

Wildlife management and zoonotic infections



A one day symposium held at:

**The Royal Society of Medicine,
1 Wimpole Street, London, W1G 0AE**

On Wednesday, November 17, 2010

www.vet-wildlifemanagement.org.uk

PREFACE

We extend a warm welcome to all delegates and speakers to this our fourth symposium on Wildlife Management and zoonotic infections. Our last symposium in November 2008 on Wildlife diseases and zoonotic infections was extremely well supported and encouraged by this we have now staged the current symposium on what we believe to be a number of most important subjects in the context wildlife management and animal disease. We are therefore enormously gratified to receive your support by your attendance

You will already have noted that we have a wide range of topics for consideration today and we hope delegates will be informed and stimulated by the presentations and discussions both on the topics of their particular interest and perhaps on those they may be less familiar with.

Finally we thank Mark Thomas for compiling the logo, Kate Thomas for formatting this handbook, Louise Holder, 2Cs Communications, Cambridge, for printing and publishing and Joanna Skoczylas and the staff of the Royal Society of Medicine for the smooth and efficient way that they have managed our meeting.

Tony Mudd, chairman
Lewis Thomas, secretary
17 November 2010

COMMITTEE MEMBERS

Current officers of the Association (2010/11) are:

Chairman	Dr. Tony Mudd
Secretary	Dr. Lewis Thomas
Treasurer	Mr. Richard Greenwood
Committee	Mrs Charmian Lewis-Jones Mr. John Parker Mr. Chris House Mr. David Renney Mr. John Dalton

PROGRAMME

0915 Coffee and registration

1000 Introduction and welcome *Tony Mudd, Chairman,*
VAWM

1005 – 1315h Session 1 Chairman: Dr. Tony Mudd

Animal reservoirs of human disease: *Harriet Auty and Sarah Cleaveland*

The fox as a reservoir of disease: *Vic Simpson*

1100 – 1110h Break

DEFRA's wildlife health strategy: *Andy Paterson*

Treatment and rehabilitation of wild animals: *Anna Meredith*

Rehabilitation in Practice: *John Chitty*

Prospects for control of bovine TB: *John Gallagher and Roger Sainsbury*

TB eradication: Progress and prospects in Wales: *Christianne Glossop*

1315 – 1400h Lunch

1400 – 1530h Session 2 Chairman: Dr. Lewis Thomas

Coping with today's successful species – a question of balance: *Jonathan Reynolds*

Practicalities of control; some examples of best practice in predator management:
Mike Swan

Reintroduction of animals to England: *Peter Brotherton*

1530h Tea

1600 – 1730h Session 3 Chairman: Lord Mancroft

Introduction to a review of wildlife legislation: *Benjamin Mancroft*

A Brief Review of Legislation affecting Wildlife and the associated veterinary
issues: *Madeleine Forsyth*

The case for repeal of the Badger Acts of 1973 and 1991: *Stephen Lomax*

ANIMAL RESERVOIRS OF HUMAN DISEASE

HARRIET AUTY and SARAH CLEVELAND

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Pathogens of animals are clearly important for human health. Around two thirds of human diseases arise from zoonotic pathogens, and the ability of a pathogen to infect wildlife is a risk factor for human disease emergence. The most important drivers of disease emergence are anthropogenic factors such as land use changes, which affect patterns of contact and transmission. For example, Nipah virus only became widespread after transmission from bats into Malaysia's intensively reared pig population, and the incidence of Lyme disease in parts of the UK and US is increasing in line with the popularity of outdoor recreation. However, whilst epidemics of emerging zoonoses often draw much attention and funding, endemic zoonotic diseases include some of the most common and neglected tropical diseases.

In Tanzania, where wildlife, livestock and human populations live in close proximity, wildlife pathogens have important impacts on human health. Direct impacts occur through transmission of zoonotic pathogens such as human African trypanosomiasis, brucellosis and anthrax. In addition multihost pathogens which affect livestock health and land use, through diseases such as foot and mouth disease and malignant catarrhal fever, combine to contribute to rural poverty.

NOTES

THE FOX AS A RESERVOIR OF DISEASE

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The fox, or more correctly the red fox, *Vulpes vulpes*, is one of the most widespread and abundant predators on Earth. Despite centuries of persecution it is not just surviving but flourishing. In the last two decades fox populations in Central Europe have expanded dramatically, including expansion in to urban areas. However, the fox is a major reservoir of a number of important diseases that affect domestic animals and humans. These include sarcoptic mange, angiostrongylosis, rabies and alveolar echinococcosis.

Sarcoptic mange is caused by the mite *Sarcoptes scabiei*. The disease in foxes can take several forms, ranging from a mild dermatitis with localised alopecia and skin pigmentation through to a severe crusting form which is typically fatal. The latter form appeared in foxes in Finland in the late 1960s, possibly introduced by foxes from Estonia. An epizootic followed, spreading to Norway and Sweden in the 1970s where it killed up to 90% of the fox population. It subsequently appeared elsewhere in Europe during the 1990s, including Denmark, Spain and the UK. Domestic dogs are highly susceptible to the fox strain of *S. scabiei*. Humans may also be infected

and although such cases are normally mild, a severe crusting form of the disease has been recorded in humans infected with HIV.

