



CHAPTER 2

How the Badger Became Tuberculous

During the early 1970s, the British Ministry of Agriculture, Fisheries and Food (MAFF) moved from the discovery of a single dead badger to a full-scale wildlife culling policy; as well as from optimism to panic about bTB in only four years. In this chapter, we will investigate this rapid transition, introducing many of the dramatis personae who were to shape debates over badgers and bTB for many years to come. These included MAFF field officers, veterinarians and scientists who first became aware of and were charged with investigating the problem; naturalists and zoologists knowledgeable about wildlife; senior policymakers and politicians who acted upon this knowledge; animal protection activists and campaigners; and the organisms themselves—mycobacteria, cows and badgers. The chapter will demonstrate how attending to the multiple and changing roles assigned to badgers, as well as following the ‘traces’ they have left behind in historical documents, can help us understand how the history of bTB has been shaped by animals and humans alike.¹ It will follow this fast-moving situation as people started unravelling the complex connections between wild badgers, cattle and *M. bovis*. To do this, we must explore the immediate social, political and policy contexts into which the idea of tuberculous badgers was received, investigated, understood and contested. At this time, Britain was entering an extended period of political, economic and social instability: a wider backdrop which helps explain the decisions made about a then-obscure animal and a no-longer prominent cattle disease. One facet of the changes overtaking British society involved

a shift in relationships between science and society, including new environmental and animal advocacy movements. In the years leading up to the reshaping of the badger's social role into that of disease victim, there had been a series of incidents involving environmental damage, wildlife and infectious diseases. This chapter will show how they formed part of a developing atmosphere of anxiety and dissent over human–animal relations, in which the previously unconnected concerns of animal health and the long-standing British ‘badger debate’ came together.

2.1 ANIMAL ANXIETIES IN THE EARLY 1970S

The 1970s is widely remembered as a period of political and economic instability, as well as social change, in Britain and across the world: an era increasingly used as a historical touchstone for understanding our own unstable and uncertain times. The decade saw the entry of the UK into the newly formed European Economic Community, explosions of political violence in Northern Ireland; serial crises in labour relations; and the 1973 oil crisis, eventually leading to the ‘three-day week’ and widespread recession. The 1970s is also notorious for rapid changes in government, whereby the UK saw five different administrations, swinging back and forth between left- and right-wing party control. In 1970, the Labour ministry of Harold Wilson—which had held power since 1964—was voted out, to be replaced by a Conservative government led by Edward Heath. The Heath government came in with a reforming agenda, taking the UK into the EEC and attempting to curb trade union power while deregulating the economy. Heath's government rapidly came unstuck and by 1974 he was forced to call a general election: this resulted in a hung parliament and Labour forming a minority government, once more under Harold Wilson. Wilson served as prime minister for a further two years before resigning and passing the leadership to James Callaghan in 1976. Over the following few years the economy worsened, culminating in the 1978–1979 ‘Winter of Discontent’, during which widespread strikes led to shut-downs in public services. Callaghan's government eventually ended in a vote of no confidence from members of Parliament, resulting in the 1979 general election, where the Conservative party, now led by Margaret Thatcher, was elected to power in a landslide victory.²

The 1970s is also known for the acceleration of social changes starting in the previous decade, including the emergence of women's liberation and gay rights movements; widespread tensions over immigration and

race; and intense conflicts over labour rights. Alongside these debates, the anti-war and anti-nuclear movements of the 1960s turned towards broader concerns about environmental damage, joining forces with older, more established conservation movements. Environmental politics became more radical, with the formation of new international NGOs such as Greenpeace and Friends of the Earth alongside countless local groups, many of whom put into practice direct forms of protest learned from other campaigns.³ Similarly, while the UK had long-standing traditions of political action against animal cruelty, including anti-vivisectionism and anti-blood-sports campaigning, animal politics also took a more radical turn at this time. New forms of activism emerged, including the disruption of fox and other hunts in the field (sabbing) and releasing animals from laboratories: it was also around this time that distinctions between long-standing ‘animal welfare’ and more radical ‘animal rights’ agendas started to emerge.⁴ These changing attitudes were not only expressed via radical politics, but in more everyday practices, such as an increasing popularity of vegetarianism and veganism,⁵ and more significantly for this story, an upswing in involvement with natural history, conservation and environmental groups.⁶ Threaded through all of this was a debate about the roles that science should play in society, involving practicing scientists and other intellectuals involved in radical politics in the USA and UK. While socio-biology, nuclear weapons/energy and industrial pollution formed the core topics of concern (none of which are directly relevant here) radical science movements drew upon and contributed to the other social movements of the time, creating newly critical attitudes towards technocracy and ideas of scientific progress across these movements.⁷ It is also worth noting that public and media reactions to key ‘galvanising events’ for the new environmental politics in the UK, including Rachel Carson’s *Silent Spring* (1962), the Smarden toxic chemical spill (1963) and the Torrey Canyon oil spill (1967), all turned upon literary and visual imagery of suffering animals affected by pollution.⁸ As historian Jon Agar has argued, these intertwined debates about environmental impacts, science and society took place during a ‘long 1960s’ in the history of science and technology, starting in the late 1950s and ending in the mid-1970s, over which science–society relations fundamentally changed.⁹

As we will see here, alongside Smarden and the Torrey Canyon, this period also saw a series of incidents involving animals, suffering, infectious diseases, science and British agricultures and environments. An international outbreak of myxomatosis (a painful, lethal and highly infectious

viral disease affecting rabbits) had reached the UK in 1953. While the worst had passed within a few years, ‘rabbit clearance societies’ charged with culling infected animals remained active until well into the 1970s.¹⁰ While myxomatosis will be explored more fully in Chap. 4, it is worth noting here that the disease lingered in the popular imagination, particularly via Richard Adams’s deeply influential children’s novel *Watership Down*. Between October 1967 and June 1968 there was also a major outbreak of foot and mouth disease (FMD), a virus affecting livestock. While FMD does not kill outright, it is painful, debilitating, affects productivity and is highly infectious—this is why we try and control it.¹¹ Attempts at preventing the 1967–1968 outbreak were particularly unsuccessful, with MAFF having to call in the army after only twelve days, and, as in 2001, very large numbers of infected animals were killed in a very short time, with devastating impacts on agriculture.¹² Finally, since the 1940s Europe had experienced a slowly spreading epizootic of rabies, which seemed to particularly affect wild foxes. By 1969, it had reached Germany and eastern France, creating concerns about disease spread from the continent to the UK. When a terrier imported from Germany (named Fritz) escaped in Surrey, biting several people and subsequently dying of rabies, MAFF reacted strongly, imposing movement restrictions on dogs in the area, and conducting a ‘mass extermination’ of local wildlife.¹³ Following this there were several rabies panics during the early 1970s, and like myxomatosis, the disease cast a shadow on popular culture, spawning a whole subgenre of speculative fiction playing on fears of infection.¹⁴ Between them, myxomatosis, FMD and rabies contributed to a wider sense of unease about animals, the environment, government and science, where events involving infectious disease appeared to act as a particular touchstone for articulating people’s fears and political concerns. This formed the immediate context in which veterinarians, naturalists and scientists tried to understand the connection between badgers and bTB, and policymakers and politicians decided what to do about it.

