

ZSL SCIENCE AND CONSERVATION EVENT

Tuesday 8 October 2019

The Meeting Rooms, Zoological Society of London,
Regent's Park, London NW1 4RY

AGENDA

Can badger vaccination help eradicate bovine TB?

Hosted by **Dominic Jermey (CVO OBE)**, Director General of ZSL
and chaired by **Lord Randall of Uxbridge**

Receive the following communications

Professor Rosie Woodroffe, Institute of Zoology, ZSL

How does badger vaccination compare with other TB control tools?

Debbie Bailey, Derbyshire Wildlife Trust and National Trust

Deploying a large-scale vaccination project using volunteers

James O'Keeffe, Department of Agriculture, Food and Marine, Ireland

*Replacing reactive culling of badgers by badger vaccination: the end game
in the eradication of bovine tuberculosis (bTB) in the Republic of Ireland*

There will be a short film shown of **Keith Truscott**, a farmer from Cornwall involved
with badger vaccination programmes

ABSTRACTS

Can badger vaccination help eradicate bovine TB?

How does badger vaccination compare with other TB control tools?

Professor Rosie Woodroffe, Institute of Zoology, ZSL

Bovine tuberculosis (TB) brings misery to farmers, and is a challenge demanding an evidence-based solution. Although over 75% of cattle herds acquire infection from other cattle, there is strong evidence that badgers can become infected with TB and pass it back to cattle. So, although cattle TB risks might be reduced just by targeting cattle, eradicating the disease is likely to require intervention to reduce badger-to-cattle transmission. The government's current policy entails culling badgers on vast scales: over 70% of England's south-west peninsula is now covered by cull zones. A recent government-commissioned review proposed a large-scale trial of badger vaccination as a nonlethal alternative – but would it be as effective as culling? In fact, evidence suggests that vaccination could potentially be a better tool than culling for TB eradication. The limitation of culling is that it increases the proportion of badgers with TB spreading the disease to new areas, so infection is never eradicated. In contrast, vaccination appears to reduce TB prevalence in badgers. Nevertheless, to be confident of benefits to farmers, badger vaccination needs to be trialled on a scale large enough to measure its impact on cattle TB. Fortunately, because vaccination is also cheaper than culling, such a trial could potentially cost taxpayers less than the cost of a single cull zone.

Rosie Woodroffe is a scientist whose work broadly concerns the coexistence of people and wildlife. Internationally, she has explored ways for people to share the landscape with African wild dogs, lions, bears, and hyaenas. In the UK, she has worked extensively on the management of tuberculosis transmission between badgers and cattle, including 10 years overseeing the Randomised Badger Culling Trial, as a member of the Independent Scientific Group on Cattle TB. Rosie continues to lead scientific research on TB transmission between badgers and cattle, including a badger vaccination project in West Cornwall.

Deploying a large-scale vaccination project using volunteers

Debbie Bailey, Derbyshire Wildlife Trust and National Trust

In 2014, the Derbyshire Wildlife Trust (DWT) established the Derbyshire Badger Vaccination Project to show that a volunteer-based programme could be successful. Initially, there were only 14 volunteers working solely on DWT land and council tenant farms. The project expanded in the following years thanks to financial support from DEFRA (BEVS funding) and a partnership with the National Trust. The project is now supported by 100 volunteers and 17 vaccinators (4 vets) working with 58 landowners on 120 square kilometres of land. It is the largest volunteer-based programme of its kind in the UK. The aim of the presentation is to show how this model can be extrapolated to maintain a feasible and practical vaccination project on a larger scale. Numerous factors have contributed to the project's success. Understanding these factors would help drive any large-scale deployment of similar projects. The support of the Wildlife Trust and National Trust has been

paramount along with the invaluable experience of members of three Derbyshire Badger Groups. Building strong relationships with DEFRA, APHA and Natural England and having trusted professional relationships with farmers and landowners has been crucial. Fundraising initiatives, publicity and education campaigns have also been integral to success. However, the most important driving force behind the project has been the dedication of the volunteers. Developing volunteer recruitment strategies and maintaining long-term engagement has been essential. Large scale deployment would necessitate additional requirements. Any strategy would need government backing and would need to be publicised, promoted and normalised nationwide (cf. culling). County-level coordinators would be needed to organise and support volunteers. Technical and educational support would be essential (a central online information hub is already in development). Vaccinator training would need to be cheaper and accessible, by perhaps allowing experienced lay vaccinators to provide training. Annual workshops would facilitate refresher training.