THE FOX AS A RESERVOIR OF DISEASE CONTINUED

Angiostrongylus vasorum is a metastrongyle nematode that infects the right ventricle and pulmonary artery of dogs and foxes. Historically it was confined to south and south east France and was therefore known as 'French Heartworm'. However, during the 1980s it appeared in the UK, initially in the south west but then in south Wales, the south east and most recently in the north east. Studies have now shown the parasite to be present in Italy, Switzerland, Germany, Denmark and, most remarkably, Newfoundland. Whilst most of the long distance movements were probably due to dogs being moved by humans, it is likely that dispersing foxes contribute to regional spread of the parasite. Infection rates in foxes can be as high as 39 % and they undoubtedly act as a highly significant reservoir of infection.

Rabies in Europe is essentially sylvatic and the fox is the principal reservoir. Historically control measures consisted of intensive trapping and culling in an attempt to reduce fox density and thus minimise transmission. This was not very effective. However, mass vaccination of foxes using bait containing an oral vaccine proved highly successful. As a result, terrestrial rabies has not only been controlled in many European countries but eradicated in some, with Finland, The Netherlands, Switzerland, France, Belgium, Luxembourg, Czech Republic officially declared free of the disease (Anon, WHO). However, Italy, which had been rabies free since 1997, experienced cases in foxes close to the border with Slovenia in 2008. Despite increasingly intensive vaccination the outbreak has yet to be brought under control. This illustrates the importance of active surveillance of foxes.

Alveolar echinococcosis (AE) is a slow developing, frequently fatal, disease of humans. It is caused by the accidental ingestion of eggs of the small tapeworm *Echinococcus multilocularis*. The metacestode larvae proliferate in the liver to produce neoplastic-like masses. This may take 10 -15 years and lesions are normally advanced by the time a diagnosis is made. Humans are an aberrant intermediate host, the normal ones being small rodents such as mice and voles. The principal definitive host is the red fox but domestic dogs are also readily infected. The prevalence of infection in foxes is often around 40% and individual ones may have several thousand worms. Historically AE was a rare condition confined largely to parts of Germany and Switzerland. However, possibly as a result of the successful rabies vaccination programmes, the fox population in Europe has increased dramatically in recent years. The incidence of AE cases has increased in parallel and, equally significantly, the parasite has now appeared in many European states historically free of the disease - infection was found in Belgium in 1991 and in the Netherlands in 1996. There are no satisfactory control measures and when one considers the thousands of dogs that are moved between UK and mainland Europe every year under the PETS scheme, it can only be a matter of time before the infection is introduced to the UK.

The fox has adapted to live alongside humans, its population is increasing and it is the major reservoir of a number of important diseases. One can only wonder why, unlike almost any other EU member state, the UK does not feel the need for an active fox disease surveillance programme.

NOTES

DEFRA's WILDLIFE HEALTH STRATEGY

ANDY PATERSON

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The England Wildlife Health Strategy provides a framework within which Government and others develop policy and make decisions in relation to wildlife disease management based on sound scientific evidence through better co-ordinated collaboration and responsibility sharing. The over-riding vision for this strategy is for the disease status of wildlife to be considered and balanced with society's interests and responsibilities, including human health, economic activity, biodiversity, the health of kept animals, and the need for a responsible approach to human/wildlife interactions. This will be achieved by: i) taking a holistic and co-ordinated approach to wildlife health across government and interested parties ii) taking a proportionate, risk-based approach to wildlife disease surveillance and prevention; and iii) making appropriate and proportionate interventions where necessary.

In order to have a consistent and transparent approach to assessment and prioritisation of wildlife health issues a simple four stage approach has been developed.

1. Threat detection and identification

Threats to human or livestock health, biodiversity or species conservation may be detected and identified through a variety of mechanisms including *disease surveillance*, *population monitoring* and *horizon scanning*. These activities will often be undertaken by Government but external stakeholder projects have an equally important role.

2. Assessments of threats

Evidence from the detection and identification stage must be processed and then presented to an appropriate *expert advisory panel* which will be tasked with assessing the evidence and associated risks, and making scientific and management recommendations to the appropriate decision makers.

3. Prioritisation and policy development

Prioritisation has to be undertaken in the context of broader policy objectives, resource implications and available funding in conjunction with scientific technical advice.

4. Mitigation measures

Where Government intervention can be justified, measures to mitigate threats should be developed in conjunction with the relevant technical experts. Mitigation measures could be allocated to either Government delivery bodies or stakeholder organisations. Actions might include revising surveillance methodologies, commissioning research, undertaking wildlife management actions or increasing public awareness and education.

NOTES

TREATMENT AND REHABILITATION OF WILD ANIMALS

ANNA MEREDITH

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When a wildlife casualty is presented for treatment, rapid and important assessments and decisions have to be made, primarily to prevent suffering, but also in relation to staff health and safety and legislative requirements. It is important that everyone involved in wildlife casualty work has a clear idea of what they are trying to achieve and why. There are complex moral and ethical issues to be addressed regarding if and when intervention is justified, and different people will have differing opinions on what is acceptable. However, in practice most vets are faced with a “*fait accompli*” of an injured animal presented for treatment. **The prime aim must always be to return an animal successfully to the wild.** To do this the animal must be released with a chance of survival equivalent to that of other free-living members of its species. The alternatives are permanent captivity, which is rarely acceptable on welfare grounds, or euthanasia, which must always be considered at every one of the six stages listed above. Euthanasia, performed correctly, is NOT a welfare issue. In many situations it is better to euthanase quickly and eliminate the possibility of further suffering, than to hold a wild animal captive and attempt treatment. Although members of the public frequently find this upsetting or unacceptable, it is an important educational opportunity to explain the reasons for any decision.

