at least, envy in the reader of the author's green-gilded existence. This book comes from a place of disenchantment, looking for the intellectual and practical means to find a way through. The psychologies of wonder and bitterness are only relevant insofar as they get in the way.

Whether it's natural history, bovine immunology or badger ecology, knowledge is political. How do we engage with the debate about the issue and the conflict around it, without engaging *in* partisan debate and conflict? How do we find a way through this and get to a more desirable place, with less social conflict and less biological dis-ease? These are, themselves, political questions, reflecting specific choices, the choice to ignore neither the social side of a science problem nor the material side of a social problem. No short-cuts, no convenient blind-spots, except the ones I haven't seen. What follows does not just inevitably reflect my own perspectives and biases about people, politics and nature, but aims to show as clearly as possible the process by which that perspective develops. For reasons that will become clear, that process is deliberately exploratory and reflective, and the outcome is my own perspective, it should not be confused with the views of those I record in the text or with those of the other members of the academic team involved.

It is, then, a book about doing social science, looking for a different register to both the turgidity and privilege of the strictly academic literature and the over-easy, comforting, and depoliticized/overly-ideological styles of popular writing. It is upfront about three things: the process of research (messy), the academic context (problematic), and the engagement with ideas (difficult). I am simply assuming that you are intelligent but that you might not have had much opportunity to find relevant information or become familiar with the issues and ideas in this book. I hope it gets you thinking about research and the sanitised stuff called 'evidence' we're always hearing about in the media. I hope it gets you thinking about the institutions within which knowledge of different kinds is produced and consumed, not least the university. I hope it gets you thinking about some of the most challenging ideas available to western philosophy. And I hope it gets you thinking about the people whose voices we hear throughout the book. Farmers, protestors and patrollers, vets, police. I've let them speak, through their interview transcripts, at length – for more than I can bring under some neat control myself. Too often, for spurious reasons of length, interview material is cut down to the smallest symbolic paragraph, limiting what the real experts (the people there) have to say to what the academic experts have to say about them. Not here – perhaps that means you find the most interesting thing here simply isn't dealt with; in that way too, this is a partial account.

PAGES MISSING

FROM THIS FREE SAMPLE

List of Acronyms

ABC	Acknowledge, bridge, comment
AHVLA	Animal Health and Veterinary Laboratories Agency, merged with the Bee Inspectorate, the Plants Health and Seeds Inspectorate, the Plant Variety and Seeds Group and the GM Inspectorate to form the ALPHA in 2014.
APHA	Animal and Plant Health Agency
BBC	British Broadcasting Corporation
BCG	Bacillus Calmette-Guérin
BCMS	British Cattle Movements Service
CST	Council for Science and Technology
DEFRA	Department for Environment, Food and Rural Affairs, UK
DIVA	Differentiate infected from vaccinated animals
DNA	Deoxyribonucleic acid
DOC	Department of Conservation, New Zealand
EFSA	European Food Safety Authority
ETUI	European Trade Union Institute
EU	European Union
FOI	Freedom of Information
GABS	Gloucestershire Against Badger Shooting
GM	Genetically modified
GPS	Global positioning system
HSA	Hunt Saboteurs Association
HSI	Humane Society International
IEP	Independent Expert Panel

ISG	Independent Scientific Group on Cattle TB
NETCU	National Extremist Tactical Cordination Unit
NFU	National Farmers Union
PCR	Polymerase chain reaction
PGCHE	Postgraduate Certificate in Higher Education
RBCT	Randomised Badger Culling Trial
SHAC	Stop Huntingdon Animal Cruelty
VLA	Veterinary Laboratories Agency, merged with Animal Health to form the AHVLA in 2011
VNTR	Variable nucleotide tandem repeating
WBP	Wounded Badger Patrol
WTF	Work it out for yourself

List of References

AHVLA (2014a) *Monitoring the efficacy of badger population reduction by controlled shooting during the first six weeks of the pilots. Report to DEFRA.* Animal Health and Veterinary Laboratories. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300383/ahvla-efficacy-report.pdf [accessed 26 Aug 2016].

AHVLA (2014b) *The efficacy of badger population reduction by controlled shooting and cage trapping, and the change in badger activity following culling from 27/08/2013 to 28/11/2013. Report to DEFRA.* February 6th. Animal Health and Veterinary Laboratories. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300385/ahvla-extension-efficacy.pdf [accessed 26 Aug 2016].

