THE FACTS OF RURAL LIFE

Why we need better wildlife management

CHARLIE PYE-SMITH

THE AUTHOR

Born in Yorkshire, Charlie Pye-Smith studied botany and zoology at Newcastle-upon-Tyne University and conservation at University College London. His books include *The Other Nile* (Penguin), *Rebels and Outcasts* (Penguin), *The Subsidy Scandal* (Earthscan), *In Search of Wild India* (Channel 4), *Rural Rites: Hunting and the Politics of Prejudice* (All Party Parliamentary Middle Way Group) and *Trees for Life* (World Agroforestry Centre). He has written scores of feature articles for the *Financial Times*, the *Daily Telegraph*, *New Scientist* and other newspapers and journals, presented radio programmes for BBC World Service, and written and researched television documentaries for Channel 4 and the Discovery Channel. He currently works as a writer for organisations which are involved in research and development in Africa, Asia and Latin America.

www.charliepyesmith.com

This book may be purchased through Brian Fanshawe, Old School House, Ashley, Tetbury, Gloucestershire GL8 8XS with a cheque of £10 payable to VAWN

Writer: Charlie Pye-Smith
Design: Elodie A. Sampere, Wild Communications, elodie@wild-communications.com

Printing and publishing advised by BPG Media

Photo credits:
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Readers may notice that I have used both imperial and metric measures, as many farmers do. There are 2.47 acres to one hectare; and 2.56 square kilometres to one square mile.

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ACKNOWLEDGEMENTS

A great many people have provided me with help and information during the research and writing of *The Facts of Rural Life*. However, a very special thanks must go to one person in particular, Brian Fanshawe. Together with Jim Barrington, he conceived the project and raised the funds for the research and publication. Brian and Jim accompanied me on many of the field trips and provided excellent advice and guidance. They agreed that I should write the story as I saw it, and I am entirely responsible for the content of the booklet, as I am for any mistakes.

The native red squirrel has been displaced by the grey squirrel, a North American import, over much of the country.

I would like to thank the following for sharing their knowledge and sparing me so much time: Teresa Dent, Andrew Gilruth, Dr Alistair Leake, Dr Sonja Ludwig, Dr Jonathan Reynolds, Dr Adam Smith, Prof Nick Sotherton and Gemma Hopkinson of the Game and Wildlife Conservation Trust (GWCT); Prof John Webster; Charles Nodder of the National Gamekeepers' Association; Simon Lester, head gamekeeper, Langholm Moor Demonstration Project; the Duke of Norfolk, Dr GR Potts and Charlie Mellor, who showed me round the Norfolk Estate on the Sussex Downs; the Duke of Northumberland and his head gamekeeper Garry Whitfield; Amanda Anderson and Robert Benson of the Moorland Association; Dr Robin Gill of Forest Research and Kevin Stannard of the Forestry Commission; Peter Watson and Alistair Boston of the Deer Initiative; Robin Page and Tim Scott of the Countryside Restoration Trust; Charles Harding, Martin Locke, Donald Summersgill, Hugh Thomas and Tom Yandle, all of whom are involved in deer management in Devon and Somerset ; Chris Musgrave and Jemma Batten of the Marlborough Downs Natural Improvement Area; all the farmers with whom I discussed wildlife issues, including Mike and Heather Belcher, Nicholas Bumford, Edward Darling, Arthur Davies, William Jenkins, Dennis Jones, Phil Latham, Matthew Rawlins and Richard White; moor owners Stephen Mawle and Richard May; Roger Williams MP; gamekeepers Phil Holborow, Andrew Stringer and David Whitby; Keith Cowieson of SongBird Survival; Dr Christopher Bell; hunt masters and huntsmen David Burles and Martin Arnold, Lady Victoria Percy and Robert McCarthy, Ian Farquhar, Countess Susie Goess-Saurau, Michael Thompson and Barry Todhunter; Dr Ian Addison; Jerry Moss of the Penrith and District Red Squirrel Group; Dr Nick Fox, International Wildlife Consultants Ltd; veterinarian Roger Blowey; and Dr Lewis Thomas, secretary of the Veterinary Association for Wildlife Management (VAWM), publisher of the *The Facts of Rural Life*. Richard D North, a writer and an old friend, was an excellent sounding board, as was Alex Ashworth. I am particularly grateful to David White, farmer and photographer, who has generously allowed us to use some of his magnificent wildlife photographs. Thanks, too, to the renowned natural history photographer Laurie Campbell.

PREFACE

We commissioned *The Facts of Rural Life* to address a number of concerns we have about the management of the countryside, such as: the loss, or potential loss, of many vulnerable species; the consequences of ill-thought through legislation; the problems created by over protectionism; the failure to recognise, or even understand, any need for pro-active management of certain species. We are particularly frustrated by the simplistic vision of the countryside and its wild inhabitants that is so often portrayed on television and in the popular press.

Farmers on the Marlborough Downs have been working together to improve wildlife habitats.

The author, Charlie Pye-Smith, is a respected writer on environmental topics, both in the UK and the developing world. Charlie told us he would need to undertake an extensive research programme of field visits and interviews with scientists, veterinarians, landowners, farmers and wildlife practitioners, including conservationists, gamekeepers and huntsmen.

Jim and Brian accompanied Charlie on most of his visits and wherever we went we were welcomed with great enthusiasm for our project. Charlie's 'Acknowledgements' illustrate the extent of the research programme.

We are confident that this booklet will provide guidance for legislators and opinion formers and prove useful to conservationists, landholders and practitioners who strive to improve or maintain biodiversity in the countryside.

Charlie was given a completely free hand to write what he wanted, entirely independent of our individual opinions. It was he who conducted the interviews and collated all the information.

We are particularly grateful to the many organisations and individuals who funded the research, writing and publication of *The Facts of Rural Life*.

Dr Lewis Thomas
Sec VAWM

Jim Barrington
Animal welfare consultant

Brian Fanshawe
Countryman

INTRODUCTION: Life and death in the British countryside

In 2012, Cheshire dairy farmer Phil Latham lost 89 cows. They were slaughtered after testing positive to bovine TB, a disease transmitted by badgers to cows and vice-versa. When I visited Phil in the summer of 2014, he told me that when he was a child, some 30 years ago, there was just one badger sett on his farm. "Now there are 12, and there's nothing I can do about it," he explained. During recent decades, the badger population has rapidly risen – there may be more badgers in the country today than foxes – but it is almost impossible for a farmer to get a licence to kill or remove them.

As I was leaving the farm, his father asked whether I had seen the latest edition of BBC *Springwatch*, filmed at Minsmere, a nature reserve managed by the Royal Society for the Protection of Birds (RSPB).[1] "There was a badger clearing out a whole island of avocet chicks and eggs," said Mr Latham with grim satisfaction. This was proof, in his view, that badgers were not only causing immense problems for Britain's dairy farmers, but devouring some of our rarer wildlife.

Just as instructive as the badger's predatory habits was the *Springwatch* sequence about red deer. There were times, we were told, when certain species become so numerous they damage their habitat and have to be "managed". There was much talk about stalking, but the presenters failed to explain in explicit terms that stalking means killing. They did not even mention that the RSPB had recently culled 250 red deer at Minsmere. Presumably, they did not want to upset the viewers.

Nine out every 10 people in Britain must go back at least five generations before they find an ancestor who worked on the land. As a result, their understanding of country matters comes largely from books, the internet and television, rather than from hands-on experience or the knowledge of friends and family. Nowadays, most wildlife programmes are tainted by

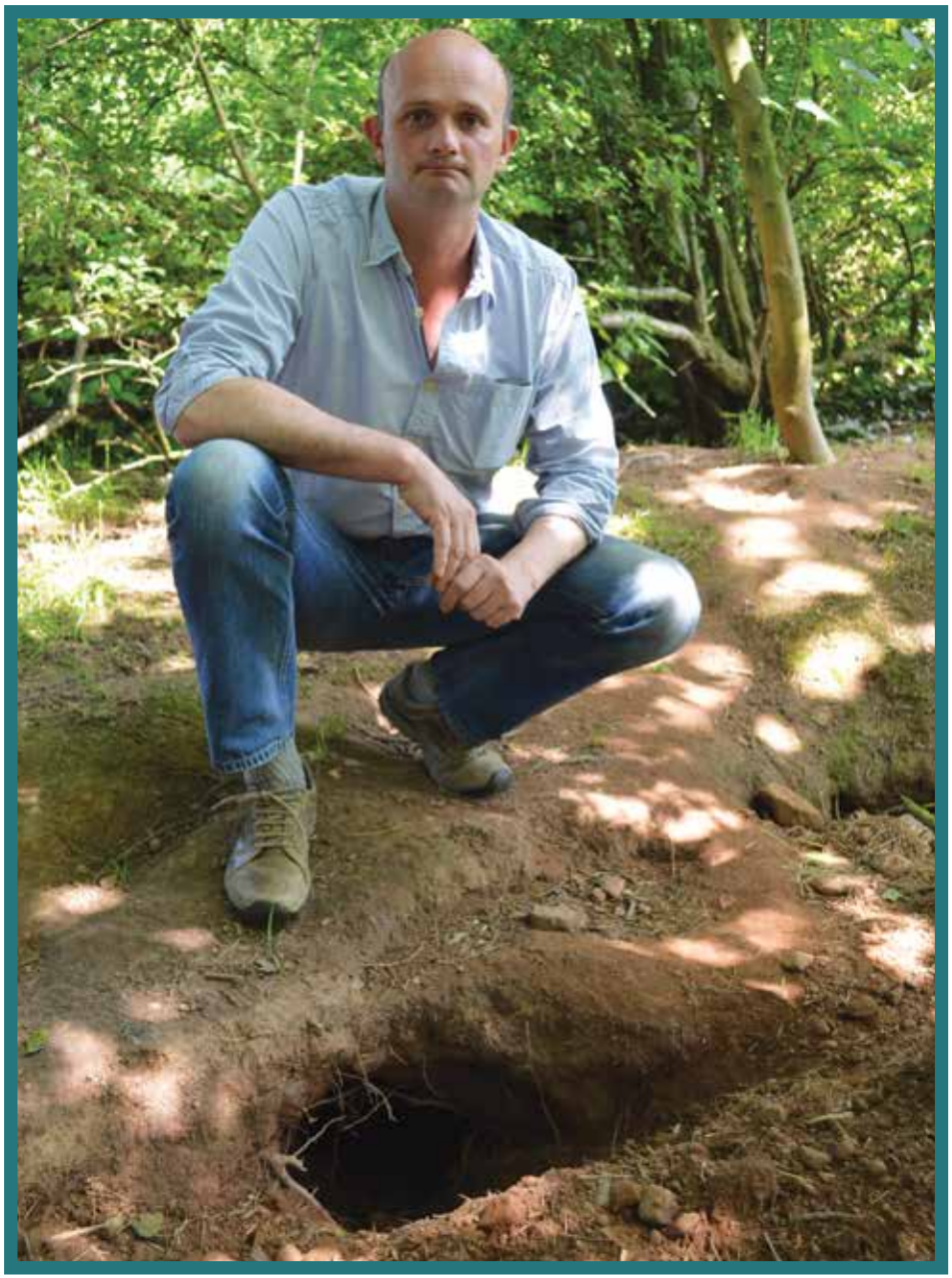
Nine out of 10 people in Britain must go back at least five generations before they find an ancestor who worked on the land.

the syrupy anthropomorphism of celebrity presenters who either do not understand, or are reluctant to explain, that nature really is red in tooth and claw. They deny, by omission, the reality of rural life with its endless cycles of procreation and death, both on and off the farm.

This matters. Our politicians and law-makers are easily swayed by popular sentiment and are more likely to pander to the views of the majority, however ill informed, than be guided by individuals, organisations and research institutes who have a deep understanding of life in the countryside with all its complexities and conflicts.

This short essay argues that the effective management of wildlife means culling certain species in order that other, often much rarer species can thrive. If we want a countryside rich in biodiversity, where farmers can go about their business without their livelihoods being imperilled, we must accept responsibility for managing wildlife. Doing little or nothing – which is what often happens – should never be an option.

Opposite: There has been a spectacular increase in the buzzard population during recent years. Eating a cock pheasant.



Phil Latham with one of the many badger setts on his farm.

CAUSE AND EFFECT

There is scarcely an acre of Britain which is truly wild. Farming, forestry, hunting, water extraction and urbanisation have all had a profound effect on our flora and fauna. Most of our apex predators, including wolf, bear, lynx and wolverine, have been lost, and as a result meso-predators – carnivores of medium size – like foxes and badgers, as well as several large herbivores, now have few or no natural enemies.

"We live in an artificial world of our own creation," says Nick Sotherton, director of research at the Game and Wildlife Conservation Trust (GWCT), which has undertaken many long-term studies on predator-prey interactions. "We are now in the position of the apex predators, and we need to make decisions about which species to control, and where and when to intervene."

The first story is one of many in this book which provides an example of the practical benefits of good predator control. Its focus is the restoration of grey partridge, a species which has declined by over 90% in the UK during the last 50 years. Since 2003, partridge numbers have increased from just

> **"We are now in the position of the apex predators, and we need to make decisions about which species to control, and where and when to intervene."**
>
> Nick Sotherton, GWCT

Scientist Dick Potts has been closely involved in the restoration of grey partridge on the South Downs.

three pairs to some 300 on the Norfolk Estate on Sussex's South Downs; at the same time, populations of hares and many farmland birds have risen dramatically.

The success of the project is partly down to providing the birds with a plentiful supply of food and good nesting cover; but just as importantly, gamekeepers have rigorously controlled a wide range of predators, including foxes, stoats, crows and magpies. "No matter how good the habitat, if there was no predator control, the wildlife community here would be a pale imitation of what it is," explained Dick Potts, former director general of GWCT, when he walked me round Peppering Farm on the Duke of Norfolk's Estate. "I don't like the idea of culling animals, but that's the only way to get high levels of biodiversity here."

At one time there were six large carnivores – cave bear, brown bear, lynx, wolf, spotted hyena and lion – in the area occupied by grey partridges in Western Europe. They have all gone from Britain, which has been good news for meso-predators such as the fox, which used to be on the menu of the apex predators, but bad news for partridges and many other ground-nesting birds, as the density of foxes is now much greater than it would have been when their natural predators were present.

The extent to which apex predators reduce the number of meso-predators is, in Dick's view, "a hugely important part of ecology waiting to be revealed." There is a growing body of evidence to show that the removal of apex predators, or their reintroduction, can have a ripple effect throughout the food chain. Trophic cascades, as they are known, are the process by which apex predators extend their influence to species other than those on which they directly prey.[2]

To give just one British example, the loss of wolves – the last was killed in Scotland in the 17th century – released the native red and roe deer from natural predation. Much later, several other deer species were introduced, and the deer population rose rapidly during the latter half of the 20th century. In many areas, deer are eating out the herb and shrub layer of native woodlands. The exclusion of deer by fencing and culling – a proxy for the return of the wolf – has led to an increase in the density and cover of understory herbs and shrubs, and in one experiment this led to a fourfold-increase of birds which nest and feed in the shrub layer.[3]

The important point to remember is this: the loss of apex predators has led to an increase in meso-predators and a significant decline in some of their prey species, with knock-on effects on lower trophic levels. It has also led to an increase in herbivores, to the detriment of the vegetation and associated species. There is, in short, a scientific rationale for controlling species whose populations have risen following the loss of apex predators.

Alien species like the American mink have caused massive damage to native wildlife.

ALIEN INVADERS

From an ecological point of view, the introduction of alien species may be even more damaging than the loss of the wolf and other big predators. Many of the mammals which have been introduced to our islands – think of rats, rabbits, grey squirrels, muntjac deer and mink – cause considerable economic damage to farm and forestry enterprises. The cost of alien species to the British economy is estimated at £1.7 billion a year.[4] They also threaten native wildlife. According to the *State of British Mammals 2011* report, approximately 9% of the vertebrates which have UK Biodiversity Action Plans – priority conservation species such as red squirrel, otter, pine marten, water vole and mountain hare – are threatened by non-native species.[5]

Many conservation organisations accept the need to cull alien species. For example, the RSPB has part-financed campaigns to eliminate mink in the Outer Hebrides and hedgehogs – native on the mainland, but not on the islands – on Uist and Benbecula. They were threatening internationally important populations of seabirds and waders by devouring their eggs and young. Braver still, for the RSPB, was its support for the elimination from the UK of an attractive New World import, the ruddy duck. Wildlife trusts have

trapped and killed mink, whose predatory behaviour has led to a drastic decline in the number of water voles in the UK. And the National Trust has taken a pragmatic approach to controlling certain predators: after it eliminated rats on the island of Lundy the number of Manx shearwater rose over ten-fold.