SO WHY BOTHER? THE SIGNIFICANCE OF REHABILITATION:

- **To the wild population:** unless working with an endangered species, the rehabilitation of wildlife casualties will have little, if any, significant conservation value. However, it may involve some potential threats to the wild population either by the release of individuals carrying non-endemic pathogens, or by the release of non-indigenous species.
- **To the individual animal:** the significance of capture and treatment of an individual casualty is primarily one of welfare. If the disability is short term, requiring minimal treatment and stress, and the animal is quickly released back, then there are few concerns. However, if the disability is medium or long term, involving extended treatment and associated stress, with the possibility of the disability being permanent, then euthanasia is a very valid alternative. The welfare costs and benefits of intervention should always be assessed.
- **To the general public:** the general public generally expect “something to be done”, and support centres prepared to handle wildlife casualties. But are we just salving consciences and perpetuating misguided welfare aims? Education is key
- **As a source of information:** treatment and rehabilitation of wild animals can offer the opportunity to gain information on different aspects of wild animals and the environment (e.g. environmental pollution, infectious/emerging diseases).

INITIAL ASSESSMENT - TREATMENT VS. EUTHANASIA

Setting aside the philosophical arguments, a practical approach is to ask the following questions when coming to a decision:

- Is it possible to treat the animal ?
- What species is it and what is its behaviour in the wild?
- How long will the animal have to be in captivity? How often will it have to be handled for treatment?
- *How old is the animal, and what sex is it?*
- *Time of the year?*
- *Do I have the facilities? Are rehabilitation facilities available?*
- *What are the risks to personnel?*
- *Are there any legislative requirements?*

FURTHER READING

Best D and Mullineaux E (2003). Basic principles of treating wildlife casualties. In: BSAVA Manual of Wildlife Casualties. Eds. Mullineaux E and Best D. BSAVA Publications: 6-28

Kirkwood J and Best R (1998) Treatment and rehabilitation of wildlife casualties: legal and ethical aspects. In Practice 20: 214-216

Cooper J and Cooper ME (2006) Ethical and legal implications of treating casualty wild animals. In Practice 28:2-6

NOTES

REHABILITATION IN PRACTICE

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This paper cannot cover all aspects of diagnosing treating and rehabilitating injured UK wildlife. Nor can it cover the aspects of maintaining such creatures in captivity and the complexities of running wildlife hospitals

Instead it will concentrate on raising and discussing issues of rehabilitation in the UK

Above all, what is Rehabilitation?

- Treatment of an injured wild animal and its return to the wild
- Is there a point to it?
 - Conservation?
 - Education
 - Publicity
 - “Feel Good”
 - Practice

Who Pays?

- BVA agreement

Some Issues in Rehabilitation

- Legal
 - Wildlife & Countryside Act 1981
 - The Animal Welfare Act
 - Application of these to possible licensing of sanctuaries
 - When does a wildlife hospital become a sanctuary?

- Aftercare – more important than simply treating; without return to fitness, release becomes abandonment
- Release- when? Where? How? (hard or soft release?) Role in disease spread??
- Post-release monitoring - little known about success rates. How to monitor – tracking? Observation? Expense? What to do with data?
- Disease syndromes – monitoring/ recording, notifiable diseases, disease spread in the clinic
- Keeping animals in captivity – can this be justified? Is this the point of the wildlife charity? Legal aspects – public display? Breeding?
- Euthanasia – when? Who? Should most be euthanased? Role of the vet in assisting the rehabber in decision making especially in chronic cases

In essence, why assist rehabilitators? Can we rehabilitate wild animals without causing individuals un-necessary suffering?

To this extent, what role do wildlife hospitals play? Are they simply a way of exorcising guilt? A way for public to donate money?

Or a legitimate way of raising funds for conservation efforts and land restoration?

Are there species they should/ should not house?

Can they be used for wildlife disease monitoring? If so, should state funds be used for this work?

At what point do hospitals become sanctuaries? Or even zoos?

NOTES

PROSPECTS FOR CONTROL OF BOVINE TB *JOHN GALLAGHER and ROGER SAINSBURY*

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Since the Independent Scientific Group on TB (ISG) published its final report in 2007, this appears to have become the scientific basis for decisions made by politicians and the Law Courts on all matters concerning bovine tuberculosis. However, as the findings of the ISG contradict much of the earlier work carried over the previous 30 years they have proved controversial. Whilst serious concerns have been expressed about the methodology and conduct of the ISG's badger culling trial we also have serious concerns as to the manner in which the trials data was presented. As the TB epidemic in cattle has continued to expand the conclusion from the ISG that further cattle controls alone "are, in the absence of badger culling, likely to reverse the increasing trend in cattle disease incidence", no longer appears to be convincing Ministers.