Debbie Bailey is the lead coordinator for the Derbyshire Badger Vaccination project, which is run as a partnership between the Derbyshire Wildlife Trust and National Trust and receives a BEVS2 grant from DEFRA. In 2013, she took a sabbatical from a sixteen-year nursing career to qualify as a lay vaccinator and establish the volunteer-based project, which continues to grow under her leadership. Debbie is a Director of the Badger Trust and a committee member of her local Badger Group. She provides expert witness statements relating to badger-baiting incidents and rehabilitates injured badgers and cubs. In 2018 she won an IFAW National award in recognition of her work.

Replacing reactive culling of badgers by badger vaccination: the end-game in the eradication of bovine tuberculosis (bTB) in the Republic of Ireland

James O'Keefe, Department of Agriculture, Food and Marine, Ireland

The programme to eradicate bovine TB from cattle in Ireland began voluntarily in 1954, and became compulsory in 1958. Initially the program was hugely successful, so much so that the then Minister for Agriculture declared the country free of bTB in 1966. This initial promise led to a frustrating 35 years of not making any real progress with 30 – 40,000 test-positive cattle being identified/removed each year. Work in England in the 1980s implicated badgers as a factor in the persistence of bTB in cattle herds. These findings inspired a project in East Offaly (EOP) which showed dramatic falls in reactor cattle following local badger removals and prompted a more formal study, the Four Area Project (FAP), which confirmed the EOP observations. Since 2000, a wildlife strategy based on FAP results has been implemented by Ireland's Department of Agriculture through its wildlife unit, which has been my privilege lead until last month. Briefly, the strategy involves state veterinarians investigating bTB herd breakdowns having 3 or more standard reactors (30% of breakdowns), and if purchased infected animals didn't cause the problem but badgers are active locally then badgers are removed from 1Km around the herd. Setts are visited annually, and if active, are captured via a 12-day capturing effort. Irish badger densities are 2 – 3 badgers/km² in undisturbed populations, and after 3 or 4 years of targeted removals this is reduced to an equilibrium density of 0.5 badgers/km². This programme operates on 35% of farmland, and while successful in reducing bTB levels, is unfortunately unsustainable as it involves removing 6,000 badgers annually. Recent Irish studies have shown vaccinating badgers with BCG protects 60% of vaccinates, which we now refer to as GOODGERS. In addition, a recently completed field trial has confirmed that vaccination can be substituted for continued culling of badgers. This new national strategy is being rolled out and will

result in annual badger removals dropping to 1000 or lower by 2022 and lower bTB levels in both species as we progress toward eradication.

James O' Keeffe graduated with an MVB from Trinity College Dublin in 1978 and initially returned to work in the family businesses. A major financial downturn in 1980 saw interest rates on their £1R500,000 borrowings jumping from 10% to 20%, which convinced him to seek temporary shelter in state employment. James was an area vet in Counties Clare and Tipperary 1981 – 1991, following which he was seconded to a research role in the then TB Investigation Unit (now CVERA) in UCD 1991 – 2001. During that time he completed a BSc in Economics as an extern student of London University and an MBA via the Open University. In 2001 he became the first head of DAFMs new Wildlife Unit, a role he has passed on one month ago.

Join us at our next event

Madagascar's missing megafauna: life after lemurs, hippos and elephant birds

12 Nov 2019, 6pm – 7:45pm

Madagascar was host to a diverse array of megafauna, including giant lemurs, hippos and elephant birds, which together tell us a great deal about the landscapes of the island before humans began deforestation and development of agriculture around 1000 years ago. What can we learn about Madagascar's past, present and future by exploring the diversity of these now-extinct giant animals? How does the recent palaeontological record inform conservation? How are conservation organisations fighting back against Madagascar's extinction crisis?



ZSL Library Events

The library will continue their monthly talks at **4:45pm before each Science & Conservation Event** this year, each one focusing on different examples from their Special Collections! No need to book, just come along, or find out more here...

<https://www.zsl.org/about-us/zsl-library-collection>.

ZSL Wild Science Podcast

We will be creating a podcast relating to this event topic, so be sure to keep an ear out for it in the following weeks as well! Listen to more of our award winning **ZSL Wild Science podcast** episodes hosted by Research Fellow Dr Monni Bohm here... <https://www.zsl.org/zsl-wild-science-podcast>.

Please feel free to contact the Scientific Events Coordinator, Eleanor Darbey (eleanor.darbey@zsl.org), if you have any queries about our events.