AHVLA (2014c*) Monitoring the humaneness of badger population reduction by controlled shooting. Report to the Independent Expert Panel and Defra.* November 26th. Available at: https://www.gov.uk/ government/uploads/system/uploads/attachment_data/file/300388/humaneness-report.pdf [accessed 26 Aug 2016].

Atkins, P.J., and Robinson, P.A. (2013). "Coalition culls and zoonotic ontologies." *Environment and Planning A. 45(6),* pp. 1372-1386.

Avon and Somerset Constabulary (2014) *Investigation report: complaint against police.* HC/CO/82/14. Available at: http://badger-killers.co.uk/wp-content/uploads/Taskers-investigation-report-edit2.pdf [accessed 27 Aug 2016].

Baker, C. (2015). *Bovine TB statistics: Great Britain.* House of Commons Library Briefing Paper, 6081, 13th May. Available at: http://www.parliament.uk/briefing-papers/SN06081.pdf [accessed 26 Aug 2016].

Bartle, J. (2000). "Political awareness, opinion constraint and the stability of ideological positions." *Political Studies* 48(3), pp. 467-484.

BBC (2006). *Four jailed in grave-theft case.* May 11th. Available at: http://news.bbc.co.uk/1/hi/england/staffordshire/4762481.stm [accessed 26 Aug 2016].

BBC (2014). *Interview with Owen Paterson,* Secretary of State of Environment, Food and Rural Affairs. [Radio 4 PM programme], April 3rd.

Ball, S.J. (1994). "Political interviews and the politics of interviewing." in Walford, G. (ed.) *Researching the Powerful in Education.* London: Routledge.

Berg, B.L., and Lune, H. (2014). *Qualitative Research Methods for the Social Sciences*. 8th ed. Harlow: Pearson.

Biernacki, P. and Waldorf, D. (1981). "Snowball sampling: Problems and techniques of chain referral sampling." *Sociological Methods & Research,* 10(2), pp.141-163.

Böhm, M., Hutchings, M.R. and White, P.C.L. (2009). "Contact networks in a wildlife-livestock host community: identifying high-risk individuals in the transmission of bovine TB among badgers and cattle." *PLoS One* 4(4), pp.e5016.

Bovine TB Blog (2005). Anything you can do..... Available at: http://bovinetb.blogspot.co.uk/2005/04/anything-you-can-do.html [accessed 26 Aug 2016].

Bovine TB Blog (2006). Spoligotypes. Available at: http://bovinetb.blogspot.co.uk/2006/11/spoligotypes.html [accessed 26 Aug 2016].

Brown S.R. (1980). *Political Subjectivity: Applications of Q Methodology in Political Science*. New Haven, CT: Yale University Press.

Buddle, B.M. and Young, L.J. (2000). Immunobiology of mycobacterial infections in marsupials. *Developmental & Comparative Immunology,* 24(5), pp.517-529.

Chambers, M.A., Rogers, F., Delahay, R.J., Lesellier, S., Ashford, R., Dalley, D., Gowtage, S., Davé, D., Palmer, S., Brewer, J. and Crawshaw, T. (2011). "Bacillus Calmette-Guérin vaccination reduces the severity and progression of tuberculosis in badgers." *Proceedings of the Royal Society of London B: Biological Sciences, 278(1713), pp.1913-1920.*

Clegg, F. (1982). *Simple Statistics: A course book for the social sciences*. Cambridge: Cambridge University Press.

Colquhoun, D. (2014). *Publish and perish at Imperial College London: the death of Stefan Grimm*. DC's Improbable Science. Available at: http://www.dcscience.net/2014/12/01/publish-and-perish-at-imperial-college-london-the-death-of-stefan-grimm/ [accessed 26 Aug 2016]

Coole, Diana, and Samantha Frost, eds. (2010) New materialisms. Durham, NC: Duke University Press Books.

Corner, L. A. L., Murphy, D. and Gormley, E. (2011). "Mycobacterium bovis infection in the Eurasian badger (Meles meles): the disease, pathogenesis, epidemiology and control." *Journal of Comparative Pathology* 144(1), pp.1-24.