Assumptions made in the mathematical modelling of the disease are challenged regarding the origins of infection of outbreaks, the universal infectiousness of reactors, the significance of multiple reactors and the differing nature of disease in cattle and badgers. When considering the sources of new herd infections it was assumed that movement of cattle into the herd, cattle to cattle infection between herds and infections from badgers were of equal significance. It was thus postulated that cattle sources of infection were the driver of the epidemic and badgers accounted for only a third of outbreaks. Additionally it was assumed that infection was evenly distributed in the infected animal populations and that all cattle reactors were infectious thus fuelling the epidemic. However, disease models are only valid if the initial assumptions are realistic and the model generates results that are consistent with the "in field" reality. This model does not and is therefore fundamentally flawed.

That badgers are acting as a self sustaining reservoir host for was discovered in the early 70's and acknowledged in all three earlier reviews for Ministers. Yet Britain remains the only country which has a serious TB reservoir host problem but continues to slaughter only sentinel cattle and protects the reservoir even to the extent of allowing it to expand. How much has this situation resulted from misinformation from the highly questionable "ISG dossier"?

It is unrealistic to expect any prospect of gaining control of TB in cattle in this country unless a structured programme of identification of diseased badger communities followed by culling is introduced. Vaccination of apparently "clean" communities is likely to be a valuable adjunct as well as possible cordon vaccination of badgers to limit the expansion of infection from endemically infected badger populations. But before any public approval for such action can be hoped for a reappraisal of the science will need to be carried out to include the earlier detailed research and the numerous in field epidemiological investigations as well a critique of the ISG results. Then a balanced picture of this serious problem can be presented to give a realistic hope of eventual control of the worsening epidemic and the goal of eventual eradication.

NOTES

TB ERADICATION: PROGRESS AND PROSPECTS IN WALES

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TB is one of the most significant cattle health problems facing the Welsh herd. It is costing the nation a fortune, not only financially but also in terms of lost pride in agriculture and hope for the future, to say nothing of the threat to precious bloodlines. In 2007 the One Wales coalition government committed “to vigorously pursue a programme of TB eradication” in Wales. In 2008 the Minister for Rural Affairs, Elin Jones announced a comprehensive package of measures aimed at tackling all sources of infection, and the Wales TB eradication programme was born.

The programme is based on the four basic principles of infectious disease control:

- Keeping infection out
- Rapid early identification of infection
- Containment of infection
- Elimination of infection

Every aspect of the existing TB control programme is being reviewed, and strengthened. Cattle surveillance has been stepped up initially through “TB Health Check Wales” which was a test of every cattle herd over a 15 month period, and now by the introduction of annual testing across the country. Policy for inconclusive TB reactors has been changed to remove such animals on their second (rather than third) inconclusive test result. Reactors are being removed from farm more quickly, and there is a zero tolerance policy to overdue tests. The Welsh Assembly Government has taken new powers to enforce TB policy e.g. the Wales TB Order 2010 enables compensation payments to be linked to behaviour.

In recognition of regional disease patterns across Wales, three regional eradication boards have been established, comprising vets, farmers, and auctioneers, as well as representatives from local authorities and the Welsh Assembly Government. Local initiatives have been established including a biosecurity project in North Wales, work to reduce TB risks on the Gower Peninsula and a pilot project to trial the use of passport stickers to show the date of pre-movement tests.

TB is not only a threat and a problem within the Welsh cattle herd, but also a range of other animal species. A consultation is currently in progress to consider the introduction of measures to deal with TB in domesticated non-bovines (goats, deer and camelids). Wild deer are being monitored through the Deer Initiative, and culled feral goats in North Wales have also been examined for TB.

The badger is recognised as the main wildlife reservoir of infection in areas of Wales where TB is endemic. It is regarded as essential to break the cycle of infection between badgers and cattle if the long term objective of eradication is to be achieved. The Minister has recently launched a consultation on a proposed Order to facilitate a government-led cull of badgers in an Intensive Action Area in SW Wales where culling would take place alongside a range of additional cattle control measures all aimed at reducing the incidence of TB and leading to elimination of infection. The role of vaccination, and how it might contribute to TB eradication in Wales is also under consideration.

NOTES

COPING WITH TODAY'S SUCCESSFUL SPECIES – A QUESTION OF BALANCE

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The abundances of different bird and mammal species in Britain today reflect 7,000 years or more of habitat change, at least as long a period of selective hunting, and a history of accidental and deliberate introductions. While some native species have been severely disadvantaged by this history, other native species and several introduced ones prosper numerically. This paper explores the changes that have made some wildlife species successful to the extent that they have a negative impact on human enterprises and on biodiversity. Because many of these impacts are unacceptably large, we are locked into indefinite interaction with our wildlife, typically through lethal control. This brings financial burdens, conflicts of interest and ethical issues. There is no option but to balance these diverse interests as best we can; the 'hands-off' balance of a natural ecosystem is an option lost forever.

NOTES

PRACTICALITIES OF CONTROL; SOME EXAMPLES OF BEST PRACTICE IN PREDATOR MANAGEMENT

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The Game and Wildlife Conservation Trust has been at the forefront in developing novel and improved pest and predator control methods during the last 30 years. Despite the view of some wildlife managers, that the framework within which they operate is ever more confining, many methods of control have become more efficient rather than less.