2.2 BECOMING TUBERCULOUS: UNDERSTANDING AND ACTING ON BOVINE TB IN WILDLIFE

In April 1971, a Gloucestershire dairy farmer brought the dead body of a wild badger found on his land into the local government Animal Health office in Gloucester. Roger Muirhead, a local MAFF veterinary officer,

conducted a post-mortem examination of the animal. He reported pathological lesions caused by tuberculosis, and identified its causal bacterium, *Mycobacterium bovis*, in fluids taken from the badger's lymph glands. The diagnosis was subsequently confirmed by scientists at the government's Central Veterinary Laboratory, and was immediately communicated to other officials and experts within MAFF.¹⁵ Within four years this individual had stimulated a major research programme into 'TB in cattle and badgers', involving parallel laboratory, clinical, experimental and field investigations, all conducted by Ministry scientists and field officers, which would continue right the way through to 1997. This animal also precipitated a series of laws regulating the protection and management of wild badgers, which in adapted form remain in force today. Finally, this event led to the rapid formulation of new policy for managing bTB, whereby badgers on farms suffering bTB breakdowns were gassed in their setts with sodium cyanide, a technique already in use for rabbit control. Given that at the time relatively little was known about the pathology, microbiology and epidemiology of bTB in wildlife, or about the ecology and behaviour of badgers, why did MAFF move from the traces of one sick animal to a national-scale wildlife culling policy in such a short space of time?¹⁶

I will now unpack this narrative, often repeated in today's debate, to fully investigate how MAFF moved so rapidly from a single incident in an obscure corner of the countryside, to viewing badger/bTB as a national problem which must be rapidly dealt with. Using internal civil service correspondence, now held in the National Archives, alongside public media coverage from the time, I will relate how MAFF's veterinarians, scientists and field officers started piecing together the puzzling relationships between *M. bovis*, cattle and badgers. I will also explore the perspectives and actions of external actors, including other parts of government, naturalists, farmers and badger protection campaigners as they helped, harassed, pressured, confirmed and contested the Ministry's developing knowledge of the problem. Along the way, I will introduce many of the dramatis personae who will feature through the rest of this book. These include MAFF field officers, veterinarians and scientists who first became aware of and were charged with investigating the problem; naturalists and zoologists with much-needed expertise about wildlife and ecosystems; senior policymakers and politicians who acted upon this knowledge; animal protection activists and campaigners; and the organisms themselves—mycobacteria, cows and badgers.

As discussed in Chap. 1, the research underpinning this book has set out to take a more animal-centred approach to the history of bTB. I will follow government scientists, veterinarians and field officers as they followed the traces left by this unfortunate animal and its compatriots, struggled to understand their significance, and to decide what action should be taken. I will also introduce the other actors who were involved with badgers, cows and *M. bovis* at the time, exploring the other traces and roles that these organisms had already left while interacting with people. These traces—and the varying interpretations of them made by different people—provided contexts which people outside of MAFF used to make sense of the news. I will explore their varying responses to this news, and their relationships with government ministers, civil servants, veterinarians and scientists over the following few years. While some of these responses were similar to the oppositional dynamics seen in today's controversy, others took a collaborative approach to what they saw as a shared problem, creating a less contested and more collective approach to the situation. By following the activities of those immediately involved in these early investigations, alongside their public and private responses to these rapidly unfolding events, I will demonstrate how these first few years profoundly shaped the dynamics of the badger/bTB controversy, which have continued to play out since that time.

A Dead Badger on a Farm

By the end of the 1960s MAFF had been trying to control bTB in cattle for several decades, initially for the purposes of public health—because the meat and milk of affected cattle were a major source of tuberculosis in humans—and latterly to boost cattle health and productivity. National programmes for managing transmission risks had significantly reduced TB rates in animals and humans in the UK. Politicians and veterinarians were united in confidently anticipating the eradication of bTB from the UK, and MAFF had declared several regions in the UK to be 'attested', with cattle herds testing free of the disease.¹⁷ These successes were publicly celebrated, with the Minister of Agriculture announcing it would come to pass 'within five years or less' in 1957.¹⁸ While the eradication of bTB was announced by MAFF 'for all practical purposes' in October 1960, the situation behind the scenes was much murkier. Pockets of localised infection were persisting, particularly in Gloucestershire and Cornwall, with some farms experiencing repeated outbreaks.¹⁹ Ministry veterinarians were deeply concerned by this, and found they were unable to explain the source of these infections. Therefore, MAFF's Veterinary Investigation

Service dispatched a team to the remote West Penwith peninsula in Cornwall to conduct a full epidemiological investigation of bTB in the area. Despite their detailed investigation, in which they mapped bTB outbreaks and examined all possible sources of disease, including fencing, animal housing, slurry, delays in TB testing following the 1967–1968 FMD outbreak, cattle movement, other livestock and wildlife (including badgers), they came to no firm conclusions.²⁰

Independently of this investigation, Roger Muirhead, an MAFF Veterinary Officer stationed in the Gloucestershire countryside near Wootton under Edge (another area of persistent infection), had found an animal trace which would send shockwaves through the Ministry, veterinarians, scientists, wildlife advocates, as well as farmers still struggling with bTB.

In April 1971 the owner of a large farm lying in the Cotswolds a few miles to the east of the head of the Wortley valley, brought into the Divisional Office a badger which he had found dead on his farm. Examination revealed generalised tuberculosis. A slide revealed numerous acid fast organisms taken from a mesenteric lymph gland which were subsequently typed by the Central Veterinary Laboratory as *Mycobacterium bovis*.²¹

Shortly afterwards, a second badger was found and shot on a nearby farm also suffering persistent outbreaks, this time in calves: this animal was also found to be infected with bTB. In June 1971, Muirhead and his superiors in the local Animal Health office for Gloucestershire met with their local counterparts in the Infestation Control Division (ICD)—responsible for dealing with animal threats to agricultural production—to inform them of the situation. The news was passed on to MAFF’s South West regional office in Bristol, as well as to ICD’s scientific teams at the Pest Infestation Control Laboratories (PICL). Their initial response was sceptical: ‘has the cowman been tested?’ wrote one, suggesting that the source of these outbreaks was most likely human.²² On the whole, ICD scientists and field officers regarded the evidence at this stage as ‘circumstantial’, indicating bTB infections in badgers and cattle in the same area, but saying nothing about the direction of transmission, nor whether the disease was being carried by other wildlife.²³ PICL officers had reason to be sceptical: for many years they had received regular correspondence from members of the public implicating the animals in disruptive ‘pest’ activities such as spoiling and raiding crops, destabilising riverbanks and stealing poultry. Whenever these complaints were investigated, ICD field officers concluded that the

culprits were either wildlife species such as foxes, or occasionally aberrant old or sick individuals described as ‘old rogue badger[s]’.²⁴ ICD also had primary responsibility within MAFF for managing infectious diseases in wildlife: it is for these reasons that Muirhead and his veterinary colleagues turned immediately to them for help.