Countryfile (2015). *Deer culling in Britain: facts and statistics*. Available at: http://www.countryfile.com/explore-countryside/ wildlife/deer-culling-britain-facts-and-statistics [accessed 26 Aug 2016].

Cronon, W., ed. (1996). *Uncommon Ground: Rethinking the human place in nature*. New York: WW Norton & Company.

CST (2005). *Policy through dialogue: informing policies based on science and technology*. Council for Science and Technology. Available at: http://webarchive.nationalarchives.gov.uk/20060217000323/http://www.dti.gov.uk/cst/reports/files/policy-through-dialogue/report.pdf [accessed 26 Aug 2016].

DEFRA (2005). *Most common breeds of cattle in GB (NUTS 1 areas) on 01 April 2005*. Department for Environment, Food & Rural Affairs. Available at: https://web.archive.org/web/20060214133105/http://www.defra.gov.uk/animalh/diseases/vetsurveillance/reports/pdf/cattle-gb010405.pdf [accessed 26 Aug 2016].

DEFRA (2007). Dairy *Cattle Lameness - Practical Solutions To A Persistent Problem*. Department for Environment, Food & Rural Affairs. Available at: http://adlib.everysite.co.uk/resources/000/250/222/cow_lameness.pdf [accessed 26 Aug 2016].

DEFRA (2010). *Bovine TB and the use of PCR: summary of 12 July meeting*. Department for Environment, Food & Rural Affairs. Available at: http://www.warmwell.com/pcr-meeting100712.pdf [accessed 26 Aug 2016].

DEFRA (2011*). Agricultural Statistics and Climate Change*. 2nd Ed. Department for Environment, Food & Rural Affairs. Available at: http://webarchive.nationalarchives.gov.uk/20130305023126/http:/www.defra.gov.uk/statistics/files/defra-stats-foodfarm-enviro-climate-climatechange-120203.pdf [accessed 26 Aug 2016].

DEFRA (2013a). *Request for information: EU Directive stating explicit requirement for a badger cull or documentary evidence of pressure from the EU of Brussels to bring bovine tuberculosis under control*. 15th July. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/239596/5618.pdf [accessed 26 Aug 2016].

DEFRA (2013b). *The 'edge area' strategy: Rollout of new TB control measures*. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/251470/pb14040-tb-info-note.pdf [accessed 26 Aug 2016].

DEFRA (2014a). *The Strategy for achieving Officially Bovine Tuberculosis Free status for England*. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/ government/uploads/system/uploads/attachment_data/file/300447/pb14088-bovine-tb-strategy-140328.pdf [accessed 26 Aug 2016].

DEFRA (2014b) *Defra response Pilot Badger Culls in Somerset and Gloucestershire: Report by the Independent Expert Panel*. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/government/uploads/system/ upl-

oads/attachment_data/file/300424/pb14158-defra-response-independent-expert-panel.pdf [accessed 26 Aug 2016].

DEFRA (2015). *Farming Statistics - Livestock Populations at 1 December 2014, United Kingdom*. 19th March. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/ government/uploads/system/uploads/attachment_data/file/414334/structure-dec2014-uk-19mar15.pdf [accessed 26 Aug 2016].

DEFRA (2016a). *Agriculture in the United Kingdom 2015*. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/535996/AUK-2015-07jul16.pdf [accessed 26 Aug 2016].

DEFRA (2016b). *UK Dairy Industry Statistics*. Department for Environment, Food & Rural Affairs. Available at: http://researchbriefings.files.parliament.uk/documents/SN02721/SN02721.pdf [accessed 26 Aug 2016].

DEFRA (2016c). *Background and methodology to the National Statistics on the Incidence of Tuberculosis (TB) in Cattle in Great Britain*. Department for Environment, Food & Rural Affairs. Available at:

https://www.gov.uk/government/uploads/system/ uploads/ attachment_data/file/537057/bovinetb-annex-13jul16.pdf

[accessed 26 Aug 2016].

DEFRA (2016d). *TB in cattle in Great Britain - headline statistics dataset*. Department for Environment, Food & Rural Affairs. Available at: https://www.gov.uk/government/uploads/system/ uploads/attachment_data/file/529316/bovinetb-headline-15jun16.ods [accessed 26 Aug 2016].