The first new trap to hit the headlines was the Larsen trap, which has revolutionised crow and magpie control since its introduction by GWCT in the 1980s. This trap is without doubt the most target specific method of predator control available to UK wildlife managers. Since the basic Danish design came to the UK, GWCT has been involved in developing modified designs which improve its efficiency, welfare implications and use.

More recently GWCT has invented and developed the GCT mink raft. This acts as both a detection system and trapping station for American mink. It also provides valuable data about other aquatic mammals, and has become a key tool in mink control in relation to water vole conservation.

The use of snares to control foxes is widespread amongst UK gamekeepers, but is widely opposed on grounds of lack of selectivity and poor welfare. GWCT has developed a training package to improve standards as well as developing the snare hardware to be more target specific and welfare friendly. This has been achieved without compromising snare utility.

NOTES

REINTRODUCTION OF ANIMALS TO ENGLAND

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Species reintroduction is widely regarded as an important conservation technique and has been utilised in England and worldwide with increasing frequency in recent years. In the last 20 years, six species which had previously become extinct in England have been reintroduced. Many other projects have involved local reintroductions where species still present in England have been restored to parts of their range from which they had been lost. There are a number of international agreements and EU Directives which place legal obligations on the UK government to consider the reintroduction of native species. In this talk, I shall provide an overview of the legal and conservation case for reintroductions, assess some of the factors behind what makes a reintroduction project successful and consider how this approach may be used to support the conservation of biodiversity in the future.

NOTES

INTRODUCTION TO A REVIEW OF WILDLIFE LEGISLATION

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Summary not available at the time of going to print

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Introduction to wildlife legislation

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It would appear, on the face of it, that any review of wildlife legislation shouldn't take too long or be too complicated.

I thought I'd better cover all bases, so I started with Halsbury's Laws of England. I discovered, to my amazement, that there are 685 pieces of legislation that affect the way we treat animals.

The vast majority of those relate solely to farm-stock and other domestic animals. Some relate to the treatment of exotic creatures, such as those to be found in zoos, circuses or laboratories.

Legislation relating to wildlife in the UK is, luckily, rather thinner on the ground.

It falls, or rather fell until recently, into two main categories. The first relates to "game", which broadly speaking means creatures you can hunt and hopefully eat, and "pests" which are creatures that interact negatively – in other words kill and/or eat – "game" or otherwise damage the produce of agriculture or horticulture.

Some animals fall into both categories. Deer, for example, are definitely game: if on the other hand you grow flowers – particularly roses – they are pests.

Foxes are always pests – in law, as are rabbits. But rabbits can also be eaten, and until the nineteenth century, warrens were encouraged as a food-source. So they may have made it on to the menu, but were never game. Hares, of course, are ground game.

Probably the earliest, and most important laws relating to game were the original Deer Acts, which reserved the ownership and taking of deer to the King (and whichever of his favourites or agents (important arrival of the "agent" in law) he choose to give the right to hunt deer to.

What is also important is the link between the Deer Acts and setting up the Royal Forests in which to hunt them – perhaps the first acknowledgement of the importance of habitat in managing wildlife.

Wild boar and wolves were also prevalent in mediaeval England. One gets the impression that, although the last wolf survived until the beginning of the eighteenth century, there were never very many of them. Wild boar didn't seem particularly prized, and I suspect they were mainly domesticated out of existence. It's nice to have them back now – unless of course they are eating your crops and trampling round your garden, in which case you won't be so pleased.

Today we have in part been turning our attention to ways in which wildlife in the UK might be managed – actively and positively managed, and here we immediately come up against a brick wall.

Most English Law doesn't tell us what to do. Rather, it tells us what we cannot do. It lists, in far too many Acts of Parliament, the things we cannot do. If a particular activity is not mentioned in any of these Acts, then we can undertake that activity. Sometimes the Law does not actively prevent us from doing something, but seeks rather to regulate the manner in which we do it – like the many regulations for driving cars. You can't drive a car when drunk, thus, presumably, you can do so when sober, although the law doesn't say that. You can't park on a double yellow line, but I guess that means you can park where there are no such lines.

And if that sounds simple enough; it's not. The Wild Mammals Protection Act forbids anyone from impaling a wild mammal – ie stabbing it with a sharp instrument. But an earlier Act, relating to the New Forest, makes it illegal not to impale livestock on the Forest margins – which in this case means putting a fence – presumably of palings – around the stock to prevent them from wandering. One word; two distinct meanings: not so simple!

Of course, it's easy enough to pick holes in laws, and to laugh at old ones that remain on the Statute Book because no-one has got around to removing them. But there is method in what may seem madness.

The law relating to wildlife falls into two main categories. One whole raft of laws put a series of obligations onto Land-owners or occupiers – now called land managers – to manage the wildlife on their property. In relation to deer, for example, there are rules about close seasons, the type of ammunition to be used, and what to do with the butchered carcass.

Another whole raft of laws tells us what we cannot do, particularly in the way we dispatch those animals whose population needs to be controlled. No gin-traps, no gassing, onerous regulations about poisons, and no more than two dogs to be used when flushing foxes and mink to guns.