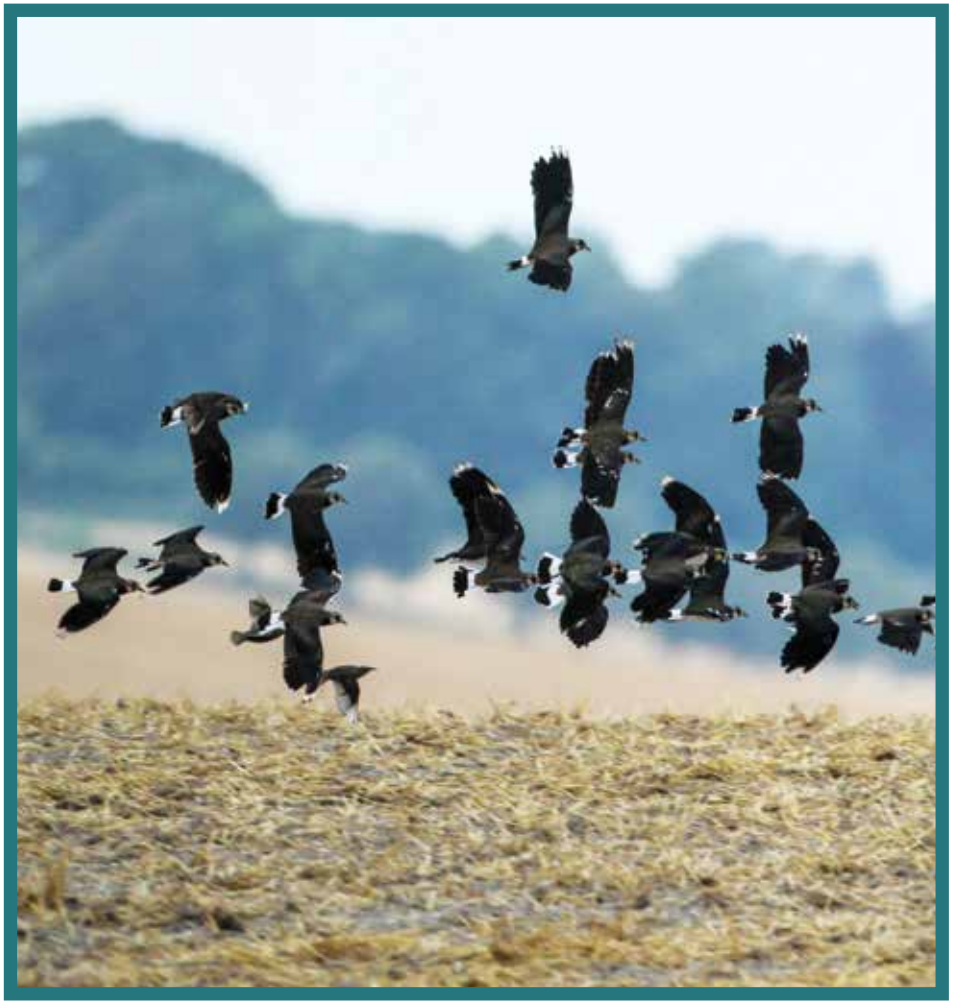
TACKLING THE TABOO

Many land-holding conservation organisations take a robust attitude towards controlling – and sometimes eliminating – alien invaders, but they tend to be less at ease about the practice of culling native species, and do so more sparingly. Indeed, predator control is often treated like an embarrassing relative: talked about behind closed doors, but kept, as far as possible, from the public gaze.

For an example of denial, look at the *State of Nature Report 2013*.[6] Compiled by 25 wildlife organisations, this provides a "health check of nature" in the UK and its overseas territories. It makes disturbing reading. Sixty per cent of the 3148 species for which we have quantitative assessments have declined over the last 50 years, and 31% have declined strongly. The report's authors devised a new Watchlist indicator, charting the changing status of our most threatened wildlife. Since 1970, the indicator has dropped by 77%, representing a massive decline in the abundance of these species.

Separate sections in the report focus on different habitats, and in each the authors offer an analysis of the factors which are leading to changes in species abundance and distribution. But does this provide the full picture? I don't think it does, for the simple reason that it fails to acknowledge the significance of predators, many of which have become more common.

Take, for example, the section on British uplands. Of the 877 upland species for which there is information, 65% declined and 35% declined strongly since 1970. Many upland birds have fared badly. For example, lapwing and curlew populations fell by over 60% during this period. The report attributes the loss of wildlife to a range of factors: tree planting, wetland drainage, pollution and climate change, and poor heather management



Many ground-nesting birds like the lapwing suffer from high levels of predation.

associated with grouse shooting. All true. However, there is no mention of the fact that many species, particularly wading birds, are suffering as a result of predation, or that many predators have become more common: between 1970 and 2011, magpie increased by 99%, carrion crow by 93%, buzzard by 452% and sparrowhawk by 98%.[7]

The *State of Nature* report ignores scientific evidence which shows that predator control dramatically increases the density of wading birds such as golden plover, lapwing and curlew, although the cause of decline may be unrelated to the presence or absence of predators. Teresa Dent, chief executive of GWCT, points out that while the main reason for the decline of a species may be loss of habitat, predator control may be the only way of protecting the individuals which remain.

Wherever possible I have relied on peer-reviewed science to support the arguments made here, whether they are in favour of controlling predators that threaten ground-nesting birds, reducing the populations of species which pose a threat to livestock farmers, or limiting the impact of deer on broadleaved woodlands. However, anecdotal evidence is important too.

Gamekeepers often get a poor press, derived in part from their vilification by certain conservation organisations which claim they still behave much as their Victorian forebears did, exterminating raptors and anything else which threatens game-shooting interests. Although some gamekeepers persecute raptors – why else are there so few hen harriers on English grouse moors? – I accept that most work within the law.

"There are a few bad eggs, as there are in every sphere of life," says David Whitby, head gamekeeper at Petworth Estate in Sussex, "but most keepers I know love nature and are passionate about what they do." Although their first-hand experience of the impact of predators will never carry the same weight as peer-reviewed science, it is still worthy of consideration. They are, after all, at the sharp end of the nature-viewing business.

IN SEARCH OF A HEALTHY COUNTRYSIDE

What sort of countryside do we – or you – want? Badger protection groups say they would like more badgers, not less: in which case, there will inevitably be fewer hedgehogs and ground-nesting birds, and probably more bovine TB, both in badgers and cattle. Many ardent birdwatchers want more raptors, regardless of their impact on other wildlife. People who

Gamekeeper David Whitby with his pet jackdaw.

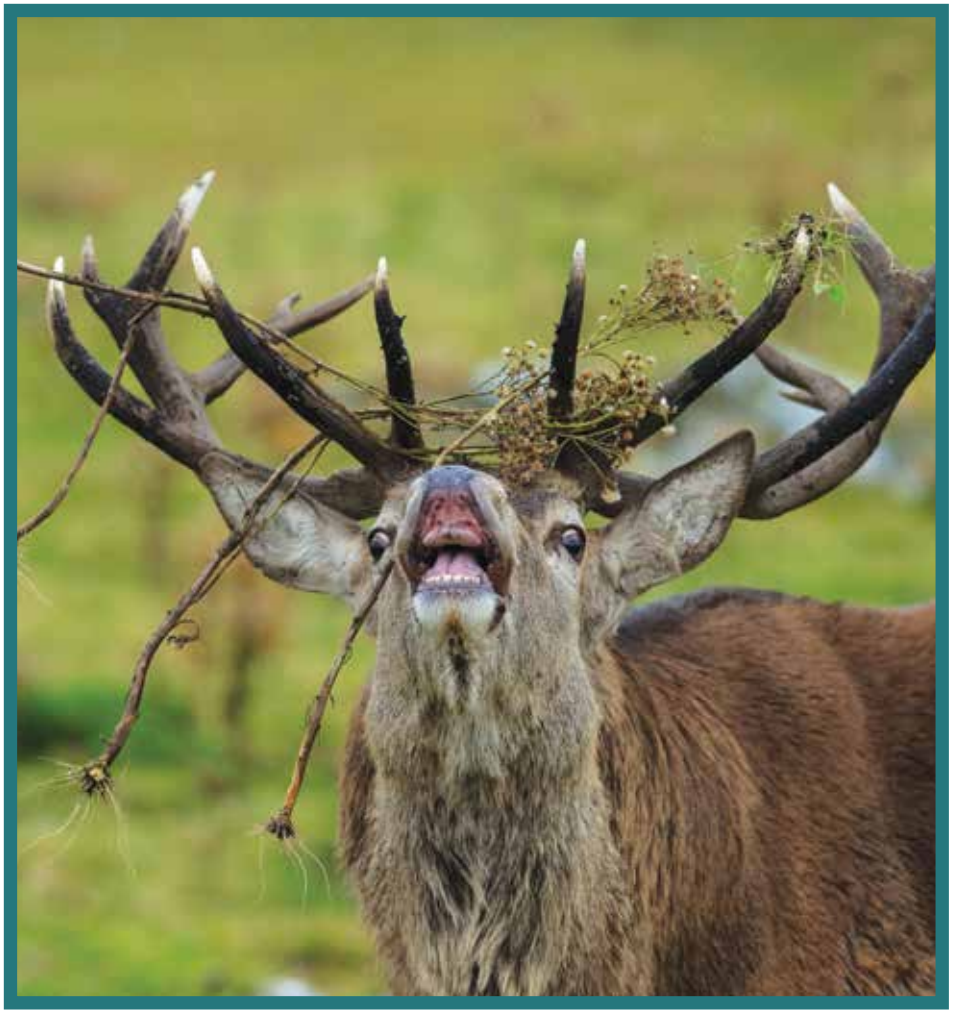
shoot wild game or hunt foxes want to see more of their prey species and they have a vested interest in reducing their predators and conserving the habitats on which they depend: the hedgerows, copses, field margins and heather moors where they breed and feed.[8]

This essay takes an unashamedly conservationist stance, and panders to no particular constituency. During my travels around the countryside I heard many different definitions of good conservation. One of the most succinct came from Nick Fox, a scientist, falconer, farmer and conservationist. "Conservation should be about maintaining high levels of biodiversity, which is a sign of a healthy habitat," suggested Nick when I visited him on his farm in west Wales. "Biodiversity is not just about species diversity, but the structural diversity of habitats and the range of trophic levels. It's not about encouraging the biggest populations of any one species, but ensuring that each is in balance with the habitat and the resources."

I am primarily concerned with the welfare of species, rather than individuals, but the latter matters too: the killing of animals, whether it is a rat or a red deer, a fox or a cormorant, should always be carried out as humanely as possible. Paradoxically, the current rigid legal system stipulating which animals can be killed and how, and which cannot, frequently leads to greater cruelty and suffering, rather than the opposite.

After Phil Latham's bovine TB-infected cows had been taken for slaughter, he received frequent phone calls giving him advice on how he could tackle the badgers on his land. "People told me about the most horrible, stomach-churning ways you can kill badgers," recalled Phil. "That's what happens if farmers have no confidence in the system. Some will take matters into their own hands and lots of badgers will die horribly." This has become one of the countryside's dark secrets: the failure to effectively tackle bovine TB has encouraged certain individuals to kill badgers surreptitiously. You only need to spend a few minutes on the internet to learn about the more gruesome methods being used.

Likewise, there is good evidence to suggest that the 2004 Hunting Act has done the fox few favours. Since the ban on hunting with hounds, many parts the country have seen a significant increase in the killing of foxes



Red deer numbers in Scotland have more than doubled since the 1960s.

In England, 95% of the remaining black grouse – one of our rarest birds – are found on or near grouse moors, where they benefit from predator control and good habitat management.

by gamekeepers, as well as by groups of men using shotguns and long dogs, often at night and without the landowner's permission. Research by Nick Fox (see page 47) suggests that shooting foxes leads to high levels of wounding. Hunting with hounds, in contrast, invariably ends with the fox either escaping unharmed or being killed.

The failure to cull herbivores which have no natural predators is also a form of cruelty – one which is encouraged by the no-cull policy of animal rights groups, and sometimes even by conservation organisations. In 1972, The Nature Conservancy decided to stop the culling of red deer on the island of Rhum so that scientists could see what happened when there was no interference and no predation. A former scientific officer of the Conservancy, Patrick Lowe, described the consequences: "Allowing such animals to multiply to the point where many die each winter from starvation, having so over-grazed the range that erosion and loss of soil nutrients accelerate, is neither humane nor sensible; it is certainly not conservation."[9]

The final chapter of this essay argues that wildlife laws should be more flexible. Governments should be prepared to ratchet up, or ratchet down, levels of protection according to each species' abundance. If a native species becomes rarer, by all means increase the level of protection; if it becomes more common, and a threat to other species, then the level of protection should be relaxed.

I believe there needs to be more give-and-take from everyone involved in wildlife matters. Conservationists need to accept that no species should be sacrosanct and above consideration for management. Take, for example, the story of the hen harrier, told in chapter 3. At the time of going to press, the RSPB was refusing to give its backing to a plan designed to encourage the spread of the hen harrier in the English uplands. It objected to the plan because it involves brood management, which is effectively a quota system. But if the plan does not happen, there is little chance of getting hen harriers back on English grouse moors in appreciable numbers.

> **Landowners and farmers should accept that this is never going to be a perfect world: if they lose a few lambs to foxes and badgers, and some pheasants to sparrowhawks and buzzards, then so be it.**

Landowners and farmers receive support from the public purse – for example, from environmental stewardship agreements – and public money means public obligations. They should accept that this is never going to be a perfect world (from their point of view): if they lose a few lambs and piglets to foxes and badgers, and some pheasants and grouse to sparrowhawks and buzzards, then so be it. Creating what I heard one landowner refer to as a clean estate, where all predators are systematically killed, is morally unacceptable, as well as illegal.

Many civil servants and their political masters are afraid of upsetting the organisations and individuals who make the most public noise, which have the most paying members, who fill the ether with threatening tweets, and in some case resort to violence, for example to disrupt the government-sanctioned badger culls. They should ignore the bullying of pressure groups – whether they are birdwatchers, field sports enthusiasts or animal rights groups – and use the available scientific evidence to ensure that we have the laws and licensing systems which are in the best interest of wildlife conservation and countryside management.

The 2004 Hunting Act seems to have done the fox few favours.

CHAPTER ONE: Paradise regained

In 2002, Dick Potts, one of the world's leading authorities on farmland ecology, visited Edward Fitzalan-Howard, the 18th Duke of Norfolk, at his estate office in Arundel, Sussex. "Dick told me that if we didn't act now, the grey partridge would soon become extinct on the South Downs," recalled the Duke when we met one fine summer morning. "I thought: as a shooting man and as the owner of part of this area, if I can't do something, then who can?"

Since 1970, grey partridge have declined by 91% in the UK, corn bunting by 90%, skylark by 59%, and yellowhammer and linnet by 54%.

In 2003, there were three pairs of grey partridge on the Norfolk Estate – this, somewhat confusingly, is the name of the Duke's estate in Sussex – and they produced just eight chicks. Since then, a project to encourage the breeding of grey partridge has brought about a remarkable change in fortunes. In 2014, 292 pairs nested here, producing an average of 8.2 chicks each. There were at least 2200 partridges prior to the autumn shoots, and this was achieved without releasing any pen-reared birds.

However, the project is about much more than partridge. "What we're trying to do is find a middle way where we can reverse the decline in biodiversity, but still help feed the world and pay the wages," explained the Duke, before reeling off figures for the dramatic declines in many once common, but now red-listed, farmland birds. Since 1970, grey partridge have declined by 91% in the UK, corn bunting by 90%, skylark by 59%, and yellowhammer and linnet by 54%.[10]

These and many other species are now thriving on the 2400 acres of farmland which come under the project. The density of corn buntings is 10 times greater than on other parts of the South Downs. Skylark numbers tripled between 2007 and 2011, and the lapwing population more than doubled during the same period. Indeed, lapwings on the Norfolk Estate produce an average 1.5 surviving chicks per pair each year, whereas chick survival is just 0.1 per pair on other parts of the South Downs, even on land managed by the RSPB.

Good partridge management requires a plentiful supply of insect food, good nesting cover and effective predator control.

Opposite: The Norfolk Estate on the South Downs is now perfect grey partridge country.

The success of the project owes much to the expertise and advice of Dick Potts. The son of a Yorkshire farmer, Dick first came to this part of Sussex in 1968, aged 29, to explore why partridge numbers had been declining. Since he retired as director general of the Game Conservancy Trust, now the Game and Wildlife Conservation Trust (GWCT), he has acted as consultant ecologist to the Norfolk Estate, frequently getting up at 2.30 in the morning to drive from his Hampshire home to conduct dawn bird counts.

"The management here is like a three-legged stool," explained Dick over a pub lunch at the George in Burpham. "Without any one of the three legs, the stool would collapse." The key elements of good partridge management are a plentiful supply of insect food, good nesting cover and effective predator control.

During the early years of research on the Sussex Downs, Dick and his colleagues established that the use of herbicides had led to the loss of hundreds of species of plants and insects which grey partridge and other birds had thrived on for thousands of years. Modern farming practices, rather than predation, had been largely responsible for the dramatic decline in their numbers.

The Norfolk Estate has replaced intensive prairie-style arable farming with a more traditional system using smaller fields and carefully planned crop rotations. This has created the ideal habitat for grey partridge and other farmland birds. Around 10% of the area is now devoted to conservation headlands and beetle banks and these support a rich variety of broadleaved herbs and a profusion of insects. Over eight miles of hedgerow, which provides cover for nesting partridges, have been planted. This is particularly important as there has been a significant increase in the number of raptors during recent years, with eight species currently breeding on the estate, including peregrine, hobby, sparrowhawk, barn owl and buzzard. During our walk around the farm we were seldom out of sight of red kites, and there was a kestrel on the roof of the head gamekeeper's cottage.

Corn buntings are one of many species to benefit from good game bird management.

BTO volunteer Ted Ponting with a yellowhammer at Edward Darling's farm near Royston. Good habitat management has attracted many red-listed birds to the farm.

THE COLLATERAL BENEFITS OF PREDATOR CONTROL

Charlie Mellor is very much the modern gamekeeper, as happy to talk about biodiversity as he is to discuss predator control. Each year, he and his colleagues compile a map of partridge pairs and record the number of chicks they rear. By the time of my visit, in mid-July, they knew most of the coveys by sight. Charlie estimates that at least half his time is spent on the control of foxes, stoats, weasels, rats and corvids.

For his book *Partridges*, Dick analysed the findings of 74 separate studies which have looked at the impact of gamekeepers on egg and chick survival.[11] Nest losses were, on average, 29% with gamekeepers and 52% without, which meant that gamekeepers reduced losses by 44%. Comparable figures for Salisbury Plain, where the Game Conservancy conducted much of its early research on predator control, were 20% and 50%, with gamekeepers reducing losses by 60%.

One of the most comprehensive experiments on predator control has been carried out on the Loddington Estate in Leicestershire, which has been managed by the Game Conservancy since 1992. The Allerton Project, named after the former owners, combines efficient food production with a range of environmental objectives, with some 10% of the land dedicated to habitat and species conservation.

Between 1992 and 2001, the production of game birds was a core activity and predators were controlled to improve nesting success. In 2001, the Allerton Project stopped predator control so scientists could monitor the impact on game and non-game species. Winter feeding stopped in 2006, but habitat management remained as consistent as possible. Predator control was resumed in 2011.[12]

Between 1992 and 2001, pheasant numbers increased fourfold in response to full game management, but declined rapidly when predator control ceased, with autumn numbers dropping from over 500 in 2001 to less than 30 in 2008. During the 1990s, predator control enabled hares to increase from around 5 to over 100; but it was not long after predator control ceased that their numbers fell back to 10 or less.