DOC (2016). *Possums*. Department of Conservation, New Zealand. Available at:

http://www.doc.govt.nz/nature/pests-and-threats/ animal-pests/animal-pests-a-z/possums/ [accessed 26 Aug 2016].

Deleuze, G., and Guattari, F. (1988). *A Thousand Plateaus: Capitalism and schizophrenia*. London: Bloomsbury Publishing.

DePaulo, B.M. and Bell, K.L. (1990). "Rapport is not so soft anymore." *Psychological Inquiry,* 1(4), pp.305-308.

Enticott, G. (2001). "Calculating nature: the case of badgers, bovine tuberculosis and cattle*" Journal of Rural Studies* 17, pp. 149-164.

Enticott, G., Franklin, A. and Van Winden, S. (2012). “Biosecurity and food security: spatial strategies for combating bovine tuberculosis in the UK.” *The Geographical Journal,* 178(4), pp.327-337.

EFSA (2014). “The European Union Summary Report on Trends and Sources of Zoonoses, Zoonotic Agents and Food-borne Outbreaks in 2012.” *European Food Safety Authority Journal* 12 (2): 3547.

Available at: http://www.efsa.europa.eu/sites/default/files/ scientific_output/files/main_documents/3547.pdf [accessed 26 Aug 2016].

ETUI (2016). *Strikes in Europe.* European Trade Union Institute. Available at: http://www.etui.org/content/download/ 23998/199748/ file/interactivemapstrikes_20160729.pdf [accessed 26 Aug 2016].

Farmers Guardian (2007). Are cattle really the cause of bovine TB spreading across the country? Available at:http://www.farmersguardian.com/are-cattle-really-the-cause-of-bovine-tb-spreading-across-the-country?/10145.article [accessed 26 Aug 2016].

Farmers Guardian (2015). NFU Scotland warns of dangers of reqilding Britain. July 17th. Available at: https://www.fginsight.com/ news/ nfu-scotland-warns-of-dangers-of-rewilding-britain-4858 [accessed 26 Aug 2016].

Farmers Weekly (2003). Rethink health strategies. February 28th 2003.

Farmers Weekly (2016). Livestock Event 2016: More badger culls planned this summer, says Defra minister. July 7th. Available at: https://www.fwi.co.uk/news/more-badger-culls-planned-this-summer-says-defra-minister.htm [accessed 26 Aug 2016].

*Financial Times (*2012). China's ever greater expectations. November 8th. Available at: http://www.ft.com/cms/s/2/1fb9441a-2998-11e2-a5ca-00144feabdc0.html#axzz2BWwfaNDn [accessed 26 Aug 2016].

Fisher, R., and Ury, W. (1987). *Getting to Yes.* New York: Simon & Schuster.

Forester J. (1999). "Dealing with deep value differences", in Susskind L.E., McKearnan S., Thomas-Lamar, J. (eds*) The Consensus Building Handbook,* London: Sage, pp. 463-93.

Foucault, M., (1979). *On Governmentality.* I & C, Vol. 6, pp. 5-22.

Freud, S. (1919). *On Creativity and the Unconscious.* Translated by Alix Strachey, New York: Harper & Row.

Fuller, D. (1999). "Part of the action, or 'going native'? Learning to cope with the 'politics of integration'." *Area* 31(3), pp. 221-227.

Gallagher, J., and Clifton-Hadley, R. S. (2000). "Tuberculosis in badgers; a review of the disease and its significance for other animals." *Research in Veterinary Science* 69(3), pp.203-217.

Galletta, A. (2013). *Mastering the Semi-structured Interview and Beyond: From research design to analysis and publication.* New York: NYU Press.

Gandy, M. (1999). "The Paris sewers and the rationalization of urban space." *Transactions of the Institute of British Geographers* 24(1), pp.23-44.

Giddens, A. (1984). *The Constitution of Society: Outline of the theory of structuration.* Berkeley: Univ of California Press.

Gitlin, T. (2000). Afterword, in Mills, C. Wright. *The Sociological Imagination.* Oxford: Oxford University Press, 2000. p. 233.