An initial summary of the situation from Muirhead was circulated to relevant government experts in and outside of MAFF by the end of the year. Dr Archibald McDiarmid of the Agricultural Research Council was less circumspect than ICD: while he thought it likely that badgers had caught bTB from cattle and that this was a localised problem, he recommended that badgers in the area be ‘eliminated’ as soon as possible.²⁵ Following further meetings between Animal Health and ICD, the two divisions agreed to collaborate on a joint field survey of the immediate area, mapping bTB incidence on a farm-by-farm basis alongside sett locations. The survey also sought to obtain more bodies and samples from local wildlife—not just badgers but also foxes, rabbits, rats and so on—to look for the presence of *M. bovis* in other species.²⁶ The news about these unpredictably infected animals also moved rapidly up the hierarchies of government, and by February 1972 ministers had been briefed. Their responses were brisk, with the Parliamentary Secretary (junior minister) commenting, ‘Fond as I am of badgers, I am quite clear that we could not permit a situation to continue in which they were proved carriers of TB.’²⁷

But what had prompted Muirhead to conduct a post-mortem on that badger carcass in the first place? In Cornwall, local veterinary officers had suggested that the animals might have been a source of TB as early as 1962, while Muirhead himself wrote that farmers in Gloucestershire had long held similar opinions.²⁸ Following the initial case, Muirhead had collected further badger carcasses with the help of local farmers: as such his investigations had been public knowledge in the area throughout 1971, and by March 1972 the news had reached the local press.²⁹ Ministry officers were therefore under pressure from this quarter from the very beginning, and while they emphasised the uncertainties involved, farmers in both Gloucestershire and Cornwall had no such doubts and campaigned publicly and privately for action to be taken against badgers.³⁰ MAFF were well aware of the ‘explosive’³¹ situation, stressing in their briefing to ministers that ‘pressure is likely to grow for something to be done about the problem.’ At the same time, they also drew attention to the strong feelings that badgers provoked, negative in some cases, but positive in many others: ‘The status of the badger in children’s books and in the

nature-lover's heart ensures that he is not an animal to be trifled with.'³² While we have already explored some of the contexts which contributed to the badger being granted this simultaneously vilified and elevated status, the late 1960s had seen an intensification of the badger debate. Vigorous campaigns to grant badgers special legal protections were in full swing. It was highly likely that civil servants had badger protection campaigns in mind when they recommended that 'in order to avoid major political repercussions', alongside the field survey work, the Ministry should meet with 'wildlife interests' in order to consult their views and enrol their help with research investigating the problem.³³ These actions, alongside the volume of press clippings held in MAFF archives, attest that civil servants were fully aware (and wary of) the public ramifications of the news.

While ICD had some knowledge of badgers relating to their contested role as pests, as well as considerable experience of wildlife disease relating to myxomatosis, at the time MAFF's veterinarians had minimal knowledge about these or many other wild animals. More widely, relatively little was understood about badger physiology, behaviour and ecology: the person with most expertise on badgers at the time was widely acknowledged to be Dr Ernest Neal, a retired schoolmaster living in Taunton. Neal gained his PhD in 1960 and had been a nationally renowned expert on the animals since publishing his classic work of popular natural history *The Badger* in 1948, while also conducting groundbreaking nature photography for the BBC. Neal was therefore top of the invitation list for MAFF's meeting with 'wildlife interests', held on 16 March, alongside representatives of the Council for Nature (the umbrella body for conservation organisations), naturalists in Gloucestershire and the Nature Conservancy (the government body responsible for scientific advice on conservation, part of the Department of the Environment). While Neal was unable to make this initial meeting, he conferred extensively with MAFF officers and scientists (including Roger Muirhead and Harry Thompson of ICD), later travelling to Gloucestershire to meet with them and observe badgers at one of the affected setts.³⁴ This strategy of including and enrolling wildlife groups initially paid off. Neal had been working for some years with the UK Mammal Society on a nationwide Badger Survey, and the local Recorder for the Society volunteered to help with MAFF's work.³⁵ The conservationists consulted 'responded in a friendly and sympathetic way to the problem'³⁶ and, following the initial meeting, it was agreed that 'badgers in one, and if necessary up to 3, of the known infected sets should be slaughtered and the carcasses examined'.³⁷

However, not all ‘wildlife interests’ were as sympathetic as Neal, nor as convinced that the evidence was clear enough to warrant culling. When members of the Nature Conservancy (shortly to be renamed Nature Conservancy Council, or NCC)³⁸ heard about the situation in August 1971, they were immediately concerned ‘that a widespread purge of Badgers will occur’ when the news became public.³⁹ Unlike MAFF, the scientists of NCC were primarily concerned with the protection and conservation of environments, animals and plants. At the time, NCC members were debating internally whether badgers should be their concern: while some argued that populations were relatively abundant and were therefore not interested, others argued that the animals were under ‘threat’ from badger digging and hunting.⁴⁰ Following the news about TB in badgers, NCC members recast the role of the badger into that of vulnerable victim to be protected, rather than pest or disease transmitter to be controlled. After consulting with Muirhead and Thompson, zoologist J. F. D. Frazer of the NCC summarised their scepticism:

The evidence for the badger as a source of infection is therefore somewhat flyblown. If anything, badgers are more likely to have been infected from the cattle in the first place. There is no evidence of badgers breathing in the calves’ faces or spitting on the grass. Nor, as far as we know, has there been any check on the farmer, his family and his cowman—man being a major host of bovine tuberculosis.⁴¹

Unlike government veterinarians, who employed epidemiological methods of tracing disease outbreaks through geographical associations (Fig. 2.1), the zoologists and ecologists of the NCC saw only the coincidental collocation of sick badgers and sick cows, which proved nothing about the ultimate source of infection. Despite, or perhaps because of, these concerns, following the meeting in March 1972, the NCC offered the help of a regional officer to ‘present the Conservancy’s views in the planning of the extended Badger survey’.⁴² NCC scientists believed they should have a hand in ‘steering’ the research,⁴³ and that it should be conducted jointly by MAFF and themselves.⁴⁴ They were also in favour of a ‘control’ or comparison sampling of badgers from a non-tuberculous area, which their own internal minutes recorded: however, the outcomes circulated more widely by MAFF omitted this point.⁴⁵

While the situation was effectively public knowledge in the Wooton area from the start, MAFF officers shared the NCC’s concerns about the