Perhaps more surprisingly, predator control also benefited songbirds. During the first 10 years of the experiment the six species investigated became

Vigorous predator control at Allerton enabled hares to increase by a factor of 20 in the 1990s.

twice as abundant. Without predator control, their numbers swiftly declined to the level they were at the beginning of the project. Blackbird, dunnock, chaffinch and yellowhammer did significantly better when predators were controlled.

TO THE MANOR BORN?

"We want to try to show that partridge conservation is sustainable in the long-term, and I believe it could be," said the Duke of Norfolk. "Just imagine if in addition to the established partridge manors here and in the county of Norfolk, there were projects like this in most counties in southern and eastern England and some in Scotland as well. Then we would really make a difference to biodiversity revival."

The Norfolk Estate is not an isolated success. In Hertfordshire, the GWCT Grey Partridge Recovery Project, which involved a mosaic of farms, significantly improved partridge breeding success. In 2002, there were 2.9 breeding pairs for every 100 hectares. Within seven years, a combination of good habitat management, winter feeding and predator control led to the project achieving its target of over 18 pairs per 100 hectares. Many other species benefited too.

Further north, Ralph Percy, the 12th Duke of Northumberland, has established an outstanding partridge manor in the rolling arable land between Alnwick and the North Sea coast. Covering some 5000 acres, the Ratcheugh Grey Partridge Restoration Project began in 2000 and appointed a full-time partridge keeper in 2004. "We counted 15 spring pairs in 2004, and were up to 205 pairs by 2007 and 453 pairs in 2011," explains Garry Whitfield, the Duke of Northumberland's head gamekeeper. The Alnwick Wildlife Group conducts regular surveys, and these have shown that there have been

> **“Just imagine if there were 10 projects like this in most of the counties in southern and eastern England. Then we would really make a difference to biodiversity revival.”**
>
> The Duke of Norfolk

significant increases of goldfinch and yellowhammer in summer, and tree sparrows and reed buntings in winter.

Since the project began, over eight miles of hedgerow have been planted, and most fields have six-metre wide margins which provide feed and cover. The project has installed hoppers to provide winter feed and there is a strong emphasis on predator control. “You can do what you like in terms of improving their habitat, but it makes no odds if you don’t control vermin,” said the Duke as we surveyed the area from an old folly.

None of these successes have come cost free. The Duke of Norfolk was quick to acknowledge the importance of a 10-year Higher Level Stewardship (HLS) agreement with Natural England. “The scheme provides compensation for the farming income we forego by dedicating land to conservation headlands and other non-productive areas,” he said.

It is a similar story at the Ratcheugh Partridge Manor in Northumberland. “We wouldn’t be able to do this properly without the HLS agreement,” said the Duke of Northumberland, “but the main driving force is the ambition to harvest a surplus of wild grey partridges and see the huge conservation

The Duke of Northumberland (right) and head gamekeeper Garry Whitfield with one of the feed hoppers.

benefit that the project brings. It is still a very expensive project that is supported, ultimately, by a passion for shooting. Sadly, we have hardly fired a shot for two or three years as a very wet summer saw hens die on the nest. Virtually no young birds survived to replace the losses.” He added that if there were no shooting, there would be no gamekeepers; and if there were no gamekeepers, the estate would not only lose most of the partridges but many other species too.

RAPTOR REVIVAL

“The raptors that are the biggest problem for the partridges are

sparrowhawks," explained Charlie Mellor, the Duke of Norfolk's gamekeeper. They tend to hammer the birds early in the year when they are thinking about pairing up and territories, rather than watching out for predators. "We accept that we are going to lose about 40% of the partridges between November and the end of March to predators and dispersal, and we factor that into our calculations."

"I'd say we have around 50% losses during the winter, with predators, migration and bad weather all having an impact," said Garry Whitfield, the Duke of Northumberland's head gamekeeper. Research by Dick Potts and his colleagues in the GWCT's Sussex Study Area found that although female sparrowhawks accounted for just 11% of raptor sightings, they were responsible for 56% of grey partridges killed by raptors. It seems that the number of partridges killed by raptors in the Sussex Study Area since 2000 has increased, but decreased as a proportion of the partridge population. Charlie Mellor and Garry Whitfield both said that buzzards sometimes take partridges, and in recent years badgers have become significant predators of ground-nesting birds.

Some management practices, such as hedge planting, have helped to reduce raptor predation. Instead of living in the open – which is what partridges used to do when raptors were rigorously controlled – the birds now hide near or under hedges. The provision of feed – there are over 700 seed hoppers dotted around the field margins at Peppering Farm on the Norfolk Estate – means partridges do not have to spend so much time in the open searching for food. This also helps reduce raptor predation.

Dick Potts was reasonably relaxed about the impact of raptors. "Charlie has a hell of a lot of partridges, and a hell a lot of raptors – so it is possible to have both," he said. "That's one of the messages to come out of this project." He surmised that it would be no bad thing if eagle owls returned to this area. "It would be a good bird to have here, and might reduce some of the pressure from the more numerous predators."

Indeed, several scientists I interviewed for this essay believed inter-guild predation – of golden eagle on hen harriers; goshawks on sparrowhawks; carrion crows on magpies – could be used to good effect. Inter-guild predation could provide an incentive for landowners and conservationists to favour, or reintroduce, apex predators which would then reduce the numbers of predators further down the food chain, thus taking pressure off their prey.

TIME FOR QUOTAS?

Sparrowhawks accounted for 56% of the grey partridge killed by raptors in the GWCT's Sussex Study Area.

When I asked the two Dukes about the possibility of reducing the number of raptors on their estates, they gave much the same answer. "If, at some point in time, we were allowed to limit the number of raptors here through a quota system, yes, I'd be happy with that," said the Duke of Norfolk, "but that's not going to happen in the near future."

The Duke of Northumberland, who is a keen supporter of the Hen Harrier Action Plan described in Chapter 3 – this would encourage the spread of hen harriers in England and Wales, but allow landowners to limit the number on their estates – said he favours some sort of quota arrangement. "I would like to see a system which allows a degree of control," he said. "For example, landowners might be allowed to remove raptors once they exceeded a certain number of breeding pairs."

Landowners and their tenants can kill a whole range of predators under what is known as a general licence. The species covered include most of the obvious generalist predators, such as foxes, stoats, weasels, rats, crows, magpies and jackdaws. If landowners or tenants believe that their interests are being threatened by species which have full legal protection – such as ravens, sparrowhawks and buzzards – they can apply for individual licences to remove or kill specified numbers from the statutory conservation agencies, Natural England, Scottish National Heritage and Natural Resources Wales.

In 2014, over 70 licences were granted to Scottish farmers for the control of ravens, which can take a heavy toll on lambs. Licences are also routinely granted for the shooting of cormorants – often a threat to inland fisheries – and certain species of gull. Applying for licences to control raptors has proved much trickier, unless they are considered a danger to air traffic. To get a licence, applicants must provide proof of damage, for example of buzzards taking large numbers of pheasant poults. However, even with clear evidence, and when all the necessary conditions are met, the authorities have rarely granted applications for raptor removal.

Take, for example, the experience of Edward Darling, who played a key role in developing the GWCT Annual Partridge Count Scheme. The scheme, which began with 20 farmers, now involves around 1000, whose landholdings cover more than 1 million acres. Edward also has a farm of his own near Royston and when you visit Greys you feel as though you have

Paul Wittey tops up the hoppers at Greys. Many farmland birds benefit from the provision of feed and good predator control.

stepped back several centuries, into a medieval landscape of small fields, high hedges and thick copses, with a patchwork of crops that do more for wildlife than they do for Edward's bank balance.

> **"I am trying to meet our international objectives for conserving red-listed species. I'm not doing this to feed sparrowhawks."**
>
> Edward Darling

On the day of my visit, in early summer, a group of enthusiasts from the local ornithology club were ringing birds. For them, this is an earthly paradise, of which Edward is justifiably proud. Of the 3310 one-square-kilometre plots in Britain surveyed by the British Trust for Ornithology (BTO) each year, the top 1% has seven or more of the 11 red-listed species which feature on the government's Farmland Bird Index. Edward's farm matches that top 1%. He believes his farm would be even richer in wildlife were it not for the appetite of the local sparrowhawks.

In the winter of 2009, and again in 2010, scientists from GWCT radio-tagged approximately 100 grey partridge. "Between January and March, we lost 55%, and this was mostly attributed to foxes, buzzards and sparrowhawks," explained Edward. "You often see sparrowhawks killing partridge, and then being chased off by buzzards, so they go off to kill another one."

The scientists also radio-tagged sparrowhawks to track their movements. "Six females came here to feed, and they killed a lot of other red-listed species, especially in summer when they were feeding their young," recalled Edward. "There is a strong conservation case for removing some of the sparrowhawks. After all, there are more sparrowhawks in the country than there are grey partridge and corn bunting combined. I am trying to meet our international objectives for conserving red-listed species. It is an expense I could do without. I'm not doing this to feed sparrowhawks."

Edward has twice applied to Natural England for a licence to remove a number of sparrowhawks. The applications were rejected on both occasions, even though he pointed out that he was not seeking a licence on a renewable basis. This would be a one-off experiment to establish whether or not the removal of sparrowhawks would help to increase the survival of partridges – Edward would like to halve winter losses – and other farmland birds.

Rats pose a serious threat to other wildlife.

SPARROWHAWKS: THE INCONVENIENT TRUTH?

Between 1970 and 2011, the UK house sparrow population fell by 64%. According to the RSPB and BTO, the main culprit was habitat loss and agricultural intensification. Predation, they suggest, has had little to do with it. An RSPB report cites studies of the impact of sparrowhawks on songbird populations at Bookham Common, Surrey, and Wytham Wood, Oxfordshire.[13] In the latter, sparrowhawks killed 18–34% of fledgling great tits each year, but the number of great tits stayed the same, regardless of whether or not sparrowhawks were present. This suggests that the raptors were taking a doomed surplus: if they hadn't killed the tits, something else would have.

Ian Newton summarised the findings of sparrowhawk-related research projects in *Bird Populations*.[14] The studies, he wrote, "lent no support to the view that predation has had major across-the-board negative effects on songbird breeding numbers, but left open the possibility that sparrowhawks may somehow have affected bullfinches, tree sparrows and reed buntings, all of which reached temporally high numbers when sparrowhawks were reduced." During the 1960s, the sparrowhawk population crashed as a result of the toxic effects of chlorinated hydrocarbon pesticides. After their use was restricted, sparrowhawks began to flourish again, and there are now twice as many as there were in 1970.

However, research by scientist Christopher Paul Bell comes to a very different conclusion.[15] He and colleagues compared the pattern of recolonisation of Britain by sparrowhawks from 1970 onwards with population patterns for house sparrows, using data provided by the BTO Garden Bird Feeding Survey. "The evidence is absolutely clear," says Christopher. "As the sparrowhawk recolonised areas where it had disappeared, the sparrow population plummeted. It is a hand-in-glove fit."

In recent years, house sparrow populations seem to have stabilised, falling by just 1% between 1995 and 2011. "I suspect that when sparrowhawks disappeared, sparrows lost their aversion behaviour to aerial predators, and were easy prey when they returned," says Christopher. "Now, they are becoming more savvy, and spend less time in the open, where sparrowhawks can kill them easily."

He has recently been commissioned by SongBird Survival to analyse the impact of sparrowhawk recolonisation on a range of other songbirds. His initial research suggests that sparrowhawks have also had a significant impact on mistle thrush, corn bunting, tree sparrow and several other species. All of which will be hotly contested. "Some organisations want to close down the debate, they don't want to hear any evidence which suggests that raptors are causing conservation problems for other species," says Christopher. "I'm a scientist, not a policy guy, but I think policy should be based on sound science, which it isn't at present."

CHAPTER TWO: Deer - getting the balance right

Britain has six species of deer. These include two true natives – red deer and roe deer – and three exotics: muntjac, Chinese water deer and Sika deer. Fallow deer, which became extinct during the last glaciation, were probably reintroduced by the Normans. With the exception of farmed deer and some deer park herds, deer are classified as wild animals and are free to roam wherever they wish. When they are killed, or die naturally, they become the property of the landowner.

In the Lake District, Alistair Boston of the Deer Initiative uses fenced plots to demonstrate the impact of overgrazing by deer.

"It is within our grasp to have lots of deer, or very few," said Robin Gill, an ecologist at Forest Research when I visited him at the Forestry Commission's headquarters in Alice Holt, Surrey. "It all depends on the landowners and what they want." If they are trying to make a profit out of timber, they will be keen to control deer, or possibly exclude them altogether. However, if they are interested in shooting and stalking rights, they will be more inclined to encourage deer.

Many conservationists contend that the landowners' desire to maximise stalking profits has led to the explosion in red deer numbers in Scotland. Since the 1960s, the population has expanded from around 150,000 to 400,000. Indeed, deer populations have been rising rapidly across Britain. Data collected for the 2013 British Bird Survey suggest that there had been significant increases in the populations of muntjac, red deer and roe deer, which had risen since 1995 by 114%, 26% and 73% respectively in the areas sampled.[16] This has had a dramatic and mostly negative impact on our flora and fauna. It has also led to an increase in traffic accidents, damage to crops and health problems for the deer.

MEASURING THE IMPACT

Aldo Leopold, best known as author of *A Sand County Almanac*, a meditation on the relationship between people and the land, was one of the first scientists to investigate what happens when apex predators are removed from the environment. He argued that the extermination of wolves and cougars over much of the United States during the first half of the 20th century was responsible for a series of deer irruptions.[17] These, he believed, led to over-browsing of woodlands and a loss of biodiversity. Since then, scientists have established a large body of evidence to support this hypothesis.

Opposite: Roe deer numbers have risen dramatically in many parts the country during recent years.

Research by Rob Fuller of the British Trust for Ornithology (BTO)and his colleagues has shown that the reduction in low woody vegetation and foliage by over-browsing in woodlands has a knock-on effect on birdlife. For example, in Bradfield Woods, Suffolk, deer browsing led to a 76% reduction of nightingales over nine years and a 50% reduction of garden warblers.[18] Other birds which have suffered from over-browsing include dunnock, wood warbler and long-tailed tit. The message from studies both here and in North America is that sustained heavy grazing and browsing reduces biodiversity, and in some cases leads to local extinctions. "It is a particular concern with ancient woodlands, as these hold a significant portion of our wild flora and fauna," explained Robin Gill.

> **In Bradfield Woods, Suffolk, deer browsing led to a 76% reduction of nightingales over nine years and a 50% reduction of garden warblers.**

To get a flavour of the various problems deer cause, Jim Barrington and I spent a day in the Lake District with Alistair Boston, Northern England Deer Liaison Officer for the Deer Initiative, about which more shortly. It was a foul October day, but it did not take us long to find a small herd of red deer browsing in damp pasture. "I'm frequently called out by farmers who have problems with deer," said Alistair. "We've now got over 3000 red deer in the Lake District, and in areas like this they are competing for grass with cattle and sheep." He told us about a dairy farm in the Rusland Valley. "In the past, the farmer used to get 70 bales of silage from his fields; now he gets just 40." That represents a loss of up to £30 a bale and the farmer now has to lease land elsewhere to make up for the grass lost to the deer.

In the Lake District, the Deer Initiative's main focus has been on helping landowners, including conservation bodies, improve the condition of woodland Sites of Special Scientific Interest (SSSIs). We visited a deciduous woodland owned by the Woodland Trust where Alistair had set up small deer-proof enclosures to illustrate the impact of browsing. Within the enclosures, there was a good mix of young shrubs and herbs; outside, the woodland floor was almost bare. "It's not just the birds that are suffering from over-browsing, but small mammals like dormice and butterflies like the high brown fritillary," explained Alistair.

In Cumbria, traffic accidents caused by deer tend to be clustered around the M6 motorway, and the problems are less severe than they are further south. According to the Deer Initiative, deer-related accidents are responsible for several human deaths a year and over 500 injuries, and involve up to 74,000 deer. The worst affected areas are those where there are dense concentrations of deer and heavy traffic. To give just one example, there were 237 deer collisions in Ashdown Forest, Sussex, during 2014.

The failure to manage deer properly – and this means culling in the absence of apex predators – often leads to disease and poor animal welfare. An analysis of road-kill deer at Ashdown Forest found that they were 30% lighter than they should have been; put another way, they were malnourished. According to former Nature Conservancy scientist Patrick Lowe, who spent much of his working life studying red deer in Scotland, poor management means that "many thousands still die from starvation unnecessarily each year."

A stark example of the consequences of poor management comes from Exmoor, where the League Against Cruel Sports established the Baronsdown Sanctuary to protect deer from hunting over 50 years ago.

Overgrazing by red deer can pose a serious threat to woodlands and crops.

At one time there were some 350 deer in the 225-acre sanctuary, and the League's refusal to cull the herd created the perfect conditions for the spread of disease.

"One year, a load of stillborn deer calves were seen in the woods at Baronsdown," explained Charles Harding, a National Trust stalker, when I visited him on Exmoor, "and we know that red deer in the League's sanctuaries have had serious problems with disease, especially lungworm and bovine TB. That's what happens if you don't manage the herds properly." Between January 2000 and September 2008, there were 156 submissions to Defra of suspected bovine TB cases from Devon and Somerset. Of the 97 confirmed TB cases, 88 were in red deer, and all but 11 of these, or 86%, were from deer found within two kilometres of Baronsdown. In other words, the League Against Cruel Sports' inept management was directly responsible for high levels of suffering and disease.

CREATING A CONSENSUS

So how many deer do we need to cull each year? "To keep the population at the level it is in the Lake District, we should cull at least 30% each year," suggested Alistair Boston, "but there are other parts of England, where the vegetation grows faster and there's more food and the deer breed more rapidly, where culls need to be higher." A recent study by scientists at East

Anglia University, led by Paul Dolman, found that the deer population was out of control in the Brecklands. Just to keep it at current levels, 60% of the roe deer and 53% of the muntjac need to be culled.[19] Dolman has gone so far as to suggest that nationwide we should be culling approximately 750,000 deer a year, which is some 300,000 more than are presently culled.