GM Science Review Panel (2003). *GM Science Review First Report: An open review of the science relevant to GM crops and food based on the interests and concerns of the public.* Available at: http://image.guardian.co.uk/sys-files/Guardian/documents/2003/07/21/gmsci-report1-full.pdf [accessed 26 Aug 2016].

Godfray, H.C.J., Donnelly, C.A., Kao, R.R., Macdonald, D.W., McDonald, R.A., Petrokofsky, G., Wood, J.L., Woodroffe, R., Young, D.B. and McLean, A.R. (2013). "A restatement of the natural science evidence base relevant to the control of bovine tuberculosis in Great Britain." *Proceedings of the Royal Society of London B: Biological Sciences* 280.1768: 20131634.

Goffman, E. (1974). *Frame Analysis: An essay on the organization of experience.* Cambridge, MA: Harvard University Press.

Goudy, W.J. and Potter, H.R. (1975). "Interview rapport: Demise of a concept." *The Public Opinion Quarterly,* 39(4), pp.529-543.

Griffin, J.M., Williams, D.H., Kelly, G.E., Clegg, T.A., O'boyle, I., Collins, J.D. and More, S.J. (2005). "The impact of badger removal on the control of tuberculosis in cattle herds in Ireland. Preventive veterinary medicine." 67(4), pp.237-266.

The Guardian (2005). Why animal activists forced widow, 67, to give up her fight. January 22nd. Available at: https://www.theguardian.com/uk/2005/jan/22/animalwelfare.sciencenews [accessed 26 Aug 2016].

The Guardian (2013). Badger cull in Somerset on the trail of the marksmen. Available at: https://www.youtube.com/watch?v=5q9gA0Ih1tY [accessed 26 Aug 2016].

The Guardian (2014). Badger cull company used Somerset's constabulary 'as private police force'. May 25th. Available at: https://www.theguardian.com/environment/2014/may/25/badger-cull-company-avon-somerset-police [accessed 26 Aug 2016].

The Guardian (2016). Bovine TB not passed on through direct contact with badgers, research shows. August 5th. Available at: https://www.theguardian.com/environment/2016/aug/05/bovine-tb-not-passed-on-through-direct-contact-with-badgers-research-shows [accessed 26 Aug 2016].

Habermas, J. (1987). *The Theory of Communicative Action.* Vol. II. Trans. McCarthy, T. Boston: Beacon Press.

Hammett, D., and Sporton, D. (2012). "Paying for interviews? Negotiating ethics, power and expectation." *Area* 44(4), pp.496-502.

Harvey, W.S. (2011). "Strategies for conducting elite interviews." *Qualitative Research* 11(4), pp.431-441.

HM Govt (1999). Modernising Government. Presented to Parliament by the Prime Minister and the Minister for the Cabinet Office by Command of Her Majesty, March 1999. Available at: https://www.wbginvestmentclimate.org/uploads/modgov.pdf [accessed 26 Aug 2016].

Heaney, S. (1995) *Nobel Lecture: Crediting Poetry.* December 7th. Available at: http://www.nobelprize.org/nobel_prizes/ literature/laureates/1995/heaney-lecture.html [accessed 26 Aug 2016].

Hinchliffe, S. (2007). *Geographies of Nature: Societies, environments, ecologies.* London: Sage.

HSI/YouGov (2013). *YouGov / HSI Survey Results.* Available at: https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/d2fr6coba8/YG-Archive-HSI-results-151013-badger-cull.pdf [accessed 26 Aug 2016].

Independent (2014). Kelly Brook's ex-Gladiator boyfriend David McIntosh 'crashed van full of dead badgers during controversial cull'. Thursday 113th March. Available at: http://www.independent.co.uk/ news/people/news/kelly-brooks-ex-gladiator-boyfriend-david-mcintosh-crashed-van-full-of-dead-badgers-during-9188925.html [accessed 27 Aug 2016].

Independent (2015). France increases its wolf cull after disputed attack on 16-year-old boy. Monday 8th June. http://www.independent.co.uk/news/world/europe/france-increases-its-wolf-cull-after-disputed-attack-on-16-year-old-boy-10306100.html [accessed 26 Aug 2016].

IEP (2014). *Pilot Badger Culls in Somerset and Gloucestershire.* Independent Expert Panel report presented to the Secretary of State for Environment, Food and Rural Affairs The Rt Hon Owen Paterson MP, March 2014. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/300382/independent-expert-panel-report.pdf [accessed 26 Aug 2016].