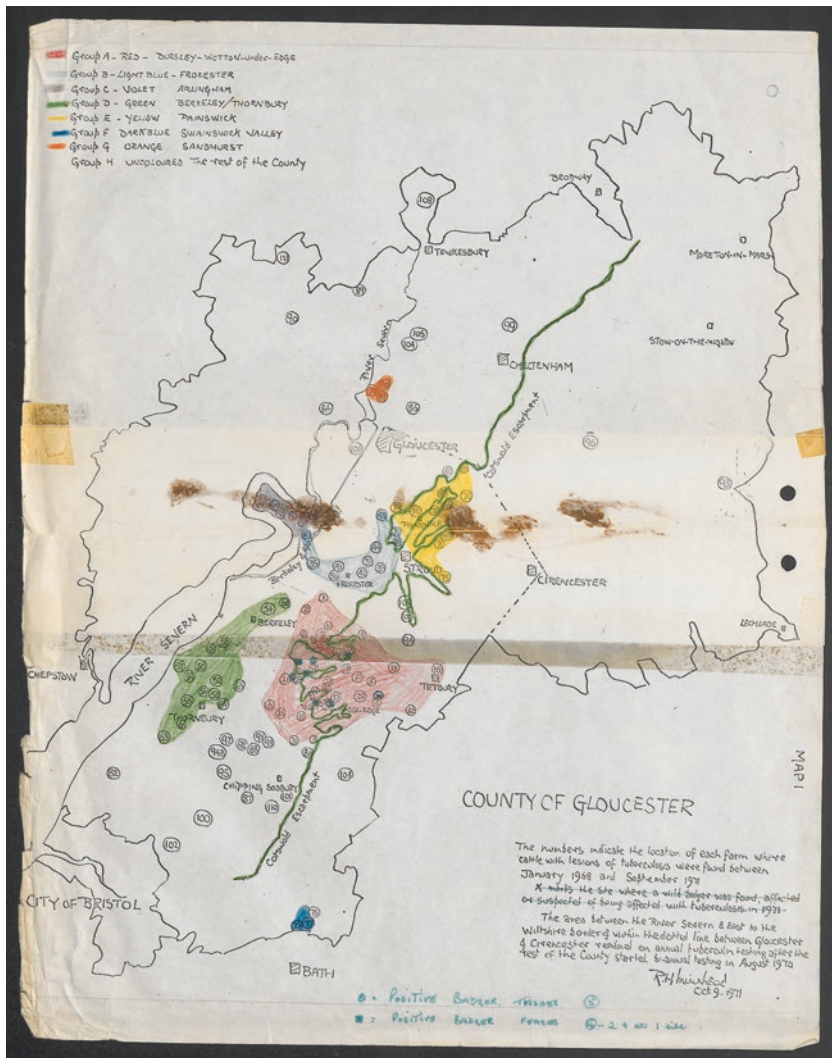


Fig. 2.1 Map initially prepared by Roger Muirhead in September 1971, held in MAFF FT 41/88. Note strikethrough of original 'X marks the spot' notation and replacement with multiple outbreaks

consequences for badgers and had worked to keep it out of the news through 1971. When the story broke in the local press in March 1972, all parties agreed that a public statement needed to be made.⁴⁶ An attempt at preparing a note for publication in *Habitat* (the newsletter of the Council for Nature) foundered in extensive editing, and it became clear that MAFF needed to engage more directly with the media. A statement was rapidly agreed and issued by the regional office of MAFF's agricultural advisory service, ADAS:

TUBERCULOSIS IN WILD BADGERS

The Veterinary Arm of the Ministry's Agricultural Development and Advisory Service has identified the existence of tuberculosis of bovine type in badgers in an area of South Gloucestershire.

This is believed to be the first record of the occurrence of tuberculosis in badgers and accordingly while there is at present no full understanding of the significance of the disease in this species, a possible connection between badger infection and a continuing tuberculosis problem in some of the cattle in the area is being investigated.

A meeting was held recently between officers of the Ministry and representatives of the Wildlife interests to discuss the situation. It was agreed that measures will be taken to survey the badger population of the area and to study the epidemiology of the disease in badger sets which are believed to be infected.

The above statement was distributed to the local press as well as interest groups, including the NFU, the Country Landowners Association, the Veterinary Society and wildlife groups on 23 March, with an additional caveat: 'It is to be hoped that the release of this information does not result in the indiscriminate slaughter of wild badgers. Control measures are under consideration by the Ministry in the one area known to be involved and any private and un co-ordinated action would be quite inappropriate.'⁴⁷ The news spread rapidly, with coverage in national newspapers, the farming press and broadcast media. Muirhead and Neal participated in interviews where they emphasised the local nature of the problem and again requested that badgers be left unmolested.⁴⁸ Unlike the local and farming press, national newspapers were more concerned about the potential 'death sentence' for badgers than the implications for farmers.⁴⁹ Further problems developed when the findings of the West Cornwall investigation were published, reaching no firm conclusions regarding the role of badgers. The news was received badly by Cornish

farmers, who campaigned for immediate action, claiming to have ‘studied’ the animals for many years and be certain that they were the source of infection.⁵⁰

2.3 FOLLOWING BADGERS, TRACING BACTERIA

It was initially envisaged that MAFF’s survey of badgers and bTB in Gloucestershire would take three months,⁵¹ enabling them to learn more, clarify the situation and take swift action. Three ICD officers were assigned the job of recording the locations of badger setts, alongside positive TB reactors in cattle and farms. The officers also took samples of badger faeces and collected the bodies of badgers and samples from other wildlife they found in the area. They were assisted by representatives of the NCC and the Mammal Society, with veterinary officers including Muirhead conducting post-mortems, and experts at the Central Veterinary Laboratories in Weybridge conducting microbiological testing. However, these field investigations were far from straightforward. Badgers were a poorly understood, nocturnal species that lived underground in inaccessible rural areas. As the survey proceeded, the time, space, personnel and costs involved rapidly escalated, as MAFF field officers got to grips with the logistics of finding and following these unfamiliar creatures: ‘They have had the arduous and painstaking task of finding as many setts as possible in a part of Gloucestershire which is well populated by badgers and where steep wooded hillsides make searching quite tiring.’⁵² The field officers persisted, continuing to follow traces of badger bodies, bodily fluids, tracks and behaviour, and to document these traces using maps, photographs, post-mortem and microbiological reports, and numerical data.

As these badger traces were found and recorded, they were mapped onto the geography of the area, alongside the locations of key bTB outbreaks on farms—as part of the official MAFF survey and by Roger Muirhead as part of his ongoing personal investigations (Fig. 2.1). As the name suggests, the Wootton Under Edge area sits on the Cotswold Escarpment, a geological formation running through the county. It creates spectacular scenery and steep wooded hillsides, today much beloved by tourists, but also makes ideal badger country—easy for the animals to both dig and hide in. As MAFF built up a picture of the local situation, their understanding of the scale of the problem changed: not only were almost all other wildlife samples coming back clear, but increasing numbers of TB-positive badgers were being found. These were brought to MAFF

officers by members of the public: as word spread, farmers and naturalists started presenting badger carcasses for inspection on a regular basis. By 1974 MAFF were calling on members of the public to do this whenever they encountered a dead badger, as the animals were (and still are) frequent victims of road traffic accidents.⁵³ Muirhead's hand-drawn map (reproduced in Fig. 2.1) reflects this rapidly changing situation. An initial statement, 'X marks the spot where a wild badger, affected or suspected of being affected with tuberculosis in 1971', has been crossed out, to be replaced with a more complex mapping of seven potential outbreak areas, outlined in different colours and labelled 'Groups A–G'. While the field officers in Gloucestershire were still conducting these initial investigations, the Cornwall veterinary investigation team had returned to the area—and reported finding *M. bovis* in badger faeces samples.⁵⁴

As the survey proceeded and the situation became increasingly public, senior MAFF officials and ministers considered what action should be taken, and how. Once more they turned to ICD, the only people in MAFF with experience of 'badger control'. While the initial setts near Wooton had been destroyed by excavation during the summer of 1972, this procedure was both time-consuming and expensive.⁵⁵ Therefore, other options for killing tuberculous badgers were explored, to decide what to do as more infected animals were found across an increasingly wide area. Because badgers were not legally defined as pests, it was illegal to use cyanide to 'gas' the animals—the standard procedure for destroying rabbits and moles. While a marksman could be employed to target a 'rogue' individual, this required 'much patience' and was therefore too costly; available traps were bulky and unreliable; leaving snaring as the only other 'legal but cruel' option.⁵⁶ ICD officers therefore adapted the design of snare traps, developing a procedure which was quicker and in their view more humane. However, animal welfare campaigners disputed this claim.⁵⁷ These pressures drove policy needs for a new regulatory framework to manage people's behaviour towards badgers in the event of bTB infection: in turn this created another new animal role, as subjects of government legislation. In 1973, the government passed the Badgers Act. On the one hand the Act responded to the lobbying of badger advocates, granting the animals specific protections against killing or cruelty. At the same time, it created a framework by which government could licence individuals to 'to kill or take' the animals for research or conservation purposes, as well as 'for purposes of preventing the spread of disease'.⁵⁸