> **"To keep the population at the level it is in the Lake District, we should cull at least 30% each year."**
>
> Alistair Boston, The Deer Initiative

While researching this book, I was struck by the public's indifference to killing deer: there was no Bambi-inspired backlash either against stalking as a sport or culling as a management system. The only objections I can recall came from a small group of mostly female, mostly middle-aged protesters in south-west London. At the time of the annual deer cull in Richmond Park they had taken to the genteel streets with placards proclaiming "Culling is Killing" (quite true) and "Stop the Bloody Killing". Theirs was a classic animal rights argument: leave the animals to their own devices regardless of the consequences.

When I met Peter Watson, Executive Director of the Deer Initiative, I told him that I was surprised how little fuss was made about culling deer, especially when seen in the context of protests against the badger culls in Gloucestershire and Somerset and wild boar culls in the Forest of Dean. "It's because there is a consensus that deer need to be managed, that their numbers need to be controlled," he replied.

Alien invader: many estates now operate a shoot on sight policy for muntjac deer, which are prolific breeders.

Much of the credit for this must go to the Deer Initiative, an organisation which was established in 1995 when the Forestry Commission brought together a group of organisations in England and Wales to discuss deer management. The Deer Initiative currently has 25 members, representing an eclectic range of interests, including – this is just to give you a flavour – the Association of Chief Police Officers, the British Deer Society, Defra, the Countryside Council for Wales, the National Trust, the National Gamekeepers' Organisation, the National Farmers' Union, the Highways Agency, Natural England, the Royal Society for the Prevention of Cruelty to Animals (RSPCA) and the Woodlands Trust.

"When the Forestry Commission brought all these organisations together, it was clear that deer were causing all sorts of problems, but the impact hadn't been properly quantified," recalled Peter. For the first five years of its existence, the Deer Initiative gathered evidence about the negative impacts of rising numbers of deer. The partners agreed on the need to establish a sustainable deer population. "Once we got a consensus, based on good science, we spent the next five of six years persuading government and everyone else involved about what needed to be done."

This resulted, among other things, in the 2007 Regulatory Reform Order, which amended the 1991 Deer Act and extended the seasons for shooting female deer. "Even the League Against Cruel Sports and the RSPCA agreed that more females needed to be culled if populations were to be reduced, and the Order sailed through Parliament," recalled Peter.

TRANSLATING EVIDENCE INTO ACTION

Muntjac deer, introduced over a century ago from South-east Asia, have a voracious appetite for bluebells and other forest flora.

"Deer don't respect boundaries, and they will move from one landowner's property to another, sometimes on an hourly or daily basis," explained Alistair Boston as we drove round the Lake District. "If you want to control deer numbers, you can't just have some landowners agreeing to cull, and their neighbours refusing to do anything. That's why we sometimes have to spend years negotiating so that everybody agrees on a management strategy."

In the Lake District and in many other parts the country, better deer management is helping to improve the condition of woodland SSSIs. Many conservation organisations have called on the Deer Initiative for advice, and subsequently hired stalkers to conduct culls. Alistair and his colleagues also provide advice to farmers who are troubled by deer, as well as to statutory agencies such as Natural England.

In 2005, 22,000 hectares of woodland SSSIs in England were classified as being in an "unfavourable" condition, and over a third, some 8000 hectares, was unfavourable as a result of damage by deer. Within three years, this figure had dropped to 4000 hectares, thanks to various activities led by the Deer Initiative. One of these focused on improving the condition of Dinmore Hill Woods SSSI in Herefordshire. Large herds of fallow deer were damaging the flora and fauna and causing many road accidents. The Dinmore and Canon Pyon Deer Management Group coordinated a culling programme that reduced the fallow deer herd by approximately half. Within a short period of time, habitat improvements were clearly visible and the number of deer collisions fell from over 50 a year to zero.

This story illustrates the importance of getting people – in this case landowners, conservationists, government agencies, law enforcement bodies, researchers – to talk together, work together and establish a consensus, preferably based on good science. This is something that is

almost impossible to imagine in the case of badgers. "At all our meetings the partners have constructive conversations about managing deer," said Peter Watson, "but if I introduced the B word, half the organisations would walk straight out of the room. It's not something that would even be up for discussion, because nobody has spent time trying to get different organisations to agree what needs to be done about badgers."

The Woodland Trust is one of many conservation organisations involved in deer management.

The culling of badgers, when it happens, has only one purpose: that of reducing their number. Culling deer, in contrast, has several positive outcomes. It is cheaper than constructing fences to protect woodlands or crops; it helps to enhance biodiversity in areas where there are too many deer; it reduces disease – there is clear evidence from the United States that the incidence of tick-borne Lyme disease is a function of deer density; and it provides jobs for stalkers, supplies for game dealers, and high-class, free-range protein for the rest of us.

The fact that all species of deer make good eating provides a rationale not only for killing them, but conserving them – or at least, conserving native species – in good health. "I can justify keeping a reasonable population of roe deer here, despite the fact they can damage crops and woodland, because they bring in an income," said head gamekeeper David Whitby at the Petworth Estate in Sussex. It was a different story for the alien, absurdly fecund and highly destructive muntjac. Petworth, like many other estates, has a "see one, shoot one" policy. Ideally, said David, muntjac should be entirely eradicated from Britain.

Just before we met Alistair Boston, he had provided the carcass of a culled Sika deer to the cooks at a school in Ambleside. He talked to the children about the importance of managing deer, and why they have to be culled, and this was followed by a lunch of venison casserole. "They loved it," recalled Alistair. "In fact, only one boy complained and when I asked what was wrong, he said: 'It were the carrots.'"

FARMERS ARE ALSO PART OF THE ECOSYSTEM

After we finished breakfast Tom Yandle suggested we head up the hills behind his farmhouse to see if there were any red deer about. After a steep drive through woods smelling of wild garlic we surprised 15 hinds. A couple of fields later we came across a herd of over 100 deer. As we approached they streamed gracefully into the woods beyond.

"One of the reasons why there are so many deer on these farms is because the hunt doesn't come here now," said Tom, who has spent his life farming near Dulverton and hunting with the Devon and Somerset Staghounds. The hunt doesn't come as the farms are close to Baronsdown Sanctuary, which was established by the League Against Cruel Sports in 1959 to protect red deer from the hunt.

The Devon and Somerset Staghounds can no longer go out with a full pack of hounds, but under exemptions in the Hunting Act they can use two hounds to pursue deer for the purposes of research and observation, flushing and shooting, or capturing injured or sick animals. However, this compromises one of the functions of the hunt, which is to move deer around, partly to ensure that damage to crops and pasture is shifted from one area to another; and partly to keep the gene pool in good health by ensuring that sedentary stags do not breed with their own progeny.

When stag hunting began in Exmoor in 1855, there were thought to be around 75 red deer. Within 20 years or so the population had risen to over 1000. Now there is a stable population of some 3000. Their survival hinges entirely on the goodwill of farmers. There is nothing, in law, to stop farmers shooting deer on their land, but they tolerate the damage caused by the deer to pastures and crops precisely because of the presence of the hunt. Indeed, prior to the passage of the 2004 Hunting Act, 717 Exmoor farmers and landowners signed a declaration calling on politicians to allow stag hunting to continue.

Before we left Exmoor, I visited a non-hunting farmer in a hamlet above North Molton. Dennis Jones regularly sees 80 or more red deer grazing on his land. "Like most of my neighbours, I put up with the damage they do, because we love seeing them," he said. He used to grow barley as livestock feed, but he no longer does as the deer did so much damage. It is not even worth growing root crops, he says, because the deer will get them first.

What would happen, I asked, if hunting was banned altogether? "If there was no more hunting, many farmers wouldn't put up with the damage the deer cause," replied Dennis. "They'd be more likely to kill them, or get others in to kill them. There would be more poaching too, and there would soon be a lot less deer."

CHAPTER THREE: Trouble on the moors

This story has all the ingredients of a good soap opera: politics, wealth, class, crime and duplicity. On one level, it is about two birds: the red grouse, which is the basis of a field sport worth £100 million a year, and the hen harrier, a raptor which supplements its staple diet of voles and meadow pipits with red grouse. On another level, it illustrates the depth of antipathy between shooting interests and bird-protection groups. It has also proved fertile ground for those who wish to bash the rich and privileged, grouse shooters being variously described as "tweeded toffs" and "rich city boys" by bird bloggers and the left-leaning commentariat.

Driven grouse shooting – wild birds are driven by beaters towards shooters in butts – became a popular field sport for the landed gentry and wealthy industrialists in the 19th century. To protect the grouse, gamekeepers killed hen harriers, as well as other raptors – this was legal at the time – and hen harriers had virtually disappeared from England by the end of the Victorian era. In the 1920s and 1930s, there were just a few pairs on the Orkney Islands, but the numbers have gradually increased since then. In 2014, approximately 630 pairs of hen harriers nested in Britain, but only four of these were in mainland England.

The Joint Nature Conservation Committee, which provides advice to government, found that persecution was a significant factor leading to the scarcity of hen harriers in England and Wales. Some of those involved with grouse shooting deny this; most I spoke to do not. "The fact that there are no hen harriers, or hardly any, on English grouse moors means they're obviously being persecuted," said gamekeeper Simon Lester when he showed me round Langholm Moor in the Scottish Borders. "But why are they being persecuted? Because they kill grouse and can ruin a grouse moor if their numbers become too high, which is what happened at Langholm."

Grouse shooting in the UK supports the equivalent of 2500 full-time jobs.

"It's poor that only four pairs of harriers nested in England this year," said Robert Benson, chairman of the Moorland Association, whose 200 or so members are responsible for 97% of the grouse moors in England and Wales. "We accept that we need more hen harriers on English moors. Our members know that the status quo is unacceptable. However, all the nests in 2014 were on areas managed for red grouse, with none on the other 3000 square kilometres of suitable habitat across their former range

Opposite: Diversionary feeding. In an attempt to stop hen harriers killing grouse, they are provided with dead cockerel chicks and white rats during the nesting season.

in England." Indeed, his organisation is a keen supporter of a plan – more about this later in the chapter – to restore the hen harrier population in England.

> **"We accept that we need more hen harriers on English moors. Our members know that the status quo is unacceptable."**
>
> Robert Benson, the Moorland Association

This has done nothing to mollify opponents of grouse shooting. In summer 2014, Mark Avery, former RSPB Director of Conservation, launched an e-petition calling for a ban on driven grouse shooting.[20] By early 2015 it had gathered over 20,000 signatures – the merest tremor in the one-click-of-a-mouse world of social democracy, but enough to grab widespread media attention. On August 10, two days before the opening of the grouse shooting season, Avery and BBC presenter Chris Packham organised 'Hen Harrier Day' demonstrations to press home their point: it was time to ban grouse shooting, because the criminals, as Avery calls them – the landowners and gamekeepers – had failed to give ground. Dialogue hadn't worked; a ban would.

However, this is not a new story. In 1985, representatives of the Game Conservancy Trust went to see John Gummer, now Lord Deben, who was Minister of State for Agriculture, Fisheries and Food. They told him that they were concerned about the shortage of hen harriers in the British uplands. He suggested they should explore what could be done to restore their populations. Since then, hen harriers have been the subject of extensive research.

THE SCIENCE OF SURVIVAL

In the early 1990s, a disaffected gamekeeper who had worked on the Duke of Buccleuch's estate in the Scottish border country spilled the beans about the persecution of raptors on grouse moors. It seems – and this is a surmise – that keepers on the estate had been operating an informal quota system for hen harriers: they tolerated two or three pairs, but no more than that. Following the revelations, the Duke agreed to host the Joint Raptor Study on around 12,000 acres of his land.[21] Over a five-year period, during

Simon Lester is head gamekeeper for the Langholm Moor Demonstration Project.

Trapping generalist predators like stoats and weasels is an essential part of grouse moor management.

which no raptors were killed, scientists studied the scale of predation on grouse and the implications for breeding stocks and shooting.[22]

Between 1992 and 1997, the number of hen harriers rose from two pairs to 21 pairs. Autumn grouse numbers fell by 50%. The decline in grouse numbers could not be explained by changes in the habitat or population cycles. "All the scientific evidence suggested that raptor predation had caused the decline in grouse," explained scientist Sonja Ludwig when I visited her at Langholm.[23]

By the end the project there were too few grouse to shoot, so the gamekeepers were deployed elsewhere. Over the following years, scientists continued to monitor bird populations on the moors. Within a few years, the hen harrier population at Langholm plummeted from 21 pairs back to two pairs. There was also a dramatic decline in waders such as curlew and golden plover. Why? Because in the absence of gamekeepers foxes, carrion crows and other generalist predators proliferated. To remain at a high density, the ground-nesting hen harriers needed the gamekeepers just as much as the grouse and ground-nesting waders.

In 2007, ten years after the Joint Raptor Study, the Langholm Moor Demonstration Project was launched. "We know what happens if you have two pairs of hen harriers on a moor the size of Langholm, and what happens if you have 21 pairs," explained Nick Sotherton, director of

research at GWCT. "But where's the tipping point? How many harriers can a grouse moor support without making shooting uneconomic? That's what we wanted to find out."

By the time I met Sonja Ludwig and Simon Lester at Langholm, the demonstration project had been running for seven years. A key element is diversionary feeding. During the summer months, Simon and his staff provide breeding harriers with a daily supply of dead cockerel chicks and white rats. In earlier experiments this practice helped to reduce the number of grouse chicks fed to hen harrier broods by 86%. "Although diversionary feeding massively reduces the number of grouse chicks taken," explained Simon, "this hasn't solved the problem." In 2014, the project was still only getting about 60% of the grouse needed to achieve a shootable surplus of 1000 brace a year. As far as hen harriers were concerned, this was their best year since the heady days of the Joint Raptor Study: 12 females produced 47 chicks.

Around 90% of the dead grouse found on Langholm Moor showed signs of being eaten, and probably killed, by predators, so Sonja and her colleagues radio-tagged grouse to get a more accurate idea about their fate. Of 72 radio-tagged grouse which were found dead, 11% were killed by foxes – whose number has been greatly reduced by the project's gamekeepers – and 71% by raptors. But which raptors?

"I'm in the hills all the time, and buzzards are omnipresent in winter and here in big numbers," said Simon. "It was only last year that we had our first year-round resident hen harrier, and I'm pretty sure it's buzzards that are hitting grouse hardest in winter." Buzzards have done particularly well during recent years, the number of nesting pairs in Britain increasing by 452% between 1970 and 2011.[24]

The GWCT would like to undertake a buzzard removal experiment to assess their impact on grouse.

The GWCT believes that the best way to establish which predator is responsible for killing the grouse is through experiment. "We would like to have a buzzard removal experiment, but many groups oppose this," said Nick Sotherton. This is not the only occasion when conservation organisations have opposed experiments which, if allowed, would definitively establish, or disprove, causal relationships between predators and prey. (See box: Research aversion)

WHAT'S GOOD FOR THE GROUSE IS GOOD FOR THE CURLEW

Curlews are among the ground-nesting birds which benefit from predator control on grouse moors.

During the period when there was no keepering, the wader populations at Langholm crashed. "Once the demonstration project began, we anticipated that the same thing would happen here as at Otterburn – that there would be a recovery – but it hasn't happened," explained Sonja.

Scientists from GWCT undertook an eight-year experiment which looked at the impact of predator removal on the moorlands at Otterburn, Northumberland. They found that the breeding success of grouse, meadow pipit and wading birds such as golden plover, lapwing and curlew was three times higher when foxes and crows were removed than when they were not subject to any form of control.[25] Other studies found that on grouse moors with predator control the densities of golden plover and lapwing were five times higher than on moors without predator control.

Before I headed for Langholm, I called in to see Amanda Anderson, director of the Moorland Association, near her home on the west of the Yorkshire Pennines. "Now that most hill farmers make silage on their in-bye land during the nesting season, rather than hay later in the summer, grouse moors have become even more important for waders," she said. "The shift to silage has had a devastating impact on nesting success below the moors."

To get an English grouse shooting perspective on hen harriers, Amanda suggested I visit Stephen Mawle, whose family acquired some 5000 acres of hill country in Coverdale, North Yorkshire, in 1983. "When we arrived, the in-bye land was like a billiard table and the heather on the moors was rank and scraggy," explained Stephen as we watched a pair of grouse and their chicks feeding among the young heather and bilberry. In those days, there were over 3000 breeding ewes here and Coverhead Farm was heavily overgrazed.

Over the years, the Mawles planted broadleaved trees in the gills, reduced the sheep flock, introduced a herd of hardy cattle during the summer months to improve the sward, and restored large expanses of heather. They also launched a rigorous predator control programme. Between February 2014 and February 2015, Stephen's gamekeepers killed 17 foxes and 20 feral cats and did their best to keep on top of stoats, weasels, crows, magpies and grey squirrels. They also killed six feral ferrets and two mink.

I asked Stephen what would happen if grouse shooting was banned. "If there was no shooting, I wouldn't be able to afford the keepers," he replied. "If we didn't control foxes and other predators, there would be

Stephen Mawle inspects a trap on his grouse moor in North Yorkshire.

a swift decline in all ground-nesting birds, not just the grouse." During the couple of hours we spent wandering round the high country, we were never out of sight or sound of curlews. There are also good numbers of golden plover, lapwing, woodcock, snipe and ring ouzel at Coverhead Farm, as well as a thriving population of black grouse. The curlew is classified by the International Union for the Conservation of Nature (IUCN) as "near threatened". The hen harrier, in contrast, is classified globally as of "least concern" for conservation, as its global population is thriving.[26]

Then there are the raptors. In 2014, there were three pairs of merlins, three pairs of short-eared owls, and half a dozen pairs of kestrels. Peregrines regularly hunt here, and recent visitors included eagle owl and osprey. "If we didn't have keepers, ground-nesting raptors like the short-eared owls and merlins would soon disappear," suggested Stephen. Indeed, 78% of merlin breeding records in England in recent surveys conducted by the BTO were found on keepered grouse moors. Furthermore, the breeding population of merlin on grouse moors has doubled over the last 20 years, whereas it has dropped by over a half on land where there are no gamekeepers.

But what about hen harriers? "You have to remember that hen harriers are semi-colonial nesters and if you had many of them, they would have a serious impact on the grouse – we know that from the Langholm experience." Stephen said he would be happy to take part in the hen harrier recovery plan, which is described below, as long as there was an agreed system of brood management.