These two particular groups of laws have actually served us pretty well during the twentieth century, but I believe that the simplified system they governed is now not really working. A number of things have happened to cause this breakdown in the system.

First, because the law puts a lot of responsibilities and duties on the land manager, it naturally assumes that the land manager has both the inclination and knowledge to carry them out. Unfortunately a great deal of land is now owned by institutions that have no interest in managing the wildlife that may be on their land, and certainly aren't going to spend money getting others to do it for them.

We also now have an increasing number of people who own small parcels of land – maybe a scrap of woodland, or a couple of pony paddocks. They do not hold firearms certificates, they are certainly not going to shoot bambi and bambi's growing family when they graze amongst the ponies, nor are they going to undertake the other tasks that are required to manage the wildlife on their land. The smaller landowner is often completely ignorant of his or her legal obligations any way, and little is done to enforce them.

Lastly, and we have talked about this before in many contexts, an increasingly urban population has no understanding that managing wildlife requires man to take an active role. They believe that good habitat occurs naturally, and that Mother Nature regulates species and populations. The role of the uninformed but interested public is not to be underestimated. The extraordinary public reaction to the possible shooting of one stag on Exmoor has only been equaled by the press coverage of the children partly eaten by a fox in London. The level of ignorance displayed is almost total – but the management of deer, foxes and all wildlife on this crowded little island, has to be accomplished with at the very least, the passive consent of the majority.

Another factor has slowly risen to the fore. In the last few years we have seen a massive increase in the populations of some species in the UK – such as Badgers and deer, we have seen the recovery of other populations, such as otters and buzzards, and the re-introduction of viable populations of others, particularly wild boar.

Our response to changes – or perceived changes - in wildlife that have required a new rule, have usually resulted in an over or under reaction from the Government, usually for political reasons, or as a result of pressure from one group or another. The Government's failure to protect our deep sea fish, and, indeed our salmon has been disastrous. The blanket protection of Badgers and raptors has led to an unchecked population explosion in both. Of course, it's wonderful to see the return of otters across England – unless you run a fishing business that is, but there must surely come a time when the otter population reaches saturation point, too.

Imagine if you were the new Secretary of State at DEFRA. On Monday morning you face the nightmare controversy about fox-hunting. On Tuesday you face the badger lovers, objecting to a cull. On Wednesday it's the fish-farmers, up in arms about otters, and on Thursday the police want to know what you are going to do about the four-fold rise in fatal traffic accidents involving deer. And on Friday some fox tries to eat a child in an East London terraced house, and the Local Authority deny their responsibility to control foxes (which is what the London LA's have done, when in law they have a clear responsibility for pest control).

It is difficult, in the face of all this, to conclude that we are managing our wildlife as well as we might, or that the current law is working perfectly. It's also likely to get worse, and you can see why the Secretary of State might like to move some of the controversial – not to say “no-win” – decisions off his or her desk.

In France, the Prefecture of the Forest runs matters rather better than we do. It's splendid to see the Prefect hunting with his green cape and his kepi. But outside the forest things are not so good, with virtually no wildlife to be seen in agricultural northern France, and the re-introduction of the Alpine brown bear somewhat hampered by the sheep farmers' increasingly successful attempts to turn them into rugs.

In Holland they have regulated most wildlife out of existence, in Germany it is so bureaucratic as to be almost unworkable, although the Germans laugh at the way

we only control badgers using cars. Scandanavia is pretty good, and I am a great fan of the US State Wildlife Departments. But local democracy in Britain, if we were to go down that route, has not had a happy history. You set up your local committee, you and your friends sit on it for a few peaceful and successful years, so you retire. You wake up five years later and find that the lunatics have taken over the asylum. You rush off to see the Secretary of State, who tells you, "not my problem: you removed me from the equation (thank God). You agreed that I should hand these difficult controversial decisions over to locally representative Committees, who know what is best for their locality. Now live with it."

So we need to be very careful what we wish for. I am reluctantly coming to the conclusion that the current system - placing obligations on land managers, coupled with blanket restrictions in respect of individual species without any account being taken of the effect on related species, or of local variation in conditions - but I am less clear of the direction in which we should head. I am also very afraid of the law of unintended consequences that is the result of so much unconsidered legislation nowadays.

I suspect that change is coming, and we should look at how Scotland is framing its Wildlife and Natural Environment Bill, to see what could happen here. Game licences and Games laws are being swept away, along with most of the old poaching offences. A complete change in the way deer are managed is coming, along with new practices. It looks as if snaring will be banned, and shoots may have to have licences. Such is the obsession with raptors, they are currently debating a proposal to make landowners liable for the actions of their employees, even if they not present, and had no knowledge of the employee's actions.

I spent some years between 2000 and 2005 working with the Gambling Industry and the Government to produce a new Gambling Act. Most of the existing legislation was from the 1960s and 1970s. It was old-fashioned, morally restrictive, and took no account of modern technologies like mobile phones and the internet. The industry cried out for reform. So they got it. The Bingo industry is now a shadow of its former self, the book-makers' profits are down, and they are crippled with debt, the online gaming industry has de-camped to Gibraltar and Malta, and they all decry the day they asked for a new Act.