Once the Act had passed in December 1973, at the NFU's request, Ministry officials planned a series of 'Open Days', where techniques for badger control would be demonstrated for farmers and landowners, to ensure that licensees would be able to kill the animals in the proper way.⁵⁹ Therefore when such an event was announced, to be held at Brock Hill on Scrubbett's Farm, Gloucestershire, over 50 farmers attended, alongside representatives of the NFU, conservation groups and the RSPCA; plus officers from PCD, Animal Health, Rowland Moyle (a junior MAFF minister) and Peter Hardy (the MP who had sponsored the Badgers Act). Shooting, snaring, live-trapping and digging techniques were demonstrated, killing ten animals in total.⁶⁰ While well attended, the event did not go according to plan. Badger protection campaigners Ruth and David Murray came along and objected to the use of snares, subsequently arguing that MAFF officers should be prosecuted under the Badgers Act, as the Act 'prohibited cruel ill treatment of badgers and that snaring was inherently cruel'. While officers reported that there was a consensus from attendees that badger control was necessary, they also felt that it 'was a specialist job and ought to be left to the Ministry. This was hardly the object of the exercise.'⁶¹ As well as complaining at the event itself, the Murrays took photographs and instigated investigations by RSPCA and the local police, who shortly afterwards cautioned the Regional Pests Officer in charge of the event.⁶² When legal advice ruled that snaring was not in fact illegal (provided it was carried out properly) and the police dropped all charges, Ruth Murray then pursued a private prosecution of the incoming Labour Minister for Agriculture, Frederick Peart.⁶³ Even though neither attempt was successful, the demonstration and its consequences provided an ongoing source of media coverage, bringing badger/bTB to the attention of wider audiences.⁶⁴ More prominent badger protection campaigners such as Lord Arran picked up on the bTB issue and included it in their ongoing animal advocacy, leading to questions asked in both Houses of Parliament.

2.4 A CHANGE OF DIRECTION?

Following the Scrubbett's Farm disaster, MAFF cancelled a planned second 'Open Day' demonstration, and all parties urgently re-examined how best to cull badgers.⁶⁵ Wildlife experts such as Ernest Neal and Harry Thompson believed that barring the legal obstacles, using cyanide gas would be the most effective and humane option.⁶⁶ The technology had

been developed during the 1930s, with the influential 1951 Scott Henderson Committee concluding it was ‘an extremely effective and humane method of control and should be used in preference to any other method for destroying animals which live underground’.⁶⁷ Policymakers were already exploring whether the law could be changed, and following the argument at the demonstration ‘it was agreed both by Mrs. Murray and by farmers present that the Ministry ought to take the lead in dealing with the badger situation and that it should use cyanide gas for the purpose of slaughtering badgers’.⁶⁸ In response to a question in Parliament about the incident, the Agriculture Minister stated that MAFF was to ‘reappraise’ policy in relation to badger control and bTB. Peter Hardy wrote to ministers expressing his concerns about snaring, alongside a willingness to support any proposed legal changes.⁶⁹

By this time, the original field survey had been completed and the work extended as many more infected badgers had been found in Gloucestershire, while investigations continued in Cornwall and *M. bovis* had also been found in badger samples from Wiltshire and Dorset. Two ‘comparison’ surveys had been carried out in areas with lots of badgers but low rates of bTB in cattle, neither of which had found the disease in badgers. While other wildlife had initially been investigated for signs of infection, with the exception of two rats and two moles, these samples had tested negative for bTB.⁷⁰ Despite the challenges involved, MAFF’s field officers, veterinarians and scientists had worked together to follow, document and interpret the traces left by *M. bovis* in badgers and other animals. In the process, their understanding of the problem had changed: from a relatively isolated and anomalous incident amenable to sett-by-sett solutions, to a rapidly escalating region-wide disease outbreak. By the end of 1974, bTB had been found in approximately 17% of the badger carcasses that had been examined (in Gloucestershire) and 6% of faeces samples (gathered more widely).⁷¹

MAFF started formulating a more systematic plan for investigating the still highly uncertain relationships between badgers, cattle and bTB. The SVS successfully lobbied for an expansion of staff and resources to handle bTB in investigation centres in Gloucester, Truro and Wiltshire. This included the relocation and promotion of specialist veterinary staff—in pathology and epidemiology—to support Roger Muirhead’s work in Gloucestershire; to conduct cross-species transmission experiments at the Central Veterinary Laboratories in Weybridge; and to develop veterinary epidemiological research on the problem.⁷² PICL and NCC initially pro-

posed an expansion of the field surveys into a jointly conducted research programme on badger ecology and behaviour. While the project was approved, it instead continued the existing MAFF-only partnership of ICD officers, PICL scientists and SVS research and field staff.⁷³ The idea of conducting some kind of experiment in the field was raised: what would happen if badgers were systematically removed from a larger area and prevented from returning for a long period of time?⁷⁴ Prompted in part by NCC's scepticism, the experiment was intended 'to prove or disprove the significance of the badger in the perpetuation of bovine tuberculosis in cattle'.⁷⁵ The proposed experiment would also investigate 'sett reoccupation'—the tendency of other badgers to move into a sett when the residents had been killed.⁷⁶ This idea converged with veterinary arguments for removing badgers from severely affected areas (including Steaple Leaze in Dorset and Thornbury in South Gloucestershire) to create the idea of 'clearance trials' which could fulfil both agendas.⁷⁷

MAFF's reappraisal included a coherent rethink of policies which had up until then been developed on an ad hoc basis in the face of a rapidly changing situation. There was a distinct policy shift: from a relatively 'hands-off' stance whereby MAFF officers investigated bTB outbreaks and then advised farmers and landowners on what to do if tuberculous badgers were found, to one where the state took ownership of investigations and of badger control. The first step was to change the law to enable badger gassing without making it legal for anyone with a grudge against the animals to do likewise, and to scope out the costs of government conducting the culls.⁷⁸ A consensus formed that this was the best way forward, supported by badger specialists such as Thompson, Neal and Murray, alongside key actors in Gloucestershire including the local Trust for Nature Conservation and the local branch of the NFU. The latter even wrote to MAFF's Regional Office to underline this mutual support.⁷⁹ Following a meeting involving the heads of Animal Health, PICL, SVS, RSPCA, BVA, NCC, NFU and the Council for Nature, it was agreed to insert a relevant clause into an existing wildlife protection bill Peter Hardy was putting through Parliament.⁸⁰

MAFF held a press conference to announce their new approach, which included new procedures in the event of an 'unexplained' breakdown of bTB (i.e. where no other source of infection could be found, implicating badgers). MAFF veterinarians would investigate the farm and test badger bodies and faeces for *M. bovis*. If these were positive, then ICD officers would come in and destroy the animals: this was known as a

‘fire-brigade operation’. The clearance trials were announced at the same time, but without mentioning experiments—instead they were framed in terms of bTB control.⁸¹ Detailed plans were drawn up and MAFF started to recruit new staff and plan their training and working procedures to implement the new culling policy.⁸² Once Hardy’s bill had passed into law, ICD immediately started testing gassing equipment, and publicly invited a range of actors to join a new Consultative Panel. The Panel comprised key individuals such as Ernest Neal and leading conservationists; MAFF personnel including Thompson and the Chief Veterinary Officer (CVO); and representatives of a range of organisations including NFU, BVA, NCC and the RSPCA.⁸³ The Panel was charged with keeping under review:

- a. the evidence relating to bovine tuberculosis in badgers, including its incidence and its relationship to bovine tuberculosis in cattle; and
- b. the operations to be undertaken by the Ministry in order to eradicate bovine tuberculosis from badgers and to monitor its existence in the badger population.⁸⁴

This inclusive approach, bringing all parties into ongoing dialogue about the problem, was essentially a formalisation of what MAFF officers had been doing from the very beginning, when Muirhead, Thompson and Neal worked closely together to help each other understand an unprecedented situation and advise MAFF on what to do about it. Early acknowledgements of the uncertainties involved faded into the background, to be replaced by the language of action, as seen here from the CVO: ‘Further research and investigation confirmed that badgers infected with bovine tuberculosis were playing an important role in perpetuating the disease in these areas. With much regret therefore we had to obtain powers to take effective action to eliminate this reservoir of infection.’⁸⁵

2.5 LOOKING, SEEING, KNOWING AND ACTING

By following the scientists, veterinarians, policymakers, naturalists and politicians who struggled to make sense of the traces left by *M. bovis*, we can now see how and why MAFF moved from one dead animal to a full-scale culling policy so quickly. What had initially appeared to be an isolated and anomalous incident (to be dealt with locally and without too much fuss) transformed with alarming rapidity into a situation with a great

deal more biological, geographical and political significance. The relationships between badgers, cows and *M. bovis* had not changed. However, once MAFF officers started looking for traces of bTB in badgers they found more and more, creating a conceptual connection that became more widely visible. What this meant varied according to the roles that people had already assigned to badgers: for those who already saw them as pests, it was easy to also see them as diseased. For those committed to convincing others that badgers were victims of human persecution, the appearance of bTB provided another reason to defend them. These differing interpretations meant that the new role created for badgers—of disease vector—was immediately contested. For veterinarians looking to diagnose the source of unexplained outbreaks, geographical proximity confirmed this role, but for zoologists and ecologists used to working with experimental methodologies, the evidence was less clear-cut. The discovery of tuberculous badgers meant that animal protection and conservation agendas started working together directly in ways that had rarely happened before in Britain. This realignment will be discussed at greater length in Chap. 5. Aside from the Murray prosecutions, this disagreement stayed out of the public sphere and was rarely voiced—even in MAFF's internal meetings. Instead, most of the experts involved—including naturalists, conservationists, PICL scientists and government veterinarians—worked hard to convey coordinated messages about the situation.

Local political pressures would also have been a factor driving such a rapid policy shift. Most immediately these came from farmers and local veterinary officers dealing with positive bTB tests, many of whom were already convinced that badgers were to blame: this was backed up by pressure from the NFU at local and national level. At the same time, policy-makers were keen to work closely with badger advocates and naturalists trying to protect the animals, attempting to head off public controversy. These pressures were in turn shaped by a shared policy context in which actors both internal and external to MAFF were used to participating in an inclusive approach to policymaking.⁸⁶ Prior to 1971, MAFF's main experience of dealing with infectious disease in wildlife had been myxomatosis, and so it was to their colleagues in ICD and PICL that veterinarians immediately turned for help. As we saw earlier, the previous few years had seen a series of other incidents involving animals, infectious disease and environmental problems, including early attempts at eradicating invasive species, myxomatosis, a rabies scare, the 1967–1968 outbreak of FMD and the Torrey Canyon oil spill. These incidents drew upon and

contributed to the emergence of newer, more radical forms of environmental and animal advocacy, as well as to a wider atmosphere of unease around human–animal relations, within which MAFF officers felt a pressure to take action as rapidly as possible.

The broader political contexts of the early 1970s must also be considered, as they shaped both the immediate politics around badgers that MAFF officers were negotiating, and the policy decisions which they were charged with implementing. When Muirhead first reported to his superiors about bTB in badgers, MAFF was busy negotiating changes to agricultural policy relating to the UK's impending entry into the EEC. Beyond the Ministry, by 1972 the Heath administration was already in trouble, and by the spring of 1974 had fallen from power. Given these pressures, the brisk ministerial response to the news is not that surprising. Neither bTB nor badgers were high on political priorities, and ministers would be unlikely to have had the time or inclination to request a closer examination of the evidence linking the two. The aftermath of the Scrubbett's Farm demonstration combined with wider political turmoil to bring badger/bTB to the attention of a much wider circle of people than before. In March 1974 the Labour party had just managed to form a minority government under Harold Wilson, reinstalling Fred Peart as the third Minister of Agriculture to hold the position since 1970. Media coverage of Ruth Murray's attempts to prosecute Peart provided a strong incentive for Labour to draw a line under the previous few years and present a new policy approach. The decision to move from providing advice while relying on farmers to carry out badger control, to MAFF taking charge of research and culling operations was a bottom-up one borne of a consensus amongst scientists, naturalists and farmers. However, this policy shift, from one where government assumed an advisory role, to one in which it took control of and responsibility for all aspects of bTB control, was also highly congruent with the broader political differences between the Conservative Heath administration and the Labour Wilson government.

Between 1971 and 1975, bTB in badgers rapidly changed from a completely unknown and unanticipated problem, to one visible to a relatively restricted group of people, to an embarrassingly public problem which politicians were keen to be seen as taking decisive but consultative action on. Although legislative changes and the commencement of culling operations in 1975 reinforced the badger's role as a threatening vector of disease, MAFF's expanded research effort tacitly acknowledged that its role in propagating bTB was not yet settled. In the years that followed, the

circumstantial nature of the evidence was one important source of scientific and policy controversy, but the multiple and contradictory roles assigned to badgers in the early 1970s and publicised via policy documents and in national and local media also drove ethical, political and emotional responses, which fuelled debates over tuberculous badgers that are still ongoing today. The events of these few short years brought together a diverse range of actors, some of whom had pre-existing patterns of interaction and others who established new cooperative and adversarial relationships which were to profoundly shape the badger/bTB debate for years to come.

NOTES

1. Benson, 'Animal Writes: Historiography, Disciplinarity, and the Animal Trace'; Cassidy et al., 'Animal Roles and Traces in the History of Medicine, c.1880–1980'; Woods et al., *Animals and the Shaping of Modern Medicine*.
2. For overviews of the twists and turns of British society and politics through the 1970s, see Dominic Sandbrook, *State of Emergency: The Way We Were. Britain, 1970–1974* (London: Penguin, 2011); Lawrence Black, Hugh Pemberton and Pat Thane, eds, *Reassessing 1970s Britain* (Manchester: Manchester University Press, 2013). For a contrasting view of the 1970s 'crisis', see also Emily Robinson, Camilla Schofield, Florence Sutcliffe-Braithwaite, Natalie Thomlinson, 'Telling Stories about Post-war Britain: Popular Individualism and the 'Crisis' of the 1970s', *Twentieth Century British History* 28(2) (June 2017): 268–304.
3. Jon Agar, 'What Happened in the Sixties?' *The British Journal for the History of Science* 41(4) (July 2008): 567; Sandbrook, *State of Emergency*, 176–221; Mark Wilson, 'The British Environmental Movement: The Development of an Environmental Consciousness and Environmental Activism, 1945–1975' (PhD, Northumbria University Newcastle, 2014), 232–307.
4. Kean, *Animal Rights*, 201–5; Robert Garner, *Animals, Politics and Morality* (Manchester: Manchester University Press, 2005); Griffin, *Blood Sport*, 182–201.
5. Kean, *Animal Rights*, 203–4.
6. David Evans, *A History of Nature Conservation in Britain* (New York: Routledge, 1997), 136–42; Tim Sands, *Wildlife in Trust: A Hundred Years of Nature Conservation* (London: Elliott & Thompson, 2013), 69–92.
7. Agar, 'What Happened in the Sixties?' 577.
8. For 'galvanising events', *Silent Spring*, the Smarden spill and Torrey Canyon disaster, see G. Kroll, 'The "Silent Springs" of Rachel Carson: Mass Media and the Origins of Modern Environmentalism', *Public*