BRINGING BACK THE HEN HARRIER

In August 2012, the Department for Environment, Food and Rural Affairs (Defra) set up the Hen Harrier sub-group of the Uplands Stakeholder Forum – its six members were GWCT, the Moorland Association, the National Gamekeepers' Organisation (NGO)[27] , the National Park Authority, Natural England and the RSPB – to develop a plan to increase the English hen harrier population. The Hen Harrier Action Plan's six measures include diversionary feeding to reduce predation on grouse chicks, better law enforcement, trial of a brood management scheme, and the reintroduction of hen harriers to other parts of England.[28] Soon after Defra was ready to publish the plan, the RSPB began to express doubts about brood management.

If there were no gamekeepers, birds like the short-eared owl would soon disappear from his grouse moor, says Stephen Mawle.

"Brood management could help to ensure that chicks from hen harrier nests contribute to a much better distributed harrier population," explained Andrew Gilruth, GWCT communications director when I visited him in Fordingbridge. "If a pair of hen harriers builds a nest within 10 kilometres of an existing nest, the chicks will be taken away, raised in an aviary for two months, and then released to the wild on another moor." In France and Spain, brood management has helped to save eggs and chicks of Montagu's harriers from being trashed by combine harvesters. Here, brood management could help to ensure that hen harriers are allowed to settle and breed.

Initially, the RSPB's tone was conciliatory. For example, in October 2014, James Robinson, RSPB head of policy, told a hen harrier meeting in the House of Commons: "Just to make it clear, the RSPB is not calling for a ban on driven grouse shooting. We support the Hen Harrier Action Plan, and in principle we support brood management, but we do have reservations." He highlighted three areas of concern. Would brood management be legal? How would brood management actually work, and where would the surplus hen harriers be released? And who was going to pay for this?

Des Thompson of Scottish National Heritage (SNH), one of the instigators of the Langholm research, replied that if the plan was going to help hen harrier recovery, it would be legal. As far as logistics were concerned, brood management had worked well for harriers in Europe; there was no reason why it would not work here. Teresa Dent, chief executive officer of GWCT, pointed out that fundraising could not begin until the project was

given the go-ahead. "Once the action plan is approved, I have absolutely no doubt that the money will be found," she said.

> **The six-point action plan represents a pragmatic compromise which has every chance of increasing hen harrier numbers to England.**

Over the following months, the RSPB made its opposition to brood management for hen harriers more explicit, even though it supports brood management for other species, such as the spoon-billed sandpiper.[29] On 13 November, Martin Harper, RSPB conservation director, said there were 25 questions about brood management which needed to be answered before the RSPB would consider going along with it.[30] "New solutions contain unknowns and Defra is well aware of that," reflected Andrew Gilruth with an air of resignation. "The science is settled, the plan is drafted and we need to move on."

At the time of writing, there was no sign of an early resolution, but we have come a long way since 1996, when Dick Potts, then the director general of the Game Conservancy Trust, attended a meeting to discuss the implications of the Joint Raptor Study. "By then we could all see what was going happen – the hen harrier population was going up and the grouse population down," he recalled. "It was obvious that gamekeepers would fear having a Langholm on their hands, and they'd say it's okay to have one or two pairs of hen harriers, but no more than that. It was clear that without any upper limit on hen harrier numbers, they would be unwelcome on moors "

So Dick suggested that there should be a quota system, which would involve taking the eggs and chicks of surplus harriers and translocating them elsewhere, for example to places like Dartmoor, where there were no grouse. "The world came down on me like a ton of bricks," he recalled with a wry laugh. "The gamekeepers were dead against, and so was the RSPB, who thought all keepers were vile because they persecuted raptors."

Dick still believes that some form of brood management is the only way forward. Had it been agreed at the time of the Joint Raptor Study, he believes there would now be a natural number of hen harriers in England and Wales, no gamekeepers would have lost their jobs, and there would be no need for diversionary feeding.

Although hen harriers are largely absent from English grouse moors, it should be remembered that gamekeepers' jobs are on the line: if hen harriers nest on the moors at a high density, as at Langholm, shooting will no longer be viable and they will lose their jobs. However, I can understand why conservationists might be wary about a system which involves quotas. If landowners want them for hen harriers, will they demand them for other species? To which I would reply: it is ultimately up to elected governments to make decisions about the status of species, not landowners; nor, for that matter, the RSPB.

The six-point action plan represents a pragmatic compromise which has every chance of restoring hen harrier numbers to England, provided it is implemented in full. If this does not happen, we will be left with the status quo, with few or no hen harriers. Defra should implement the plan, even if the RSPB refuses to be party to it. Only then will we find out whether it works.

RESEARCH AVERSE

The best way to determine whether a predator is limiting the population of its prey species involves the experimental removal of the predators, or reduction in their numbers, says Ian Newton, the doyen of ornithological science.[31] If the prey population increases, this provides evidence that predation was responsible for depressing it in the first place. Ideally, studies should be done as controlled experiments, with predators removed in some areas or years, but not in others, and the impact on their prey measured.

That is precisely what a partnership of organisations, including GWCT, Forestry Commission Scotland, Scottish National Heritage and the Cairngorms National Park Authority, would like to do in the Scottish Highlands, where there are concerns about the impact of predation on capercaillie.

During the past 17 years, the population of male capercaillie, a rare turkey-sized game bird, has declined by 42% in the UK. Now there are just 1300 left. Despite much effort being put into improving its pine forest habitat, reducing losses caused by collisions with deer fences, and protecting nesting birds from grazing deer, capercaillie numbers continue to decline. Research suggests that the decline is a result of a combination of factors, including the weather, population fragility caused by low habitat connectivity, and predation by a suite of predators. One of these is the pine marten, a generalist predator whose numbers have increased significantly over recent years.

In 2014, the GWCT and its partners drew up a proposal for a predator-prey experiment which would look at pine marten populations in four forests for six years. The experiment would only take place in areas where legally controllable predators, such as foxes and crows, were being removed in adequate numbers. In two of the forests, pine martens would be removed for three years to see if this led to an increase in the breeding success of the capercaillie. Then the treatment would be reversed and pine martens would be removed from the other two forests for the next three years. None would be killed.

It all sounds eminently sensible. However, when the proposal was leaked to the press at the end of November 2014, it was greeted with howls of anger. Johnny Birks, the chairman of the Mammal Society, told Herald Scotland: "Pine martens have coexisted in a stable predator-prey balance with capercaillie in forests across northern Europe for thousands of years." He seemed to be forgetting that natural predators of the pine marten, such as eagle owl and lynx, are no longer with us. The RSPB also dismissed the trial as unnecessary.[32]

"It seems likely that the only way we'll truly know if pine marten predation on capercaillie needs to be managed or not is by doing an experiment," says Adam Smith, head of the GWCT's Scottish operations. Yet sentimentality, it seems, is going to triumph over science – once again.

CHAPTER FOUR: Fact, fiction and the fox

After the Labour government was returned to power in 1997, Parliament spent 700 hours debating whether to ban hunting with dogs. This monumental effort culminated in the passage of the 2004 Hunting Act. The legislation proscribed one method of control; it was not concerned with whether fox, deer, hare and mink – the four quarry species – should, or should not, be culled. Indeed, many of those who argued against hunting spoke in favour of shooting, which they claimed to be more humane, while the hunting associations argued for the retention of a range of legal methods of control.[33]

Unlike the badger, which has a significant army of defenders opposed to any form of culling – many collaborate under the banner Team Badger – there is no Team Fox. You will hear scarcely a whisper of protest about the fact that tens of thousands of foxes are deliberately killed each year. As two of the fox's main predators – wolf and lynx – are no longer with us, we humans have taken responsibility for controlling their numbers, and have been doing so with gusto for many centuries.

> **Fortunately for the fox, its status over much of the country was transformed from vermin to favoured quarry in the late 18th century.**

Foxes were considered such a nuisance in Tudor times that killing was encouraged through a bounty scheme administered by parishes. The bounty on foxes was 12 times greater than that for any other species. Fortunately for the fox, its status over much of the country was transformed from vermin to favoured quarry in the late 18th century when many landowners decided that foxhunting was more entertaining than deer hunting. Hunting, paradoxically, provided a rationale for their conservation.

Homeward bound after a day's hunting. The Blencathra Fell Pack in the Lake District can trace its origins back to the 1820s.

Opposite: Over 400,000 foxes are born every year in the UK. If the population is to remain stable, then the same number must die.

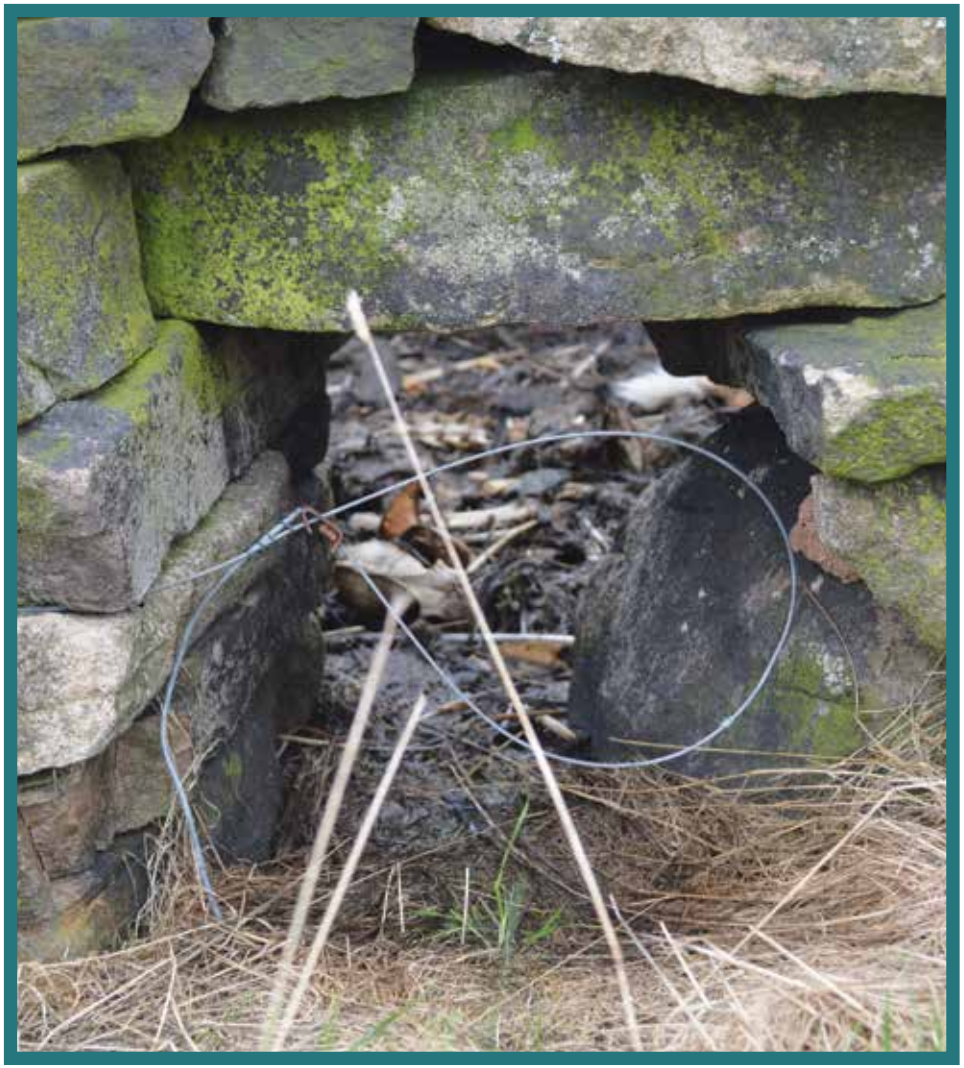
Hunters seek to manage fox populations at a level that is acceptable to landowners and the balance of other wildlife. They recognise a closed season complimentary to the breeding period. They claim that their hunting is selective in that it is most likely to cull the weak, injured or old foxes. Furthermore, they say hunting helps to disperse high concentrations of foxes, thus reducing predation on farm livestock or other vulnerable species.

Analysis of the National Gamebag Census by the GWCT shows that the number of foxes killed on shooting estates tripled between 1961 and 2009. There are several possible explanations for this. The fox population may have been rising, with the increase reflecting its rapid recovery following myxomatosis in the 1960s, which decimated the rabbit population, and an increase in the rearing and release of game birds for shooting. Better lamping equipment, the shift in culling from summer to winter, and greater use of rifles could also have contributed to the increased bags.

Although the National Gamebag Census showed that the average fox bag on shooting estates tripled from 1961 to 2009, the numbers killed has remained much the same since 1994. The British Trust for Ornithology (BTO) breeding bird survey, which now records mammals seen as well as birds, also suggests fox numbers have plateaued. Various guesstimates have put the pre-breeding fox population at around 250,000 animals, including some 30,000 foxes in urban areas. Each year, they produce approximately 425,000 cubs. If the population is to remain at this level, then the same number must die each year.

Before the 2004 Hunting Act came into force, hunts registered with the Masters of Foxhounds Association accounted for about 18,000 foxes a year. Gamekeepers killed an estimated 150,000 foxes a year by snaring, shooting and digging out with terriers. Legal control by farmers, poaching, disease, old age, starvation and road accidents accounted for the rest.

THE RATIONALE FOR CULLING FOXES



Every year, gamekeepers kill an estimated 150,000 foxes by snaring, shooting and digging out.

Although there has been a great deal of research on fox behaviour, surprisingly little effort has been devoted to analysing the way in which foxes are controlled, and the reasons for controlling them. The only study of any note in this country, the Rural Fox Management Project, was carried out by scientists at GWCT.[34] This looked at the impact of culling on fox numbers in three regions in mid-Wales, the east Midlands and west Norfolk.

The motivation for killing foxes, or allowing others to kill them, reflected variations in land use between the regions. In the hill country of mid-Wales, 94% of farmers cited the protection of livestock as their prime motivation, with only 28% giving the same reason in predominantly arable west Norfolk. Conversely, less than a third of farmers in mid-Wales cited the protection of game birds as a reason for killing foxes, whereas 75% did so in west Norfolk, a major game bird shooting area.[35]

During the years leading up to the ban on hunting, the anti-hunting lobby made much of a publication by Stephen Harris and Phil Baker which asked: *How will a ban on hunting affect the British fox population?*[36] Harris and Baker argued that existing fox control had no impact on fox numbers, except locally. They offered no credible evidence to support this assertion, and their findings were contradicted by GWCT's 3-regions study.

This provided strong evidence that fox control has a significant impact on fox numbers. In areas such as west Norfolk and mid-Wales, fox numbers were suppressed as a result of intense culling over a long period of time. Shooting was the main form of control in west Norfolk, hunting in the Welsh uplands. The contribution of hunting with hounds and terriers to the total regional cull of foxes varied from 11% in west Norfolk to 73% in mid-Wales. "73% seems rather significant to us, and we cannot dismiss the consequences of a ban on hunting foxes with dogs, either for regional fox numbers, or for effective local management of fox predation," wrote the Game Conservancy Trust, as the GWCT was known then, in a position statement in 1998. [37]

THE VIEW FROM THE HILLS

In April 2014, Brian Fanshawe and I visited a group of sheep farmers on Manmoel Common, a windy and barren plateau 1100 feet above sea level in south Wales. We met at the farm belonging to Arthur Davies. This had been a good spring, he explained: so far, he had only lost one lamb to foxes.

Sheep farmer Arthur Davies on Manmoel Common.

> **“The fox seemed to be just playing with us. If I hadn’t killed it, it could have taken another 30 lambs.”**
>
> William Jenkins

This was unusual. In 2012, he lost a lamb every night for a month. That year, fat lambs were fetching £56, so the value of the lambs lost to foxes – approximately 10% of those born on his farm – amounted to around £1700. “That’s the difference between making a profit and loss in this business,” he said, “and it would have been much worse if any of the lambs killed by foxes had been my best ram lambs.” He was expecting these to fetch around £1300 apiece this year.

Indeed, losing lambs to foxes and other predators – ravens and badgers also take lambs in this part of Wales – is a serious business for many farmers. Arthur’s neighbour William Jenkins, who has 275 ewes, lost 12 lambs to a vixen in just three days in the spring of 2012. “It wasn’t just a matter of losing money,” he explained. “The trauma was dreadful. I couldn’t sleep. The fox seemed to be just playing with us.” Eventually, William tracked the vixen back to its lair. “If I hadn’t killed it, it could have taken another 30 lambs.”

Hill farmers’ testimony suggests that fox predation has got worse since the 2004 Hunting Act came into force. Over three-quarters of the 651 farmers canvassed by the Federation of Welsh Farmers Packs (FWFP) said that since the hunting ban they had lost more lambs to foxes each year. Ninety-six per cent said this was having a negative impact on their income.

Under the Hunting Act an exemption allows farmers and fox control organisations to use two dogs to flush foxes to guns. The overwhelming majority of farmers in the survey considered this ineffective, as did many of the farmers and hunters I spoke to. “We’re only allowed to flush a fox with two hounds, but you need many more if you’re going to find foxes in large forested areas like the ones we have round here,” said David Burles, master of the Gelligear Farmers Hunt. “Yes, that’s right, agreed Arthur. “Hunting is the most effective way of targeting the right foxes – the ones that are killing lambs – but you need more than two hounds to do it properly.”

I heard a similar story in the Lake District from Barry Todhunter, huntsman with the Blencathra Foxhounds for the past 40 years. “Before the Hunting Act, I used to get lots of ‘lambing calls’ from farmers each spring, asking me to deal with specific problem foxes,” he explained. “We’d go out, find the foxes and kill them. But with two hounds, in rough country like this, it’s a hopeless task, and farmers started saying: ‘You’re just wasting our time, coming with two hounds.’” Now, the farmers are killing foxes themselves, or getting others to do it, using shotguns or snares. “It’s much more indiscriminate, because, unlike us, they’re not targeting specific foxes,” said Barry. Shooting also leads to high levels of wounding. (See box: Shooting and wounding)

But is the use of two dogs, rather than a whole pack of dogs, as inefficient as the farmers and hunters claim? To find out, the Federation of Welsh Farmers Packs commissioned a research project in Scotland, where the law allows an unlimited number of dogs to be used when shooting foxes. During the winter of 2012/13, Jeremy Naylor and Jack Knott used a pack of foxhounds and a pair of foxhounds to flush foxes to guns from the same 80 coverts, and they compared the number of foxes flushed, the time taken to be flushed and the time of active pursuit. More than twice as many foxes were found and flushed using a pack of hounds than when using two hounds.