ISG (2007). Bovine TB: *The Scientific Evidence. A Science Base for a Sustainable Policy to Control TB in Cattle. An Epidemiological Investigation into Bovine Tuberculosis. Final Report of the Independent Scientific Group on Cattle* TB. Presented to the Secretary of State for Environment, Food & Rural Affairs The Rt Hon David Miliband MP, June 2007. Available at: http://archive.defra.gov.uk/foodfarm/ farmanimal/diseases/atoz/tb/isg/ report/final_report.pdf [accessed 26 Aug 2016].

King, D. (2007). *Bovine Tuberculosis In Cattle And Badgers: A Report By The Chief Scientific Adviser, Sir David King.* Presented to the Secretary of State for Environment, Food & Rural Affairs The Rt Hon David Miliband MP, July 2007. Available at: http://www.bovinetb.info/docs/RBCT_david_%20king_report.pdf [accessed 26 Aug 2016].

Kuhn, T.S. (1962). The Structure of Scientific Revolutions. Chicago, IL: University of Chicago Press.

Latour, B. (2002). *War of the Worlds,* Prickly Paradigm Press.

Latour, B. (2004). "Why has critique run out of steam? From matters of fact to matters of concern." *Critical Inquiry* 30.2: 225-248.

Longhurst, R. (2010). "Semi-structured interviews and focus groups." In Clifford, N., French, S. and Valentine, G. (eds.) *Key Methods in Geography,* 2nd edition. London: Sage pp.103-115.

Lord, C., Kennet, M., and Felton, J., eds. (2012). *Citizens' Income and Green Economics.* Reading: Green Economics Institute.

Máirtín, D.Ó., Williams, D.H., Griffin, J.M., Dolan, L.A. and Eves, J.A. (1998). "The effect of a badger removal programme on the incidence of tuberculosis in an Irish cattle population." *Preventive Veterinary Medicine,* 34(1), pp.47-56.

Mansfield, H.C. (2010). *Tocqueville: A very short introduction.* Oxford: Oxford University Press.

Marsh, D. and Rhodes, R.A.W. (1992). *Policy Networks in British government.* Oxford: Clarendon Press.

Marsh, D. and Smith, M. (2000). "Understanding policy networks: towards a dialectical approach." *Political Studies* 48(1), pp.4-21.

Massey, D. (2005). *For Space.* London: Sage.

May, T. (2005). *Gilles Deleuze: an introduction.* Cambridge: Cambridge University Press.

McAdam, D., McCarthy, J.D. and Zald, M.N., eds. (1996). *Comparative Perspectives on Social Movements.* Cambridge: Cambridge University Press.

McKeown, B.F. and Thomas, D. (1988). *Q Methodology: Quantitative Applications in the Social Sciences.* London: Sage.

Melucci, A. (1996*). Challenging codes: Collective action in the information age.* Cambridge: Cambridge University Press.

Monbiot, G. (2013). *Feral: searching for enchantment on the frontiers of rewilding.* Harmondsworth: Penguin.

Mouzelis, N. (2003). *Sociological Theory, What Went Wrong?: Diagnosis and remedies.* London: Routledge.

Murdoch, I. (1970). *The Sovereignty of Good.* London: Routledge.

NFU (2016*). NFU response: CPRE's New Model Farming paper.* Available at: http://www.nfuonline.com/news/latest-news/nfu-response-cpres-new-model-farming-paper/ [accessed 26 Aug 2016].

NFU/YouGov (2013). *YouGov/NFU Survey Results.* Available at: https://d25d2506sfb94s.cloudfront.net/cumulus_uploads/document/xfmldpkgmt/YG-Archive-NFU-results-100513-badger-cull.pdf [accessed 26 Aug 2016].

Pepper, D. (1996). *Modern Environmentalism: An introduction.* London: Routledge.

Plows, A., Wall, D. and Doherty, B. (2004). "Covert repertoires: Ecotage in the UK 1." *Social Movement Studies* 3(2), pp.199-219.