- Understanding of Science* 10 (2001): 403–20; J. F. M. Clark, ‘Pesticides, Pollution and the UK’s Silent Spring, 1963–64: Poison in the Garden of England’, *Notes and Records: The Royal Society Journal of the History of Science* 3 (15 February 2017): 297–327; Timothy Cooper and Anna Green, ‘The “Torrey Canyon” Disaster, Everyday Life, and the “Greening” of Britain’, *Environmental History* 22(1) (January 2017): 101–26.
9. Agar, ‘What Happened in the Sixties?’ 568–69; Agar, ‘Transition: Sea Change in the Long 1960s’.
 10. Peter W. J. Bartrip, *Myxomatosis: A History of Pest Control and the Rabbit* (London: I.B.Tauris, 2008).
 11. Woods, *A Manufactured Plague*.
 12. Woods, *A Manufactured Plague*, 108–26.
 13. Neil Pemberton and Michael Worboys, *Mad Dogs and Englishmen: Rabies in Britain, 1830–2000* (Basingstoke: Palgrave Macmillan, 2007).
 14. Pemberton and Worboys, *Mad Dogs and Englishmen*, 182–86.
 15. R. H. Muirhead, ‘Bovine Tuberculosis in Wild Badgers in South Gloucestershire’, *State Veterinary Journal* 27(1) (1972): 197–205.
 16. A briefer account of this sequence of events can be found in Cassidy et al., ‘Animal Roles and Traces in the History of Medicine, c.1880–1980’, 27–32.
 17. W. D. Macrae, ‘The Eradication of Bovine Tuberculosis in Great Britain’, *J Roy Agric Soc Engl* 122 (1961): 64–71.
 18. Anon ‘Cattle Tuberculosis “Over in Five Years”’, *Times*, 6 June 1957, 7.
 19. Sir John Ritchie, ‘Bovine TB at Bay’, *Times*, 3 April 1963; Atkins, *A History of Uncertainty*, 237–52.
 20. R. A. Richards et al., ‘Inquiry into Bovine TB in West Cornwall’ (London: Ministry of Agriculture, Fisheries and Food, 1972).
 21. Muirhead, ‘Bovine Tuberculosis in Wild Badgers in South Gloucestershire’, 198.
 22. C. J. Armour, 13 September 1971, NA MAF 109/381, item 14.
 23. R. J. Clark, 3 March 1972, NA MAF 109/381, item 17.
 24. See Sect. 4.3 for more on the ‘old rogue badger’; also Grant, ‘Intractable Policy Failure: The Case of Bovine TB and Badgers’.
 25. A. McDiarmid, ‘Comments on Report concerning tuberculosis in Badgers’, 11 January 1972, NA MAF 287/752, item 10.
 26. ‘Bovine tuberculosis—badgers in Gloucestershire. Note of a meeting at Tolworth’, 16 February 1972, NA MAF 287/752, item 31a.
 27. M. H. Sullivan, 21 February 1972, NA MAF 287/572, item 40.
 28. R. F. Symes, 6 September 1971, NA MAF 109/381, item 13, also Muirhead, ‘Bovine Tuberculosis in Wild Badgers in South Gloucestershire’.
 29. Anon., ‘Badgers May Spread TB in Cows’, *Gloucester Citizen*, 17 March 1972, NA MAF 145/21, item 95.

30. Anon., 'Exterminate Badgers Plea', *Gloucester Citizen*, 6 November 1973; in NA MAF 109/294, item 34; F. Butcher, 'TB time-bomb under a county's dairy farmers', *Farmer's Weekly*, 22 June 1973, 51.
31. 'Telegram from Knowles Bristol', NA MAF 109/294, item 14.
32. 'Note for the Minister', 17 February 1972 NA MAF 287/752, item 38.
33. Ibid.
34. H. V. Thompson, 9 May 1972, NA MAF 109/381, item 44.
35. A. Killingley, 9 June 1972, NA MAF 287/752, item 110. See Neal, 'The National Badger Survey', for the National Badger Survey.
36. H. V. Thompson, 30 May 1972, NA MAF 287/752, item 97.
37. 'Bovine TB—badgers in Gloucestershire—notes from a meeting held on 16 March 1972 at Tolworth', NA MAF 287/752, item 62.
38. The Nature Conservancy was a government body founded in 1949, responsible for administering National Parks, and conducting research on conservation issues. In 1973 it was split into the Nature Conservancy Council (NCC) responsible for parks and scientific advice, and the Institute for Terrestrial Ecology (ITE); John Sheail, *Nature in Trust: The History of Nature Conservation in Britain* (Glasgow: Blackie, 1976), 224. National Archives records transition smoothly from NC to NCC, and so I will refer to NCC throughout.
39. J. W. Blackwood, 27 August 1971, NA FT 41/88 (item numbers absent in FT (NCC) files).
40. J. F. D. Frazer, 'NOTE FOR THE RECORD', 6 February 1973, NA FT 1/60.
41. J. F. D. Frazer, 'In Confidence: Badgers and Bovine TB Investigation', 8 September 1971, NA FT 41/88.
42. D. A. Cadwalladr, 24 March 1972, NA MAF 109/381, item 28b.
43. P. A. Gay, 'BADGERS AND BOVINE TB IN GLOUCESTERSHIRE', 23 March 1972, NA FT 41/88.
44. 'TB in Badgers: note of a meeting held Monday 11th June', 4, NA FT 41/88.
45. J. F. D. Frazer, 'Tuberculosis and Badgers', 17 March 1972, NA FT 41/88; cf. 'Notes For the Minister', NA MAF 287/752, item 54.
46. Anon., 'Badgers May Spread TB in Cows', *Gloucester Citizen*, 17 March 1972, NA MAF 145/21, item 95.
47. D. Barber, 'TUBERCULOSIS IN WILD BADGERS', 23 March 1972, NA MAF 109/381, item 23.
48. H. V. Thompson, 'Letter to RJ Clarke', 18 April 1972, NA MAF 109/381, 37; R. Muirhead, 'Letter to Dr. Gay of NCC', NA MAF 109/381, 81a.
49. B. Silcock, 'Infected Badgers Face Extermination', *Sunday Times*, 23 April 1972; in NA MAF 287/752, 104.
50. Anon., 'National Pet or Pest?' *Peninsular West*, 4 April 1973, 4–5; in NA FT 41/88.