Barry Todhunter, huntsman with the Blencathra Fell Pack, believes the Hunting Act has made matters worse for the fox, not better.

When a fox was found, it took more than twice as long for two hounds to flush it out of cover as it did for a pack of hounds.[38]

A group of concerned parliamentarians responded to these findings, and a submission from the Federation of Welsh Farmers Packs, by tabling an amendment to the Hunting Act to bring the law in England and Wales in line with Scottish law. This would have enabled hunts and gun packs to use a pack of hounds, rather than just two hounds, to flush foxes to guns. The League Against Cruel Sports claimed that the amendment would "effectively legalise hunting again" – even though, just one month earlier, it had praised the hunting law in Scotland as "a hugely important piece of legislation." The Labour Shadow Environment Secretary, Maria Eagle, opposed the amendment on the grounds that: "The hunting of wild animals belongs to the dustbin of history." Hyperbole and cliché, rather than hard evidence, were the currency of the opposition. The amendment failed to become law.

MORE KILLING, NOT LESS?

Since the Hunting Act was passed, some 300 registered hunts have enjoyed approximately 150,000 days of hunting. In theory, and often in practice, the hounds follow an artificial scent, laid down before the day's hunting begins. However, there is nothing to stop the hounds from independently deciding to pursue a real fox and do what they have been bred to do: kill it. If questioned by the police, the huntsman can claim that it was never his intention that the hounds should divert from an artificial scent to that of a live fox.

Hunt representatives claim that the vast majority of hunts operate within the law. Proof, they say, comes from the lack of prosecutions, despite the assiduous efforts made by hunt monitors to record evidence of illegal hunting. Of the 527 people charged with offences under the Hunting Act between 2005 and 2013, only 6% of those convicted were associated

> **"To assess what's happened since the hunting ban, we need data, and we simply haven't got it."**
>
> Prof John Webster

What the tourists don't see: hunts play an important role by collecting and disposing of dead livestock.

with registered hunts. The vast majority were guilty of poaching offences. However, anti-hunting organisations maintain that hounds frequently kill foxes, and are deliberately encouraged to do so.

It is regrettable that neither the organisations who campaigned for a hunting ban nor those calling for its repeal or amendment have made any serious effort to study the impact of the Hunting Act on the fox population and the welfare of the species. "To assess what's happened since the ban, we need data, and we simply haven't got it," reflected John Webster, an animal welfare expert and Emeritus Professor of Animal Husbandry at Bristol University, when Brian Fanshawe and I visited him at his home in Somerset. Prior to the hunting ban, Prof Webster served as a Commissioner on the Independent Supervisory Authority for Hunting (ISAH), which had been established in 1997 to supervise and regulate the rules, codes of conduct and disciplinary procedures for hunting. During its brief existence, ISAH introduced protocols for the monitoring of wildlife on land covered by the hunts. "Hunts played a very important role in gathering information about wildlife," reflected Prof Webster. "If you're going to manage wildlife, you need people with a genuine interest and knowledge about what's going on in the countryside."

In 2003, the last reporting year for ISAH, hunts submitted estimates for population changes over the past 10 years for foxes, badgers, buzzards, muntjac deer and several other species. As far as foxes were concerned, 10% of hunts said there were 'far more' than there were in 1993, 30% said there were 'more', 43% said there were about the same, and 18% said there were fewer. In other words, foxes were doing very well in most hunting areas.

To assess the impact of the hunting ban on fox numbers, Brian Fanshawe conducted a similar survey in the winter of 2014/15 and received replies

from 144 registered fox hunts. Fifteen per cent said that fox populations were higher than they were in 2004 and 29% said they were about the same. Strikingly, 56% said that fox populations were lower. Eighty-nine per cent cited lamping and snaring by gamekeepers as a reason for the decrease in fox populations; 65% cited killing by poachers; 50% cited disturbance by game bird shoots; and 15% cited disease. So if the hunts are to be believed, matters have got worse for the fox in many areas, not better, since the ban.

The anecdotal evidence I gathered during my travels round the countryside seemed to confirm this. Robert McCarthy, huntsman for the Percy Hunt in Northumberland, said he thought that the number of foxes in his area had been reduced by about 50% since the ban. "There are a lot more men coming out at night from places like Ashington and Blyth with lurchers, and setting them on foxes," he said.

Since the ban, this sort of poaching has increased in South Wales too, according to Martyn Arnold, huntsman with the Gelligear Farmers Hunt since 1999. "A lot more people are coming out of the towns with rifles, lamping at night," he said. "They're doing it for sport, and in many areas they've reduced the fox population." Across the border, in Gloucestershire, Capt Ian Farquhar, joint master of the Beaufort Hunt, believes that the fox population there has been significantly reduced since the ban. "You get these gangs of five or six men coming out at night with long dogs and guns in their four-wheel drives, and they threaten any farmers or gamekeepers they come across," he said. "It's very intimidating, and the police don't want to tackle them."[39]

The Hunting Act was ostensibly about animal welfare, but for many MPs animal welfare was a Trojan horse. What they really wanted to do was prevent a tiresome minority, the majority of whom were probably rural

Martyn Arnold, huntsman with the Gelligear Farmers Hunt, says there has been an increase in people coming out of the cities to kill foxes since the ban on hunting.

The Lake District. Good sheep country and good fox country.

Tories, from enjoying one of their traditional pastimes. "There is not a subject under the sun that is better suited to us for raising our morale in the constituencies that a ban on foxhunting," Labour MP Dennis Skinner told the House of Commons. Well, it may have raised morale in his constituencies, but the Act may have done more harm to the fox than good – although we cannot know for sure in the absence of serious research.

When the Game Conservancy Trust was commissioned by the Campaign for Hunting to carry out its 3-region study, Jonathan Reynolds told Brian Fanshawe, then the secretary of the Campaign for Hunting, that he might not like his findings. Brian said that was fine: he expected Jonathan to be impartial. One of Jonathan's most interesting conclusions was that hunting had a restraining influence. "We found that hunting acted as a moderating force," he explained. "Peer pressure from the hunters often encouraged landowners to leave some foxes, when otherwise they might have eradicated them."

SHOOTING AND WOUNDING

In November 2014, I visited Nick Fox at his farm in west Wales. Nick is one of the more interesting thinkers on countryside matters. He is a scientist, an internationally renowned falconer and expert on wildlife management. As director of International Wildlife Consultants Ltd, he has worked professionally among many different cultures. Our conversation over dinner ranged from the beavers he had recently introduced on his farm to the ethics of field sports and wounding rates associated with shooting foxes.

Nick's research on wounding rates involved 199 shooters of varying skills and experience taking shots at life-size fox-shaped paper targets under a range of different shooting regimes. The targets were then studied by two veterinary experts who determined whether the shots would have led to an outright kill, a serious wound, a light wound or a miss.[40] The study suggested shooting can potentially cause high wounding rates.

Under simulated conditions, using paper targets rather than live foxes, it seems that shooting foxes with shotguns could maim as many as it kills, although in real life a second or third shot might finish the animal off. During the hunting debates prior to the ban, the League Against Cruel Sports and scientist Stephen Harris claimed that shooting caused little or no wounding. This is clearly not the case.

One would expect wounding rates for deer to be lower than wounding rates for foxes, as they present a larger target and are shot in the daytime. Nevertheless, a recent study suggests they are significant.[41] One hundred and two anonymous stalkers collected data on the outcomes and circumstances of 2281 shots. There were 102 (4.5%) clean misses. The deer which were hit were divided into 2026 (88.8%) killed outright and 153 (6.7%) wounded. Of the latter, 125 (5.5%) were killed with a subsequent shot, and 28 (1.2%) were lost or escaped. No information was given on the time-to-death for any of these categories.

There may be concerns about the animal welfare implications of using terriers to kill or bolt foxes when they have gone to ground, although it is the only way of dealing with injured or diseased foxes and orphaned cubs. Before the hunting ban, approximately 40% of the foxes killed by hunts were "dug out" at the request of farmers. But the chase is a very different matter. Foxes are either swiftly killed by the hounds, or they escape unharmed. Wounding is never an issue, as it is with shooting.

CHAPTER FIVE: Lies, damned lies and badgers

"We are in a terrible mess with bovine TB," says Roger Blowey, a Gloucestershire vet. "It's causing great hardship for dairy and beef farmers, and if we go on like this we could eventually see the transmission of tuberculosis from badgers to humans."

In the early years of the 20th century around 2500 people died every year in Britain from milk-borne TB, and many thousands more were infected by the disease. By the time Roger began his veterinary career in the early 1970s, bovine TB had been eradicated in humans and was restricted to isolated pockets in cattle. "If we found a reactor – a cow that reacted to the skin test for TB – it was a major point of discussion for us vets," recalls Roger. "Now you're surprised if you find a herd round here that is free of TB."

Ian Boyd, the chief scientific adviser at the Department for Environment, Food and Rural Affairs (Defra), recently admitted that we had lost control of bTB in cattle, which is doubling every 10 years or so.[42] In 1982, the country-wide bTB testing programme identified 569 cattle with the disease. In 1998 there were some 5000 cases. By 2013, over 38,000 otherwise healthy cattle had to be slaughtered. Over the past 10 years, measures to control bTB have cost the taxpayer £500 million.

The disease has been tough on badgers too, and in parts of England over a third are infected with bTB. Its prevalence is a function, to some extent, of numbers and overcrowding. Between two national surveys in 1988 and 1997, the badger population increased by 77%. Since then, it may have doubled again. That badgers are so numerous is largely down to strict protective legislation, which was introduced for animal welfare rather than conservation reasons. The1973 Badger Act was primarily designed to outlaw badger baiting. The protected status of the badger was further strengthened by the 1992 Protection of Badgers Act.

There has been a dramatic increase in the badger population during recent decades.

Opposite: Testing for bovine TB on a farm in Leicestershire.

The debate about how to tackle bovine TB has set scientists against scientists, academics against vets, and farmers against conservationists.

This story is about much more than our efforts – and recent failure – to control the spread of *Mycobacterium bovis*. The debate about how to tackle the disease has set scientists against scientists, academics against vets, and farmers against conservationists. People who have spoken out in favour of culling badgers have been subject to vilification in the social media, while the recent pilot culls in Gloucestershire and Somerset have been disrupted by animal rights activists.

THE FALL AND RISE OF BOVINE TB

In 1950, the government introduced a compulsory national testing scheme for bTB. Cattle which showed a positive reaction to the tuberculin skin test were slaughtered. This strategy proved highly effective, with the number of reactors falling from 16.2 per 10,000 cattle tested in 1961 to 2.3 by 1982, and the proportion of tested herds with reactors falling from 3.5% to 0.49%.

In 1971, bTB was identified for the first time in badgers on farms in Gloucestershire.[43] Subsequent research confirmed that badgers act as a maintenance host, or reservoir, for bTB.[44] From 1973 until 1998, the test-and-slaughter regime was accompanied by a badger culling strategy. During the early years, setts were fogged with anhydrous sodium cyanate in areas where bTB had been identified in cattle. In terms of numbers killed, this was highly effective; however, it was deemed inhumane and the practice ceased in 1982.[45]

During the following four years, the authorities used a clean ring strategy. This involved trapping and shooting badgers on land occupied by infected cattle, and then on adjoining land, spreading outwards until no further infected badgers were found. The strategy removed up to 80% of badgers. However, it was expensive, and less thorough culling methods were introduced after 1986. Badger culling as a general btB control strategy ceased in 1997.

Tools of the trade. Over 8 million cattle were tested for bovine TB in the UK in 2014.

Concerns about culling as a means of controlling bTB prompted the Labour government to commission the Randomised Badger Culling Trial (RBCT), which was overseen by the Independent Scientific Group (ISG) on TB and Badgers. The experiment, which began in 1998, lasted eight years (during which time the number of compulsorily slaughtered infected cattle in Britain rose from 5000 to 29,000). Proposed by the zoologist John (now Lord) Krebs and led by veterinary scientist Prof John Bourne, its aim was to establish whether or not badger culling was an effective way of reducing bTB in cattle.

Estimates suggest that at least 45,000 badgers are killed on the roads each year.

The ISG concluded that proactive culling helped to control TB in the cull areas, but led to an increase in TB in surrounding areas, as culling pushed diseased badgers outwards, a phenomenon known as perturbation. The ISG also found that culling badgers as a reaction to outbreaks of bTB led to an increase of the disease in cattle. It concluded that the culling of badgers would not be a cost-effective way of reducing the disease.[46] Instead, it recommended that the government focus on improved cattle-based control measures.

However, scientists continued to monitor bTB in the areas covered by the RBCT, and their findings were analysed by a committee chaired by the government's Chief Scientist, Sir John King. The committee found that within the culling zones there were 28% fewer bTB infections in cattle than might have been expected. Furthermore, the initial rise in bTB in the surrounding non-cull zones, caused by perturbation, did not persist. This evidence encouraged the Coalition Government to sanction pilot badger culls – more about these shortly – in Gloucestershire and Somerset.

Krebs, Bourne and a significant number of their fellow scientists still maintain that culling badgers is not an effective way of controlling bTB, even though various culling programmes, dating back to the 1970s, were accompanied by massive declines of bTB in cattle.[47] Veterinary pathologist Lewis Thomas, secretary of the Veterinary Association for Wildlife Management (VAWM), cites several examples of successful culling operations.

"At Thornbury, in Gloucestershire, all the badgers were culled over an area of 104 square kilometres, and there were no herd outbreaks of bTB for the next 10 years," he says.[48] Much the same happened at Steeple

Leaze in Dorset and Hartland Point in Devon, and in two trials in the Republic of Ireland: vigorous culling was followed by a sharp reduction in cattle infections. "Krebs and his colleagues knew all about these culling experiments, but they discounted them on the grounds that there were no control areas with which to compare them," says Lewis. "But that's just a scientific nicety at best. The control areas were the countryside outside the culling zones, where bovine TB was steadily rising."

THE FARMERS' VIEW

In 2012, Cheshire dairy farmer Phil Latham lost 89 cows to bovine TB. "Ours was effectively a closed herd," he recalls. "We hadn't bought a cow for 16 years and all the bulls were TB-tested before they came on the farm. The only way the disease could have got into the cattle was from badgers."

> **"I can't totally isolate myself from my neighbours, and I can't stop badgers foraging in the same fields as my cows. That means there is a risk that I'll get bovine TB again."**
>
> Phil Latham

Phil can remember the day he saw his first badger. He was 13 years old when he, his father and sister walked around the farm after they received news that his mother had just died in hospital. "It perked us up seeing the badger, and not long after that my father and I built a small hut so we could watch the badgers in an old marl quarry," he recalls. In those days, there was just one sett on the farm; now there are 12. Although he received compensation for the slaughtered animals, there was no compensation for the loss of income the cows would have generated.

Phil has done everything he can to protect his livestock from the disease. Around the farm buildings, for example, he has installed massive iron sheets to keep badgers out. "I can't totally isolate myself from my neighbours, and I can't stop badgers foraging in the same fields as my cows," says Phil. "That means there is a risk that I'll get TB again." In 2012, bTB was found in 120 herds in Cheshire. By 2014, it was found in 200 herds. In the meantime, the disease continues to march steadily northwards at the rate of about 20 miles a year.

In 2014, over 8 million cattle were tested for bTB, 29,505 were compulsorily slaughtered and there were 4341 new herd infections.[49] It is not just the loss of cattle which is affecting farmers, but the drudgery and trauma involved in testing. Take, for example, the experience of Mike Belcher, whose beef I have been buying at my local farmers' market for many years. In January 2014, one of Mike's suckler cows gave an inconclusive test for bTB. You only need one cow in a herd to test positive for bTB, or provide an inconclusive test, to put the whole herd under movement restrictions until there have been two clean tests, 60 days apart.

By the end of the year, Mike had had four testing sessions, each taking up four days for himself, his wife Heather, his sons Dan and Tom, and one farmworker. "It's very time-consuming and takes us away from doing other work we should be doing," reflected Mike when I visited him at his Leicestershire farm during a testing session. "These are not dairy cows that are used to being handled. They're beef cattle that are used to being

out on their own, and it's very stressful for them. They won't be putting on weight during these testing weeks."

Phil Latham has installed iron sheeting around his stock yards and farm buildings in an attempt to keep badgers out.

During the course of the year, the Belchers had five reactors, of which three tested inconclusively to a second test and had to be slaughtered. The autopsies showed that none had bTB. "We got £900 for each of the cows we lost," reflected Heather, "but if we'd sold them in the market, we could have got £1200 – that meant we lost £300 on every cow." Stories such as this can be told by thousands of farming families across the East Midlands, South-West England and Wales.

Bovine TB is not only leading to many farmers giving up cattle, but preventing others who would like to keep cattle from doing so. During the summer of 2014, I joined a farm walk organised by the National Farmers Union (NFU) in Gloucestershire. The host was Nicholas Bumford, manager of 1500-acre Guiting Manor Farm. "In 2011, Defra counted 61 badger setts on the farm, and we get two or three new ones opening up every year," he explained. "I'd like to keep beef cattle here, because it would fit in well with our conservation strategies, but I simply can't risk it because of the badgers." He believes the badgers pose a serious threat to other wildlife, including the ground-nesting birds which the farm is trying to encourage.

CULL TO BE KIND?

In 2013, Natural England awarded the first licences in a four-year pilot badger culling programme in Gloucestershire and Somerset, two of the historic epicentres for bovine TB. These stipulated that the organisations responsible for the culls should remove at least 70% of badgers in each area. During the first year, the cull reduced badger density by 65% in Somerset and 39% in Gloucestershire. "Following this epic failure it is hard to see how continuing this approach could be justified," wrote the authors of the 2014 edition of the *State of British Mammals* report, produced annually by Oxford University's Wildlife Conservation Research Unit (WildCRU).[50] But are these figures right? Almost certainly not.