What is undoubtedly right is to face up to these difficult questions. That is why today's symposium is so important. Our next two speakers are going to look closer at the law as it stands, and in particular at the Badger Acts. Whatever happens, this Government is going to find it difficult to avoid doing something about badgers, and hunting, and deer and raptors. And when they do, and when they come and ask our opinion, it would be good if we had already done some thinking and some debating, and perhaps even identified some common ground.

Mancroft

November 17, 2010

A BRIEF REVIEW OF THE LEGISLATION AFFECTING WILDLIFE AND THE ASSOCIATED VETERINARY ISSUES

MADELEINE FORSYTH *Barrister and MRCVS*,
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The paper will address the law as it affects UK wildlife and any veterinary issues that arise. In particular it will consider those facts that must be found in order to secure a conviction and how veterinary opinion can be appropriately expressed. There will be some exploration of the definition of suffering including the recognition, measurement, interpretation and description sufficient to assist the Court and also discussion of professional conflicts related to the drafting of the acts.

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THE CASE FOR REPEAL OF THE BADGER ACTS OF 1973 AND 1991

STEPHEN LOMAX *Barrister and MRCVS*,
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Rather than mere repetition of stale arguments, Stephen Lomax will attempt to provoke logical thought on science, ethics, priorities and the greater good of society as a whole. The presentation will address whether our distinctions between vermin and protected species will withstand critical analysis

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BIOGRAPHIES

Dr. Harriet Auty

Harriet Auty qualified from the Liverpool Veterinary School in 2004 and is now a veterinary epidemiologist at the Institute for Biodiversity, Animal Health and Comparative Medicine at the University of Glasgow. Her work focuses on diagnosis, surveillance and ecology of zoonoses in Tanzania. She works on a number of pathogens, including human African trypanosomiasis, brucellosis, anthrax and Rift Valley fever

Dr. Peter Brotherton

As Head of Biodiversity for Natural England, Pete's remit spans evidence, policy and strategy development. He recently led the secretariat of the 'Making Space for Nature' review of England's wildlife sites and ecological network. He is also heavily involved in establishing a new framework for biodiversity delivery in England, aiming to embed an ecosystem approach and promote working at a landscape-scale. A member of the England Biodiversity Group, and former chair the UK BAP Targets Review group, Pete's previous roles include Natural England's Species Recovery Manager and Head of English Nature's Biodiversity Unit. Before joining English Nature in 1999, Pete was an academic at Cambridge University where his research included the evolution of monogamy in dik-dik and cooperative behaviour in meerkats.

Mr. John Chitty

John Chitty qualified from the Royal Veterinary College, London in 1990. He holds the RCVS certificate in zoological medicine and works with several rehabilitation centres in the south of England

Dr. Sarah Cleaveland

Sarah Cleaveland qualified from the Cambridge veterinary School in 1988. She is now a veterinary epidemiologist at the University of Glasgow's Veterinary School. Over the past 15 years she has worked in East Africa on the epidemiology of infectious diseases at the interface of human and animal health. Her research has contributed to the development of large-scale initiatives for rabies control in Africa and is now focusing on the control of livestock diseases for international development.

Ms. Madeleine Forsyth

The author is a veterinary surgeon with a background in mixed practice on the North York Moors including a client base of keepers, shooting syndicates and estates, also a non practicing barrister who now acts as an Expert Witness in both civil and criminal matters.

Dr. John Gallagher

I first encountered florid tuberculosis in cattle and Marsh Antelopes in Zambia in the late sixties and on my return to UK in 1972 I joined the Gloucester VI Centre when the first TB badgers were being found by Roger Muirhead VO Gloucester. This momentous finding started me on a career of research into this subject as well as gaining considerable first hand practical experience of the badger-cattle problem. I moved to Starcross VIC in Devon in 1982 and retired from there in 1996. I completed a thesis on "The Natural History of Tuberculosis in Wild Badgers" in 1998 which I had started in 1975. Since retirement I worked as a temp VO and TVI carrying out testing and outbreak investigation. Also I have carried out TB contract work for MAFF and worked as an independent adviser on TB research to the MAFF Chief Scientist's Group latterly DEFRA TB Research Division. I resigned in 2005, over the wrong direction research was taking, just before becoming involved in the large veterinary protest movement over TB policy. My main work for the last five years was as Pathologist to the Donkey Sanctuary in Devon from which I retired in 2008.

Dr. Christianne Glossop

Dr Christianne Glossop was appointed the first Chief Veterinary Officer for Wales in June 2005. Working within the Department for Rural Affairs of the Welsh Assembly Government, she heads up the Office of the Chief Veterinary Officer, which is responsible for animal health and welfare policy and strategy. Christianne qualified at the Royal Veterinary College, University of London, where she also completed her PhD on aspects of cattle fertility. She has specialised in food animal production and medicine throughout her career. She is Past President of both the International and British Pig Veterinary Societies, and has also served on the Rare Breeds Survival Trust and British Veterinary Association Councils. Joining the State Veterinary Service (now Animal Health) during the 2001 Foot and Mouth Disease epidemic, her last role within that organisation was Divisional Veterinary Manager in Reading.