51. A. P. Stevens, 'Memo to RJ Clark', 20 March 1972, NA MAF 109/381, 20.
52. R. J. Clark, 18 July 1972, NA MAF 145/21, item 109.
53. 'Itinerary for the Parliamentary Secretary's visit to the South West Region. Appendix 2', NA MAF 109/383, item 90. This was formalised into a nationwide project which we might today describe as 'citizen science', and ran until 1997; MAFF, 'Bovine Tuberculosis in Badgers. Report by the Ministry of Agriculture, Fisheries and Food' (London: Ministry of Agriculture, Fisheries & Food: HMSO, November 1976); J. Gallagher and J. Nelson, 'Cause of Ill Health and Natural Death in Badgers in Gloucestershire', *The Veterinary Record* 105(24) (15 December 1979): 546–51.
54. Richards et al., 'Inquiry into Bovine TB in West Cornwall', sec. 4.3.
55. E. J. Coombe, 'Memo to R. Clarke', 11 August 1972, NA MAF 109/381, 89.
56. 'Minutes of the Divisional Pest Officers Conference', 25–26 May 1960, NA MAF109/381, item 10/2; A. P. Stevens, 'Letter to D.W.M. Herbert', 12 February 1974 NA MAF 109/381, item 67.
57. A. Warne, 'Memo: Instructions to Pest Staff and Field Officers', 4 December 1973, NA MAF 109/383, 23.
58. 'Badgers Act' (1973), 4.
59. P. Riddick, 'Letter: Badgers and Bovine TB', 28 March 1974, NA MAF 109/383, item 63.
60. R. J. Clark, 'Memo: BADGERS IN AREAS WITH BOVINE TUBERCULOSIS: A DEMONSTRATION OF CONTROL METHODS', 26 April 1974, NA MAF 109/383, item 75; R. J. Clark, 'Report on Badger Control Demonstration—Glos', 9 May 1974, NA MAF 109/383, item 85.
61. R. J. Clark, NA MAF 109/383, item 85.
62. R. G. Symes, 'Badger Aftermath', 10 May 1974, NA MAF 109/383, item 91; R. J. Clark, 'BADGER CONTROL DEMONSTRATION: POLICE INVESTIGATION OF COMPLAINT OF CRUELTY TO BADGERS', 23 May 1974, NA MAF 109/383, item 109.
63. R. J. Clark, 'Mr. Harrison Jones—telephone memo', 2 July 1974, NA MAF 109/295, item 50; Foot and Bowden Solicitors, 'Letter to George Adam Turrell', 11 November 1974, MAF 109/295, item 74.
64. Anon., 'Protest on Badger Cruelty', *Daily Telegraph*, 13 May 1974, in NA MAF 109/384, item 4; D. Slight, 'Peart Named in Badger Rumpus', *Daily Mirror*, 14 May 1974, in NA MAF 109/384, item 6; anon., 'Butchered! They have no right to do this to God's creatures', *Cotswold Star*, no. 32, June 1974, 1.
65. Anon., 'Reprieve for the Badgers', *The Citizen*, 11 June 1974, in NA MAF 109/295, item 40.
66. For further details on the origins and usage of sodium cyanide in mammalian pest control, see Sect. 4.1.

67. J. Scott Henderson, 'Report of the Committee on Cruelty to Wild Animals. Cmd 8266, June 1951' (London: Home Office/Scottish Home Department, June 1951). See also Sects. 4.3 and 5.1.
68. D. W. M. Herbert, 'Minute: Bovine Tuberculosis and Badgers', 28 February 1974, NA MAF 109/294, item 77/1; Harrison Jones, 'Telex to WT Barker Tolworth', 14 May 1974, NA MAF 109/295, item 6.
69. Hansard, *HC Deb* 20 May 1974 vol. 874 cc20–1; P. Hardy, 'Letter to Parliamentary Secretary, MAFF', 14 May 1974, NA MAF 109/295, item 8a.
70. A. C. L. Brown, 'Animal Health 1974: Report of the Chief Veterinary Officer' (London: Ministry of Agriculture, Fisheries and Food, 1975), 46–47.; also W. T. Barker, 'Badgers and BTB: briefing papers to Ernest Neal', 14 May 1974, NA MAF 109/295, item 7.
71. Brown, 'Animal Health 1974', 46.
72. 'Memo: TB in Badgers, Research at CVL, Weybridge', 22 January 1975, FT 41/90. For early MAFF bTB pathology research see e.g. J. Gallagher et al., 'Pulmonary Tuberculosis in Free-Living Lechwe Antelope in Zambia', *Tropical Animal Health and Production* 4(4) (December 1972): 204–13; R. H. Muirhead, J. Gallagher and K. J. Burn, 'Tuberculosis in Wild Badgers in Gloucestershire: Epidemiology', *Vet Rec.* 95(24) (1974): 552–55; J. Gallagher, R. H. Muirhead and K. J. Burn, 'Tuberculosis in Wild Badger (*Meles Meles*) in Gloucestershire—Pathology', *Veterinary Record* 98(1) (1976): 9–14; Gallagher and Nelson, 'Cause of Ill Health and Natural Death in Badgers in Gloucestershire'. For the CVL transmission experiments see T. W. Little, P. F. Naylor and J. W. Wilesmith, 'Laboratory Study of Mycobacterium Bovis Infection in Badgers and Calves', *The Veterinary Record* 111(24) (1982): 550–57. For epidemiology see F. A. Stuart and J. W. Wilesmith, 'Tuberculosis in Badgers: A Review', *Rev. Sci. Tech. Off. Int. Epiz.* 7(4) (1988): 929–35.
73. J. H. Seymour, 'Memo: TB-Badgers', 30 August 1974, NA MAF 109/295, item 80; Brown, 'Animal Health 1974', 15; MAFF, 'Bovine Tuberculosis in Badgers. Report by the Ministry of Agriculture, Fisheries and Food', sec. Appendix 7.
74. K. Williams, 'Memo: Eradication of Bovine TB—Badgers', 26 September 1974, NA MAF 109/295, item 95.
75. H. V. Thompson, 'Letter to RJ Clark', 25 July 1974, NA MAF 109/383, item 154; Prest, I. 'Note: The badger and bovine tuberculosis', 3 May 1974, FT 41/89.
76. L. Goldthorpe, 'Letter to CEH Sparrow, Glos. Trust for Nature Conservation', August 1974, NA MAF 109/383, item 156.
77. L. Goldthorpe, 'Badgers. Ref LP/N4214A', 26 June 1974, NA MAF 109/295, item 49a; K. Williams, 'Eradication of Bovine Tuberculosis—

- Badgers', 26 September 1974, NA MAF 109/295, item 95. For a published summary of MAFF clearance trials see R. S. Clifton-Hadley et al., 'The Occurrence of Mycobacterium Bovis Infection in Cattle in and around an Area Subject to Extensive Badger (*Meles Meles*) Control', *Epidemiology and Infection* 114 (1995): 179–93.
78. A. P. Hardiment, 'Memo: TB Badgers', 22 July 1974 NA MAF 109/383, item 156.
 79. P. Riddick (NFU), 'Letter re Badgers and Bovine TB', 12 August 1974, NA MAF 109/295, item 79.
 80. D. Barwick, 'Meeting to Discuss Legislation to Permit the Gassing of Badgers', 29 January, 1975, NA FT 41/90.
 81. MAFF, 'MAFF Press Notice: New Powers to Gas Badgers', 5 February 1975.
 82. H. A. Carn, 'Memo: Badgers—Safety of Staff', 5 August 1975, NA MAF 109/384, item 73.
 83. MAFF, 'MAFF Press Release: Consultative Panel on Badgers and Tuberculosis', 24 September 1974.
 84. Brown, 'Animal Health 1974', 15.
 85. Brown, 'Animal Health 1974', 2.
 86. Grant, 'Intractable Policy Failure: The Case of Bovine TB and Badgers'.

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