Take the Gloucestershire cull. The culling contractors Gloscom removed 924 badgers from the culling zone in areas where they were allowed to operate. True: this was equivalent to 39% of the badgers, assuming that there were 10.8 badgers per square kilometre, the calculation made by the Food and Environment Research Agency (FERA), on which the 70% target was based. "But nobody really knew how many badgers there

Livestock farmer Mike Belcher says testing for bovine TB is very stressful for his cattle.

were," says vet Roger Blowey, "and I am sure the FERA figure was a gross overestimate."

In 2005/07, the RBCT estimated badger density in one Gloucestershire culling area at 2.61 animals per square kilometre; and at 0.67 in a culling area on the Gloucestershire/Herefordshire border. If FERA's figure was correct, the badger population had increased fourfold if you take the first RBCT figure and 16-fold if you take the second in just 6 or so years. This seems improbable. Roger believes that the actual number lay somewhere between the two estimates. "I think that the cull was very successful, and the numbers taken during 2013 far exceeded the 70% target," says Roger. All this despite harassment and disruption caused by protesters.

Not that the culls were without flaws. An independent review highlighted problems in terms of killing badgers humanely. "I was very surprised that they allowed free shooting as well as cage trapping," said Welsh farmer and former Liberal Democrat MP Roger Williams, who was supportive of the culls in principle, when I visited him in the House of Commons. It also seems astonishing that there was no post-mortem programme to establish the levels of bTB in the culled badgers.

Many critics of the culls, including 31 scientists who signed a letter to the *Observer* in 2012, argued that they were likely to make matters worse, and spread the disease rather than reduce it.[51] However, the evidence gathered to date does not support this. Records from two veterinary practices, involving over 4000 out of a total of 15,000 cattle in the Gloucestershire cull area, showed that the number of reactors fell from 28 (0.56%) in early/mid-2013 to just five (0.12%) in late 2014/early 2015.[52]

Defra figures also show that during the 11-month period to November 2014, the number of reactors slaughtered in Gloucestershire and Somerset decreased by 42.5% and 39% respectively. In contrast, the number of reactors increased by 0.2% in Devon and decreased by just 5.7% in Cornwall, two counties where there were no culls.[53] Of course, this could be a coincidence, and the decrease in the number of reactors may reflect, in part, the decline in cattle numbers. However, the figures would seem to disprove the contention that culling would increase the incidence of the disease.

WHERE NEXT?

If you have been following the badger debate in the national press, there is a fair chance that you will be under the impression that the best strategy

Badgers are among the predators which pose a serious threat to ground-nesting birds like lapwing.

involves improvements in bio-security, controls of cattle movement and vaccination of badgers. This claim is frequently made by organisations such as the Badger Trust (which, incidentally, seems blithely unconcerned about the suffering endured by badgers with bovine TB), and various environmental pundits.

For example, Dominic Dyer, the Badger Trust's chief executive, was quoted in *The Times* in February 2015 as saying that the Welsh Assembly's strategy of vaccinating badgers and controlling cattle movements had halved new herd infections over the past five years.[54] This was simply untrue. For one thing, the badger vaccination programme had been going for less than three years, and covered just 1.2% of the total area of Wales. Furthermore,

bTB in cattle showed a slight increase in the badger vaccination area. The number of new herd infections had not fallen by half in Wales over the last five years, as Dyer claimed, but by 26.9%, which is still a significant amount.

Leaving aside the propaganda war, and the twisting of statistics, the fact that the number of new herd infections dropped by over a quarter is encouraging. Clearly, it has little or nothing to do with the vaccination programme. So what was the reason? Off the record, but never on, many observers in Wales will tell you that there has been a large-scale illegal badger cull. When I met Phil Latham in Cheshire he told me that he had received many calls offering advice on how to surreptitiously kill badgers. Being a nature lover, these appalled him, but he understood the thinking behind the calls: if farmers have no confidence in the system, some will take matters into their own hands.

Experimental vaccination of badgers with the BCG vaccine – no vaccine has been approved for use in cattle yet – provides a degree of immunity by reducing the progression and severity of the disease in naïve animals in the laboratory; that is in animals which do not have the disease. However, its effectiveness in the field, in the face of pre-existing infection, is still in doubt, and there is no evidence to show that vaccinating badgers reduces the incidence of bovine TB in cattle. Indeed, the National Trust has spent much energy and money trapping and vaccinating badgers at its Killerton Estate in Devon, yet six cattle herds have recently gone down with bTB.

As Defra chief scientific adviser Ian Boyd has pointed out, there are a number of ways in which we can reduce bovine TB in cattle, and possibly achieve bovine TB free status, as 16 European countries had done by 2012. The tools include better bio-security, controls on cattle movements, developing more effective and easy-to-administer vaccines, and controlling the disease in badgers, the wildlife reservoir.

In an interview in 2013, Boyd pointed out that the Republic of Ireland is making better progress than we are.[55] "And the only difference between Ireland and ourselves is that Ireland is reducing its badger densities," he said. Take, for example, the Four Areas trial. Over a five-year period, this reduced bTB in cattle by 51–68%. Its success hinged on high landowner compliance, an effective badger culling strategy, and the existence of geographic barriers which impeded recolonisation by badgers.[56]

New Zealand is another country which has successfully tackled bTB. While the UK currently spends about 80% of the bTB budget on testing and compliance, New Zealand has spent 70% on possum control. Between 1995 and 2010, the number of TB infected herds in New Zealand fell from 2400 to less than 100. In the UK, during the same period, the number of infected herds rose from around 1000 to over 9000.

"If we want to be TB free, we have to kill infected badgers," says Roger Williams. "I would like to see more research on how to identify infected badger setts. In the meantime, I think there should be a policy of trapping badgers in the field, testing them for bovine TB, culling the ones that have the disease, and vaccinating the ones that are free of TB before releasing them. We also need to continue with the current cattle TB testing and slaughter programme until the disease is under control."

If we persist with the status quo, Defra predicts that we will see a continued increase in the number of cattle herds infected, further geographical spread of the disease and a taxpayer bill exceeding £1 billion over the next decade. It will also mean more suffering for farmers, livestock and badgers.

THE BADGER AS PREDATOR

Since the mid-1980s, Temple Farm on the Marlborough Downs has been transformed from an arable prairie into a shooting estate rich in wildlife. Almost a million native trees and over 20 miles of hedgerow have been planted, and the farm now supports a good number of red-listed species, including lapwing. These are now being threatened by badgers and other predators.

Every spring, gamekeeper Phil Holborow spends many hours locating where the lapwings are nesting. He marks their nests and when the tractors come to drill spring crops he removes the eggs, then replaces them in exactly the same spot as soon as the tractors have passed. "This year, we did that for 15 lapwing nests, and each had three eggs which hatched," says Phil. "Within two weeks, every chick had been eaten – mostly by badgers." If the badgers didn't get them, kites and buzzards did. "The lapwings have fallen off a cliff these past few years," he says. "In 10 years time, I don't think there'll be any here." Besides eating birds' eggs and chicks, badgers also dug out and ate seven bumble bee nests on one bank at Temple Farm in 2014.[57]

Talk to virtually any gamekeeper or land manager in areas where badgers are plentiful and they will rail against their predatory habits. It is not just ground-nesting birds which are suffering. When I was a child we used to see hedgehogs everywhere – in our garden, squashed on the roads, scurrying along the field margins. In those days there were thought to be some 36 million hedgehogs in Britain. A rough estimate in the mid-1990s put the number at 1.5 million, although there has been no systematic survey of hedgehogs on the 70% of Britain that is farmland. The loss of their favoured habitats and agricultural activities are partly to blame for their decline, but badgers have played a role as well.

The Randomised Badger Culling Trial (RBCT) provided scientists with an opportunity to study what happened when badgers were removed from the environment. In areas where badgers were culled, hedgehog populations more than doubled; foxes also benefited too.[58] Badgers not only eat hedgehogs, they eat many of the same prey species, such as earthworms and slugs, and compete for food.

The badger provides a classic example of an animal whose numbers rapidly expand in the absence of its natural predators. Once upon a time, bears and wolves would have kept them under control. Now it is up to us.[59]

CHAPTER SIX: Return of the natives

Some 12,000 alien species of animal and plant have taken up permanent residence in Europe. Some have been quietly assimilated and done little or no harm. Others, however, pose a serious threat. The release and escape of American mink from fur farms led to the collapse of our water vole population; grey squirrels, another American import, have displaced red squirrels over much of the country. Several alien species, rabbits being one of the most obvious, are agricultural pests. The cost of alien species to the British economy is now said to be in the region of £1.7 billion a year. To put this in context, this is the same as the annual budget for the Foreign & Commonwealth Office.

Many aliens have been here so long that they really qualify for residency. For example, the rabbit, the brown rat and the house mouse arrived many centuries before my maternal ancestors landed in Caithness from Norway. So they are as native as I am, and there is no prospect of ridding ourselves of these early arrivals, even though we must do our best to control their numbers. However, we have successfully managed to eradicate one relatively recent arrival, the coypu, and significantly reduced the populations of several others.

Jonathan Reynolds, a scientist with the GWCT, remembers a meeting organised by Defra in the early 1990s during which there were discussions about the ring-necked parakeet, a bird which in its native India does great damage to crops. "The parakeets were beginning to establish themselves in and around London, and I suggested we should nip the problem in the bud," recalls Jonathan. "But I was told: 'We don't think there will be a problem', and the default option was to do nothing because that incurred no immediate cost for the Treasury."

Now, some two decades later, the parakeet population is 30,000 and rapidly rising. The birds are taking over the nesting sites of native species such as woodpeckers and starlings, driving songbirds away from urban bird tables, and raiding vineyards and orchards.[60] They are now seen as a pest and can be controlled under a general license. "One of the lessons we've learned with invasive species is that you need to act quickly before the problem gets out of hand," says Jonathan.

Ring-necked parakeets, a native of India, have become an increasingly common sight in and around London.

Opposite: The red squirrel is one of many natives to suffer from the introduction of alien species. American grey squirrels outcompete reds for food and transmit squirrel pox.

TACKLING MINK

During a seven-year period in the 1990s, Britain's water vole population declined by 88%. This large rodent – Ratty in *The Wind in the Willows* – was already under pressure from changes to its habitat, but it was the colonisation of water courses by American mink that led to its rapid decline. Besides preying on water voles, mink also feast on other inhabitants of the waterside, such as moorhens and frogs.

> **In 2014, water voles were once again breeding in every English county for the first time since 1989.**

"Many conservation groups came to ask us for advice on trapping mink," recalls Jonathan Reynolds, "so we adapted a raft that we had developed as a research tool to detect the presence of mink." This had proved highly effective: it took an average of three days for mink, if they were present, to leave their footprints on the clay in the raft.

Between 2006 and 2010, Jonathan directed an operation to remove mink from the River Monnow Catchment in Wales, an area of over 400 square kilometres, using track-recording rafts to detect mink and guide trapping.[61] Six months after trapping began, 700 captive-bred water voles were released into the wild. By 2010, mink numbers had been dramatically reduced and the water voles were thriving. A similar strategy, involving the use of the GWCT mink raft and the release of water voles, has enabled conservation groups to create the conditions necessary for the return of

Water vole recovery depends on the eradication of American mink.

Rangers like Jerry Moss have played a key role in red squirrel recovery in the Lake District and other parts of northern England.

the native species across the country. In 2014, water voles were once again breeding in every English county for the first time since 1989.

Eradicating mink requires time and money. To give just one example, the Hebridean Mink Project, which began in 2001, has cost £4.5 million. In the first six months of 2014, just seven mink were caught, suggesting that the project was well on the way to eradicating the species on the islands. The GWCT estimates the cost of mink control on mainland Britain, using a professional workforce, at £350 per square kilometre per year. Obviously, the use of volunteers would be less expensive.

THE GREY SQUIRREL DILEMMA

Grey squirrels were introduced into Britain in the late 19th and early 20th century. Larger than the native red, they outcompete them for food and many transmit squirrel pox, a disease which is fatal to reds but not to greys. Grey squirrels also do significant damage to deciduous woodlands by stripping bark, and their presence therefore acts as a disincentive to establishing new woodlands. There are now an estimated 5 million grey squirrels in Britain, and just 120–140,000 reds.

"In the very long term, we hope to see the development of a vaccine for squirrel pox or a contraceptive for the greys, but that's many years away and if successful, comes with an enormous delivery challenge," says Robert Benson, who set up the Penrith and District Red Squirrel Group some 35 years ago in the Lake District. "In an ideal world, we would wipe out the greys, but that's never going to happen. Our concern is the sustainability of our control work."

The recovery of the pine marten population in the Republic of Ireland seems to have led to a population crash among alien grey squirrels and the resurgence of native reds.

The Penrith and District Red Squirrel Group, which works in tandem with Red Squirrels North England, now employs six full-time rangers who control greys by trapping and shooting. The group encourages red squirrel conservation by raising public awareness, fund raising, and providing feed and advice. This is one of many groups in northern England which are having considerable success in protecting reds by the vigorous culling of greys. There have been successes elsewhere too. For example, there used to be a population of 3000 grey squirrels on Anglesey. These have been virtually wiped out, leaving the reds to flourish. And in parts Scotland the red squirrel is still doing relatively well, despite growing pressure from greys and the recent arrival of squirrel pox.

The Forestry Commission recently announced a scheme which will enable landowners to apply for a grant worth £100 per hectare per year to pay for the culling of grey squirrels. The grant and culling strategies have been criticised by animal rights organisations – that is to be expected – as well as by some environmental commentators.[62] Culling, they argue, has to be continued year after year. Stop culling and grey squirrels will come flooding back into areas where they have been eradicated or much reduced. Culling is also expensive. But if we want the native red to flourish is there an alternative?

In 2014, Emma Sheehy and Colin Lawton of the Mammal Ecology Group at the National University of Ireland in Galway published a study whose title tells the story: "Population crash of an invasive species following the recovery of the native predator."[63] A national squirrel survey had found that the grey squirrel had gone into sharp decline in the Irish Midlands. This had been anecdotally attributed to an increase in the range and numbers of pine marten, a species which has traditionally been persecuted – both in Ireland and Britain – by gamekeepers. The scientists decided to investigate.

Sheehy and Lawton found that the grey squirrel population had plummeted in approximately 9000 square kilometres of its former range, and red squirrel had become abundant after an absence of some 30 years. There was a positive correlation between the abundance of pine marten and the abundance of red squirrel, and a negative correlation between pine marten and grey squirrel. In other words, pine martens, presumably through a mix of predation and the fear factor, had pushed the grey squirrels out. The smaller, more fleet of foot red squirrel was able to co-exist with the pine marten. The scientists noted that anecdotal evidence from Scotland, where the pine marten has been recovering, suggests the same phenomenon might be occurring there.

Does this mean that the reintroduction of pine marten, for example in the north of England, could send the greys into retreat, at a fraction of the cost of a culling programme and even more effectively? There is only one way to find out, which is through an experimental programme of reintroduction.

I was alerted to the Irish experience by Robin Gill, an ecologist with Forest Research. "A lot of wildlife problems stem from the fact that we have lost some of the larger predators; that's why deer numbers, for example, are out of control in many areas," he says. "The question we have to ask is this: is it easier to manage wildlife without the predators that we have lost, or by reintroducing them?" Pine martens might help to reduce grey squirrels, and encourage the return of native reds; but might they also have a damaging impact on native birds? They are, after all, voracious generalist predators. "If we decide to reintroduce a predator like the pine marten, then we need to be cautious," suggests Robin.

THE RETURN OF THE WILD BOAR

Wild boar numbers have increased dramatically in the Forest of Dean.

After an absence of some 300 years, the wild boar – or at least its feral descendants – have become a conspicuous part of the native fauna in the Forest of Dean in western Gloucestershire.[64] In the 1990s, some animals escaped from a wild boar farm near Ross-on-Wye and established themselves in nearby woodland. Then in 2004, a group of around 60 farm-reared wild boar were illegally dumped on a road near the village of Staunton on the edge of the Forest of Dean. "The police shoo-ed them into the woods and nothing was done about the animals for several years," recalls Kevin Stannard, deputy surveyor of the Forest of Dean, a woodland of great antiquity managed by the Forestry Commission. Over the years, the two populations merged and it was only after the publication of

Defra's *Feral and Wild Boar Action Plan* in 2008 that measures were taken to control the animals, whose population is rapidly rising.[65]

The Forest of Dean District Council initially recommended that the population should be kept to around 90 animals. To achieve this, Forestry Commission rangers took ever-increasing culls. "This triggered a backlash from the animal rights organisations, who said we couldn't set up a proper cull unless we knew for certain how many feral boar there were," explains Kevin. "They also argued that year-round culling could leave orphaned piglets." To appease the protesters, the Commission introduced a close season in spring and set a revised target for a feral wild boar population of 400. "The idea was that we would keep it at that level."

> **"The genie is now out of the bottle. I suspect that in 10 to 20 years time, wild boar will be found throughout most rugged parts of the UK."**
>
> Kevin Stannard, Forestry Commission

Wild boar are great rooters, and one of the first things you notice when you visit the Forest of Dean is the churned-up road verges and amenity grasslands, which often look as though they been badly ploughed. "To our knowledge, wild boar have killed 13 dogs, but that could just be the tip of the iceberg," says Kevin. "They've also frightened horses, so riders have been thrown, and last year there were more road accidents caused by wild boar than by deer in the forest." Wild boar have also destroyed fencing round new woodland planting and damaged several important butterfly breeding sites. In mainland Europe, wild boar have become a reservoir for diseases such as TB, swine fever, brucellosis and pseudo-rabies, and thus pose a threat to domestic stock. They are also a major cause of traffic accidents.

Kevin reckons that about 10% of the local population would like to get rid of the wild boar in the Forest of Dean; another 10% take the animal rights point of view, which is to leave them alone; while 80% would like the Forestry Commission to keep wild boar at a level where they do not create too great a nuisance. He admits that they are failing. In spring 2013, the population was estimated at 535. A year later, it had reached 819. "I wouldn't be surprised if by next spring there are more than 1000," says Kevin. "The genie is now out of the bottle. I suspect that in 10 to 20 years time, wild boar will be found throughout most rugged parts of the UK."