Price, S., Saunders, C., Hinchliffe, S., McDonald, R. (2016). 'From contradiction to contrast in a countryside conflict: Using Q Methodology to reveal a diplomatic space for doing TB differently', paper in revision for submission to *Environment and Planning A.*

Rogers, L.M., Delahay, R., Cheeseman, C.L., Langton, S., Smith, G.C. and Clifton-Hadley, R.S. (1998). "Movement of badgers (Meles meles) in a high–density population: individual, population and disease effects." *Proceedings of the Royal Society of London B: Biological Sciences,* 265(1403), pp.1269-1276.

Rootes, C.A. (1997). "Environmental movements and Green parties in western and eastern Europe" in Redclift, M. & Woodgate, G. (eds) *International Handbook of Environmental Sociology,* Cheltenham and Northampton MA: Edward Elgar, pp.319-48.

Rootes, C.A. (1999). "The transformation of environmental activism: activists, organizations and policy-making", *Innovation* 12(2): 155-173.

Rootes, C.A. and Miller, A. (2000). "The British environmental movement: organisational field and network of organisations'. Paper prepared for the workshop *Environmental Organisations in Comparative Perspective,* ECPR Joint Sessions, Copenhagen, April 14 – 19.

Sabatier, P.A. and Jenkins-Smith, H.C. (1993). *Policy change and learning: An advocacy coalition approach.* Boulder, Co: Westview Press.

Smith, M.J. (1991). "From policy community to issue network: Salmonella in eggs and the new politics of food." *Public Administration,* 69(2), pp.235-255.

Smith, N.H., Gordon, S.V., de la Rua-Domenech, R., Clifton-Hadley, R.S. and Hewinson, R.G. (2006). "Bottlenecks and broomsticks: the molecular evolution of Mycobacterium bovis." *Nature Reviews Microbiology,* 4(9), pp.670-681.

Smith, N. and Hilscher, R. (2006). mbovis.org. Available at: http://www.mbovis.org/spoligodatabase/GBmetadata/maps/maps%20england%20and%20wales.htm [accessed 26 Aug 2016].

Snow, D.A., and Benford, R.D. (1988). "Ideology, frame resonance, and participant mobilization." *International Social Movement Research* 1(1), pp.197-217.

Sokal, A.D. (1996a). "Transgressing the boundaries: Toward a transformative hermeneutics of quantum gravity." *Social Text* 46/47, pp. 217-252.

Sokal, A.D. (1996b). "A physicist experiments with cultural studies." *Lingua Franca* 6(4), pp.62-64.

Stainton Rogers, R. (1995). "Q methodology." In Smith, J.A., Harré, R. and Van Langenhove, L. (eds.). *Rethinking Methods in Psychology*. London: Sage.

Stengers, I. (2005). "Introductory notes on an ecology of practice" *Cultural Studies Review* 11, pp.183-96.

Stephenson, W. (1953) *The Study of Behaviour: Q Technique and its Methodology*. Chicago: University of Chicago Press.

de Tocqueville, A. (1862). *Democracy in America*. Vol. 1. 2nd ed. Translated by Henry Reeve. London: Longman, Green, Longman & Roberts.

Team Badger (2013). *Petition*. Available at: http://teambadger.org/petition.html [accessed 22 Jun 2015].

The Times (2013). UK under pressure from EU to cull badgers. May 22nd. Available at: http://www.thetimes.co.uk/tto/ environment/article3771202.ece [accessed 26 Aug 2016].

Tilly, C. (1999). "From interactions to outcomes in social movements", in Giugni, M., McAdam, D. and Tilly, C. eds *How Social Movements Matter*. Minneapolis: UMP.

Van der Tuin, I. and Dolphijn, R. (2010). The transversality of new materialism. Women: a cultural review, 21(2), pp.153-171.

Vogel, S. (2011). *Germany: Industrial relations profile*. European Foundation for the Improvement of Living and Working Conditions. Available at: http://www.eurofound.europa.eu/sites/ default/files/ef_files/eiro/country/germany.pdf [accessed 26 Aug 2016].

Watts S., and Stenner P. (2012). *Doing Q Methodological Research: Theory, method and interpretation.* London: Sage.

Whitaker D.A., Macrae, A. I. and Burrough, E. (2004). "Disposal and disease rates in British dairy herds between April 1998 and March 2002." *Veterinary Record* 155, pp.43-47

Widder, N. (2012). *Political Theory After Deleuze*. Bloomsbury Publishing.