Mr. Stephen Lomax

Stephen Lomax has given expert evidence in hundreds of criminal prosecutions involving wildlife over 20 years, chiefly in relation to the Protection of Badgers Act. As an adviser to the meat and livestock industry on TB he has an overview of the interface between wildlife, the law and people's lives. He graduated as a veterinary surgeon from Liverpool University in 1979 and is also a non-practising barrister.

Lord Mancroft

Benjamin Mancroft has been a Conservative hereditary peer in the House of Lords since 1987, and was elected following the 1999 reform. He is currently chairman of the Standing Conference on Countryside Sports and a deputy chairman of the Countryside Alliance, and was Deputy Chairman of the British Field Sports Society from 1992. He is a former master of the Vale of the White Horse Hunt. Apart from rural affairs his other declared political interests are drug addiction and alcoholism.

Dr. Anna Meredith

Anna Meredith graduated from Oxford University in 1986 and in veterinary medicine from Cambridge University in 1991. Since 1992 she has been Head of the Exotic Animal and Wildlife Service at the Royal (Dick) School of Veterinary Studies, University of Edinburgh. Anna has published widely and lectures internationally on all aspects of exotic animal and wildlife medicine. Her current area of research is infectious diseases of wildlife in the UK and the use of wild carnivores as sentinels.

Dr. Andy Paterson

Andy Paterson is an epidemiologist with a particular interest in international disease. His background is in disease control operations in developing countries, working mainly in East and Southern Africa, and Latin America. He was part of the PAN Livestock Services / VEERU group at the University of Reading and has worked for Defra since 2001 covering International Trade, TB, equine disease control and dangerous pathogens policy. Andy is on the Council of the European College of Veterinary Public Health

Dr. Jonathan Reynolds

Jonathan Reynolds is a scientist at the Game & Wildlife Conservation Trust, where he has worked since 1985, initially on the ecology of foxes and their impact on game management. He now heads a small team specialising in research on pest and predator control. He has contributed to the scientific literature on fox ecology in rural areas, the impact of foxes on gamebirds and brown hares, the consequences of predator control for brown hares, and the impact of fox control on fox density in different regions of England and Wales. These papers

BIOGRAPHIES CONTINUED

formed a significant body of uniquely relevant evidence for the Burns Inquiry into Hunting with Dogs in 2000, to which he contributed in several other ways. Other more practical work has included trialling and introducing Larsen traps for the control of corvid birds, development of the GWCT Mink Raft and demonstration of its use to eliminate mink

Mr. Roger Sainsbury

I have been involved with bovine tuberculosis for well over 40 years. I first met this disease in 1967 as a veterinary student while gaining my practice experience in Gloucestershire, the heart of the Cotswold TB problem area. After qualifying I spent 6 years in practice and then I joined the State Veterinary Service. I was posted to Cornwall, the other area where TB was prevalent. Here I specialised in the epidemiology of bovine TB and for a period was seconded to the local Veterinary Investigation Centre where post mortem examinations gave me first hand experience of *M.bovis* in the badger. Over the years I provided the local veterinary management of the badger control strategies of the time – Gassing (1975-1982), Clean Ring (1982-1986) and the Interim Strategy (1986-1996). I gave evidence to Professors Zuckerman, Dunnet and Krebs as part of the three Ministerial reviews of the badger and cattle TB problem and I provided the local veterinary supervision when we were carrying out the badger Live Test Trial. In 1982, I wrote and developed an early computer based Geographical Information System. This suite of programs handled TB data and made it available for use in the field and for analysis and reports in the Cornwall and Gloucester offices. I retired from DEFRA in 2008, but still get involved with TB policy from outside the Department.

Mr. Vic Simpson

Vic Simpson obtained his BVSc at Bristol University in 1964. After five years in mixed practice in the Midlands he went to Edinburgh University where he gained a Diploma in Tropical Veterinary Medicine. He worked as a District Veterinary Officer in Kenya for two years, returning to the CTVM at Edinburgh to take the laboratory techniques course in 1972/3. This involved a temporary placement at Sutton Bonington Veterinary Investigation Centre where he investigated mortality in mute swans, showing that they were dying from lead poisoning caused by ingestion of anglers' weights. From 1974 to the end of 1978 he was Senior Veterinary Research Officer in Gaborone, Botswana where he made a study of viral diseases, in particular bluetongue. On returning to the UK he joined the Veterinary Investigation Service (later VLA), working at the Polwhele laboratory near Truro for over 21 years. During that time, in addition to investigating diseases of domestic species, Vic made a number of studies on conditions affecting wildlife, including otters, mute swans and marine mammals. He retired in 2001 and set up the Wildlife Veterinary Investigation Centre in order to continue to study diseases of free-living British wildlife. He was made an honorary life member of the British Veterinary Zoological Society in 2001 and was awarded an Honorary FRCVS in 2003. Vic is married with two grown up children and lives with his wife, Jane, in Cornwall.

Dr. Mike Swan

Mike Swan is head of education and south of England regional advisor at the Game and Wildlife Conservation Trust. He has advised on conservation, game and shoot management as part of the GWCT team since 1982. He has a particular interest in development and training in best practice in pest and predator control. He has also written widely for the sporting press and has also been a contributing author to many of the Game and Wildlife Conservation Trust's publications. Mike lives in Dorset, where he shares in the management of a rough shoot, running his own predation control programme as part of this.