Wild boar have the same legal status as fox and deer. Landowners and their tenants have the right to kill them, and for this reason the numbers on arable land are likely to be kept under tight control. As the wild boar's natural predators, the wolf and the lynx, were wiped out long ago, it is now our responsibility to keep their numbers to a manageable level.

THE MISSING LYNX AND THE CASE FOR REWILDING

In January 2015, Natural England approved an application from Devon Wildlife Trust to conduct a five-year experimental programme to monitor the effects which a small group of beavers have on the River Otter. The beavers had appeared the year before – presumably, they escaped from captivity – and their presence had largely been welcomed by local people. The Trust hopes that the beavers will have a beneficial effect on

Nick Fox recently introduced beavers to his farm in Wales.

the environment. The theory is that they will help to reduce flooding of fast-flowing rivers, create habitats which benefit other wildlife and reduce sedimentation by building dams.

"The only way we are going to find out whether re-introductions work is by introducing beavers – or whatever other species we are thinking about – and seeing what happens," suggests Nick Fox, a scientist and conservationist who recently introduced a pair of beavers on a wetland area on his farm in West Wales. Nick points out that beavers disappeared from Britain some 300 years ago not because they were a threat – like, say, the wolf – but because their fur was so valuable. We valued them too highly, not too little.

Nick's pair of beavers, which have yet to breed, have already saved him much work by coppicing the dense thickets of alder and birch around his small lake. At present, the beavers are confined within a wire-netting fence, but he intends to let them and their progeny colonise the watercourse downstream. But what if they cause problems for neighbouring landowners and farmers? "Well," reflects Nick, "we would then have to start controlling them."

There is now a significant population of beavers, perhaps 150 strong, in and near the River Tay in Scotland. At the time of writing the Scottish government had yet to take a decision about whether to trap or cull the beavers. "If beavers are adopted as part of the Scottish fauna, then there must be a policy to manage and control them when necessary," says Adam Smith, Scottish director of the GWCT. He points out that in many other European countries, beaver activity has caused flood damage to roads, restricted salmon runs, undermined river defences and caused damage to root crops. These countries have beaver control protocols, demonstrating that beaver populations can be effectively managed.

Britain is obliged under the European Union's Habitats and Species Directive 92/43 to study the desirability of reintroducing threatened species that have become extinct, and this is giving a headwind to arguments in favour of rewilding, at the heart of which is the idea of restoring habitats by reintroducing apex predators. In this country that means brown bear, wolf and lynx. Even the most enthusiastic advocates of rewilding, such as George Monbiot, accept that it would be hard to make a case in favour of reintroducing the bear. As for the wolf, Monbiot suggests it should not be introduced without widespread public consent "because of a slight risk to people and a higher risk to livestock."[66]

> **"If we are going to reintroduce species, then it is vital that we sanction the means to control them if – and when – things go wrong."**
>
> Jonathan Reynolds, GWCT

Monbiot is implacably opposed to fox hunting – because of the people who do it and the class he believes they represent, rather than any concerns about animal welfare – yet he believes that "hunting, strange as this may sound, could be the wolf's salvation." He suggests that allowing licensed hunters to shoot wolves would help to create a powerful lobby for their protection. It would also show the public that the animals were under control, and make wolves wary of humans. There is a precedent: licensed hunting in Sweden went some way towards making the wolf "politically

Could the reintroduction of the lynx help to reduce the population of roe and muntjac deer?

acceptable" – Monbiot's words – after its reintroduction from Finland, which initially provoked widespread demands that it be exterminated.

Wolves are not going to be seen in the British countryside any time soon, but one large predator which became extinct here some 1500 years ago could be. In 2015, the Lynx UK Trust launched what it described as a public consultation – it was actually an internet survey – to determine whether people would be in favour of its plan to reintroduce up to six radio-tagged wild Eurasian lynx on each of three privately-owned, unfenced estates in Norfolk, Cumbria and Aberdeenshire.[67] If there is much enthusiasm of the project, the Trust will seek permission for trial releases from Natural England and Scottish National Heritage.

The lynx is a powerful predator, and takes a particular liking to smaller species of deer, as well as rabbits and hares and sometimes foxes. Needless to say, the reintroduction of the lynx would only be one of the tools we need to control the burgeoning population of small deer. Lynx have been successfully reintroduced into Switzerland and Germany, and the European population has quadrupled to some 10,000 since 1970.

"The lynx is unlike the wolf, it doesn't need large territories, and if there was a sizeable population it could help to keep down the numbers of roe and muntjac, which would be a good thing," suggests Nick Fox. "I would have thought there would be room for the lynx in remote areas and in the uplands. If we want to know, then we need to try it." Robin Gill of Forest Research also believes there is a case for reintroducing lynx. "At least, it's something we should consider," he says. Although lynx tend to stick to woodlands, there would need to be a programme to compensate livestock farmers if they lost any stock as a result of the reintroduction.

An Asian species introduced by the Romans, at least 35 million pheasants are released in the UK by the shooting industry each year – a ready meal for foxes, carrion crows and other generalist predators. We need more research on the impact this has on wildlife populations.

CHAPTER SEVEN: Striking a balance

Ask the man or woman on the street – or, for that matter, most politicians – what wildlife management means and the chances are they will look at you in bemusement, or give you the vaguest of answers. It is still a term best understood by the cognoscenti: ecologists, farmers, foresters, land managers, gamekeepers, hunters, stalkers and the like.

Wildlife management encompasses a range of activities. It might involve culling foxes so that partridges, lapwings, hares and other species thrive; or shooting deer when they are damaging crops; or exterminating alien predators which threaten native wildlife. A whole suite of non-lethal practices also fall under the heading of wildlife management: fencing woodlands to protect young trees from browsing; digging dew ponds to attract amphibians and other fauna; diversionary feeding, for example of hen harriers to take pressure off grouse; planting hedges and copses to provide habitats for game birds; and – this is for the future – the reintroduction of certain apex predators to control medium-size predators.

In short, wildlife management is a smorgasbord of activities tailored to achieve a range of objectives, from enhancing biodiversity and protecting endangered species to creating the ideal environment for animals which are shot for sport or food. All this takes place in the context of a small, populous island where the countryside must provide many goods and services: food, fresh water, energy, raw materials for industry, housing and jobs for those who live there.

What we can, and cannot, do to wildlife is currently determined by a confusing mishmash of sometimes contradictory laws and regulations, some dating back to the early 19th century. In 2011, the government asked the Law Commission to provide guidance on how to bring wildlife law in England and Wales together under one piece of legislation.

Hunt monitors have spent vast amounts of time searching for evidence of illegal hunting, yet this has resulted in few successful prosecutions.

Unfortunately, the Commission was told that it could not consider the laws relating to habitats or the 2004 Hunting Act. Furthermore, the Commission could not recommend increasing or decreasing the levels of protection for any species.[68]

I am not subject to any such restraints and here I outline key principles which could guide the legislative framework for the way we manage wildlife.

Opposite: Research at Langholm Moor has provided important insights into the relationship between hen harriers and grouse.

A MORE FLEXIBLE LEGAL SYSTEM

We have often been very good at protecting mammals and birds when they are under threat, but we have failed to relax levels of protection when species have become so common that they pose a threat to other, sometimes much rarer, species. Take, for example, buzzards and badgers, whose predatory activities threaten ground-nesting birds, hedgehogs and other wildlife, and whose protection often thwarts the objectives of well-intentioned environmental stewardship schemes.

Between 1970 and 2011, the UK buzzard population increased by 452%.[69] It is now green-listed, which means it is of the least concern for conservation. A similar story can be told for badgers. When the Badger Act was introduced in 1973, nobody could have foreseen the population explosion which subsequently took place. Travel across much of England and Wales and you will seldom be out of sight of buzzards or the evidence of badgers, even if it is just their corpses beside the road. At present it is almost impossible for a landowner or farmer to get a licence to remove buzzards or badgers.

There is a strong case to be made for ratcheting levels of protection either up or down, according to a species' conservation status. I am not suggesting that buzzards, or any other raptors, should be subject to control under a general licence, like crows, magpies and jackdaws. That could be disastrous, and return us to the old days of persecution. However, I believe the regulatory authorities should adopt a more permissive approach towards issuing individual licences, on a case-by-case basis, to control certain species, for example through nest removal, where they pose a demonstrable threat to other wildlife.

During my travels I spent time with a gamekeeper on a large shooting estate in southern England. The estate releases some 20,000 pheasant poults each year. "Buzzards are a pain in the neck for us, and I'll go out some mornings and find 6 or 7 poults they've killed," he said. "But we should expect that. Every year, we are releasing up to 50 million poults in this country – that's a huge source of food for birds like buzzards and sparrowhawks. We're fools if we expect them to stay away."

However, he continued, there are some places – he mentioned the Norfolk Estate at Arundel – where great efforts and much public and private money are spent on creating the perfect conditions for wild game, in this case grey partridge. "To do that you must provide the right sort of habitat and this benefits dozens of other species, including many rare farmland birds," he said. "I think it would be perfectly reasonable for such a landowner to apply for a licence to reduce buzzards or other predators, providing they are causing a problem."

It could work like this. If landowners, farmers and land managers, including conservation organisations, can show that species which are not in danger, such as green-listed buzzards and badgers, are threatening the survival of species of conservation concern, their applications to remove the former would be favourably received by the regulatory authorities. Licences, I suggest, should only be granted where applicants can provide clear proof that the species they wish to control is doing significant damage, and show that they have tried all other possible options without success.[70]

The Government's 2011 Natural Environment White Paper made this bold claim: "We will move from net biodiversity loss to net gain, by supporting healthy, well-functioning ecosystems and coherent ecological networks."[71] If this is to happen, then there will be situations when certain predators must lose their sacred cow status. In which case we must accept that levels

Some gamekeepers are worried about the impact of red kites on our wildlife. Kites have made a spectacular recovery in recent years.

of protection can change over time, and may vary from one part of the country to another.

GUIDED BY SCIENCE AND EVIDENCE

Some 20 years of research at Langholm Moor, focusing on the impact of hen harriers and other raptors on grouse, provides an excellent example of an exhaustively comprehensive wildlife research programme. It also illustrates how scientific evidence can be misinterpreted by those who dislike the findings. Between 1992 and 1997, the number of hen harriers on Langholm Moor rose from two pairs to 21 pairs, and autumn grouse numbers fell by 50%. The project partners, with the exception of the RSPB, agreed that the increase in hen harriers was partly if not wholly responsible for the decline in grouse. The RSPB initially refused to accept this finding and claimed that the decline in grouse was a reflection of the poor condition of the moors and other factors. Its stance was clearly based on wishful thinking.

Although the ten-year Langholm Moor Demonstration Project still has three years to go, it seems to confirm the findings of the Joint Raptor Study: when left to their own devices, semi-colonial hen harriers can make grouse shooting economically unsustainable. As a result, gamekeepers will be laid off, generalist predators like foxes, stoats and weasels will increase in number, and ground-nesting birds – including hen harriers – will suffer.

These findings have influenced the Defra Hen Harrier Action Plan. This would encourage grouse moor owners in England and Wales to tolerate hen harriers, with the proviso that they will be able to limit the number of breeding pairs. However, the RSPB refuses to countenance the idea of brood management. One can only assume it is being guided by sentiment – hen harriers and other raptors are important icons for fund-raising – rather than science. Politicians and decision-makers should be guided by the latter.

This can be tough. In March 2014, many MPs took part in a debate scheduled by the Backbench Business Committee, following which they had the opportunity to vote on a motion calling for a halt to the Gloucestershire and Somerset pilot badger culls. Roger Williams recalls that party whips advised MPs not to vote against the motion, even if they were in favour of

the culls. In other words: keep your heads down. Roger voted against the motion and details about where he lives can now be found on anti-cull websites: a tacit invitation to abuse.

After Phil Latham lost 89 cows, he became a prominent speaker advocating the culling of badgers with bovine TB. "We have a policy now which leads to the culling of cows with bovine TB, but not the wildlife host with bovine TB in the same area," he says. "You just couldn't make it up." Hell hath no wrath like animal rights activists and Phil has been subject to some outrageous abuse on twitter. I tell these stories because they illustrate how farmers, politicians, decision-makers and others who advocate policies which involve the control of certain species need to screw their courage to the sticking place.

CONSENSUS, GOOD SENSE AND PRAGMATISM

In chapter 2, I said I was surprised by how little opposition there is to shooting deer – at least 450,000 are culled every year in Britain – yet a relatively modest badger cull has proved highly controversial and cost millions of pounds to police. Peter Watson, the executive director of the Deer Initiative and a member of Defra's independent expert panel on the pilot culls, argues that deer management policy is based on a scientific consensus. There is no scientific consensus when it comes to formulating policies to control bovine TB in cattle and badgers.

From my sifting of the evidence, I think there is a strong case for conducting badger culls in bovine TB hotspots. However, some scientists do not agree. So I would suggest the following. The four-year pilot culls in Gloucestershire and Somerset should continue. After all, these are experimental culls, and we won't know the results until they have run their course. At the same time, Defra could set up an independent commission to assess all the evidence and make recommendations to government. None of the members of the commission should have had anything to do with badger research in the past or have any academic association with those who have.

It would be hard to think of a more inept or unenforceable law than the 2004 Hunting Act. Yet you would think, judging by the amount of time Parliament spent debating the issue and taking evidence – the equivalent to some seventeen 40-hour weeks – that this would have been one of the most carefully thought through pieces of legislation for many years. Proponents of the ban would like you to think it was.

During the six-month period of public consultations, which culminated in September 2002 with three days of hearings at Portcullis House in Westminster, the Minister in charge, Alun Michael, went out of his way to appease the Campaign for the Protection of Hunted Animals, effectively allowing it to dictate the rules of engagement. Having initially insisted that the evidence presented at the hearing should be science-based, he even allowed the anti-hunting campaigners to call as one of their witnesses a theologian who compared hunting to rape, child abuse and torture.[72]

Alun Michael claimed that the Bateson Report (on deer hunting), and the evidence presented to the Committee of Inquiry into Hunting with Dogs in England and Wales led by Lord Burns, "showed clear evidence of chased deer suffering, even if they are not caught." To which Prof Bateson responded: "Only someone who is scientifically illiterate could argue that evidence from a new area of research was 'incontrovertible'." This is precisely what the Minister had done.

One of the key witnesses to the Portcullis House hearings for the anti-hunting lobby was Prof Stephen Harris. I have written at length about the way he

Controlling deer doesn't require a change in the law, but better management.

and his fellow travellers in the animal welfare movement launched their tendentious findings at a party political conference, used them in public forums, and influenced the political process: a clear example of the corruption of science for political purposes.

It was only after the Act was passed that many of those who had campaigned and voted for a ban admitted that it had little or nothing to do with animal welfare. For example, Peter Bradley, Labour MP for The Wrekin and Parliamentary Secretary to Alun Michael, wrote in an article in the *Sunday Telegraph*: "We ought at last to own up to it: the struggle over the bill was not just about animal welfare and personal freedom, it was class war."

Well, after 10 years, it seems highly unlikely that the Hunting Act has achieved anything in terms of improving the welfare of the fox; it may, indeed, have done the opposite, by leading to more shooting, snaring and poaching. It is pity that the hunting lobby has devoted little or no energy to researching the impact of the ban on the welfare of the fox. Its hopes have rested on the belief that sooner or later there will be a majority of pro-hunting MPs who will vote to repeal the Hunting Act. This is short-sighted: at a later date the political pendulum may well swing back towards parties who are ideologically opposed to hunting.

The 2004 Hunting Act has proved virtually unenforceable. Vast amounts of time and energy have been expended by hunt monitors searching for evidence of illegal hunting, yet this has resulted in few successful prosecutions. The law is difficult to enforce, and the police have much better things to do with their time than search vainly for evidence on the hunting field. Unenforceable law is bad law.

Is there an alternative which could satisfy the demands for high standards of wild animal welfare without compromising the effective management of wildlife populations? There is, although at the time of going to press the Wild Mammals Welfare Bill was in draft form and had yet to be put to Parliament. Developed under the guidance of Lord Donoughue, a Labour peer and former agriculture minister, the Bill would stipulate that: "Any person who intentionally causes unnecessary suffering to any wild mammal shall be guilty of an offence."

An eye on the future. A Wild Mammals Welfare Act could do much more to protect foxes from cruelty than the 2004 Hunting Act.

At present most animal welfare legislation excludes animals living in the wild. However, we should do our utmost to avoid unnecessary suffering when managing wild animals, and the methods used to manage wildlife should be subject to legal scrutiny. The introduction of a wild mammals welfare law, such as the one proposed by Lord Donoughue, would be an important step in the right direction.

The inflexibility of the current wildlife legal system has encouraged abuse, rather than stamped it out. Take, for example, the case of badgers. Although nobody will be publicly quoted, it is clear that large numbers of badgers are being illegally – and horribly – killed in some parts the country, because some farmers have no faith in the current bovine TB control system. Although the persecution of raptors is probably at its lowest level for a very long time, there is no doubt that some gamekeepers continue to ensure that certain species do not prosper on their watch. In theory, they or their landowners could apply for licences for removal, but if they think there is no chance of their applications being favourably considered, they may decide to act outside the law.

So I make a plea for the following: greater flexibility and a more pragmatic approach to law-making, a science-based approach to wildlife management, and a willingness to sanction experimental research, whether it involves the reintroduction of apex predators to control species lower down the food chain or research which provides greater insights into predator-prey relationships, disease management and the control of alien species.

FOOTNOTES

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Good wildlife management is about restoring the balance of nature in a world of competing interests.




There is scarcely an acre of Britain which is truly wild. Farming, forestry, hunting, water extraction and urbanisation have all had a profound effect on our flora and fauna. Some of our top predators have been lost; many other species have been introduced, frequently with disastrous consequences for livestock, crops and our native wildlife.

The Facts of Rural Life argues that the effective management of wildlife means controlling certain species in order that other, often much rarer species can thrive. If we want a countryside rich in biodiversity, where farmers can go about their business without their livelihoods being imperilled, we must accept responsibility for managing wildlife. Doing little or nothing – which is what often happens – should never be an option.

VETERINARY ASSOCIATION for WILDLIFE MANAGEMENT

www.vet-wildlifemanagement.org.uk