Wilson, A. (2012). *United Kingdom: Industrial relations profile.* European Foundation for the Improvement of Living and Working Conditions. Available at: http://www.eurofound.europa.eu/sites/default/files/ef_files/eiro/country/united.kingdom.pdf [accessed 26 Aug 2016].

Wood, M. (2003). *Making Sense of Statistics: A non-mathematical approach.* Basingstoke: Palgrave Macmillan.

Woodroffe R., Donnelly C.A., Ham C., Jackson S.Y.B., Moyes K., Chapman K., Stratton N.G., Cartwright S.J. (2016) "Badgers prefer cattle pasture but avoid cattle: implications for bovine tuberculosis control." *Ecology Letters,* online in advance of print. http://dx.doi.org/10.1111/ele.12654 [accessed 26 Aug 2016].

Woodroffe, R., Donnelly, C.A., Johnston, W.T., Bourne, F.J., Cheeseman, C.L., Clifton-Hadley, R.S., Cox, D.R., Gettinby, G., Hewinson, R.G., Le Fevre, A.M. and McInerney, J.P., (2005). Spatial association of Mycobacterium bovis infection in cattle and badgers Meles meles. *Journal of Applied Ecology,* 42(5), pp.852-862.

List of Statements for Q Methodology analysis

No.	Statements
1	You can ignore the cost of the cull because without the protestors, it would be a very cheap policy
2	We've allowed the badger population to build up to such enormously high levels
3	Culling isn't sustainable because you have to keep on culling badgers forever, it's going to be expensive
4	We need a better TB test regime which means that they are picking up the majority of the cattle that need be removed from the herd
5	If you've got a rumbling TB problem in your herd in the last 20 years, you need to get rid of the whole of your herd and start again
6	Farmers in or near cull zones should expect to suffer from diseased badgers spreading out across the countryside
7	Relax the regulations so that it is easier for those who are trained to control badgers in their area
8	The incidence of TB in badgers is relatively low
9	Why do we worry about TB so much, there's far bigger welfare issues for cattle
10	It has not been proven that badgers are giving TB to cows

11	Biosecurity[38] measures are limited, you can reduce risk but you will never, ever stop it
12	TB in the badger population is driven very much by cattle
13	We cull rats, we cull pigeons, there's no big deal about culling badgers
14	If it's feasible to trap badgers in a cage and shoot them then surely it's feasible to trap them in a cage and vaccinate them
15	Investigate gassing of setts, which has to be the most humane way of dealing with animals
16	We are seeing a steady spread of TB across the country from wildlife transmission
17	Reduce the badger population from Cheshire to Hampshire and vaccinate everything that remained in that area
18	The entire concept of the badger cull is a total mess
19	We need more collaboration between the different groups to solve the dispute about badger-culling
20	Nobody wants to see farms Fort Knoxed
21	I don't think we have the right to cull wildlife to the extent planned in the culls
22	How do you separate grazing cattle from badgers? It can't be done
23	It is logistically very challenging to try to catch badgers and inject them with vaccine

[38] In this context, 'biosecurity measures' are understood as actions, other than culling or vaccination, taken to limit contact between cattle and wildlife, or that limit the exposure of cattle to bTB spread by wildlife.

24	Trap badgers, test them to see if they've got TB, if they have then kill them. I could live with that
25	The cattle vaccine could be offered to farms who would then undertake not to sell their cattle for export
26	The trouble is at the moment the badger is the most protected animal on the planet
27	Until you get rid of the wildlife reservoir, you're never going to get on top of TB
28	Find a way of testing the level of severity of TB in any one badger sett or population and cull those worst areas
29	We should be pursuing badger vaccination. It's cheaper than shooting them, when it's done on a voluntary basis
30	A lot of the disease that arises, like TB, is probably due to the way we're farming and the intensity of it
31	Culling is just an out-dated way of trying deal with disease
32	Increase the number of cattle inspectors and introduce random inspections on farms
33	The badger vaccine is seen as a magic bullet by a lot of people, but they don't understand the science behind it
34	Badgers control their own population, so the theory of a badger population explosion doesn't really stand up

Index

D

E

F

G

H

I

K

L

M

N

U

V

W

Y