



# Protocol for the rehabilitation and release of badgers (*Meles meles*) in England, with consideration of Bovine tuberculosis (*Mycobacterium bovis* infection)

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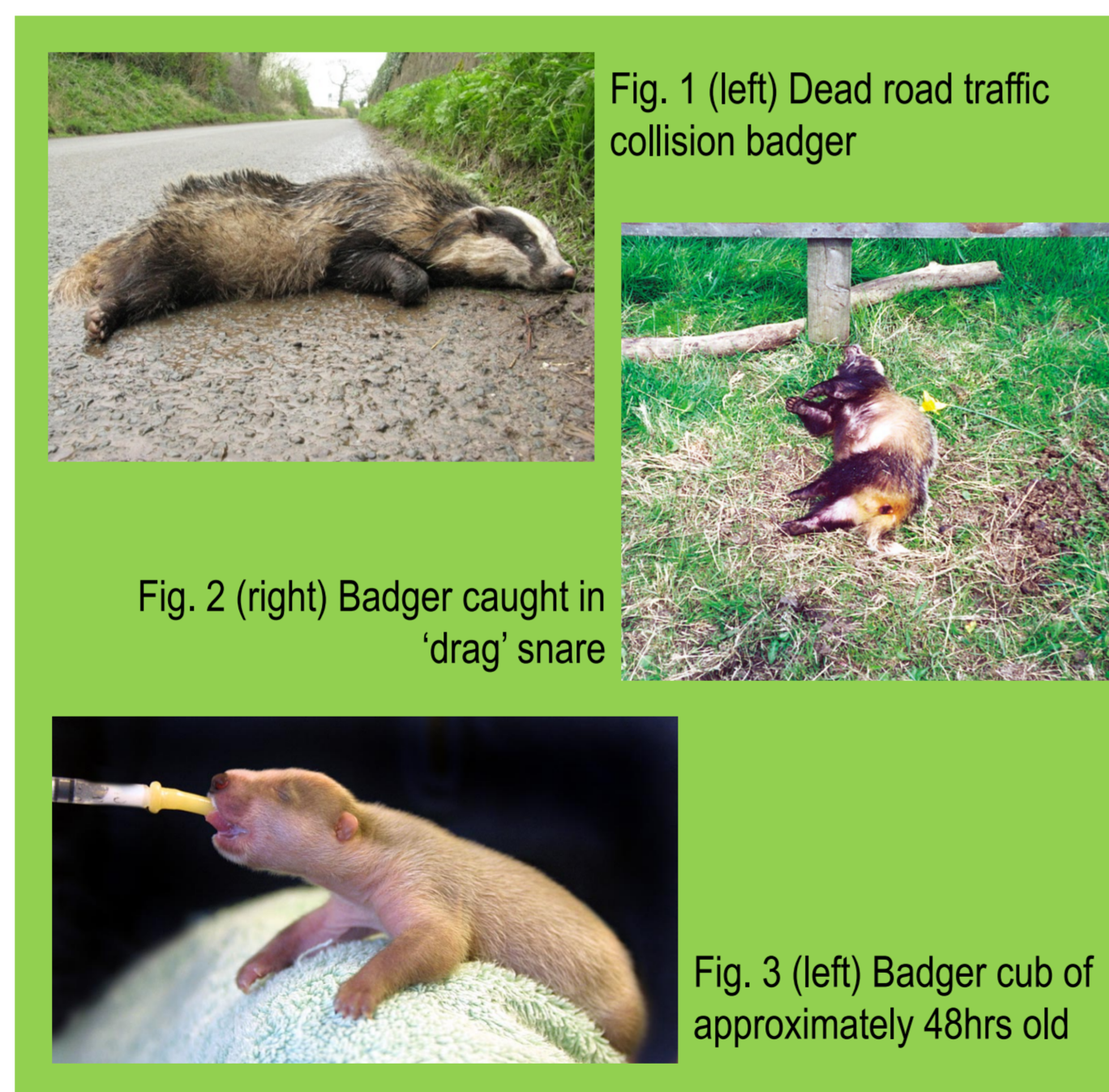
## Introduction

The badger (*Meles meles*) is an ancient, indigenous and protected mammal in the United Kingdom (UK). Badgers may be infected with *Mycobacterium bovis* and maintain the infection with the risk of transmission to cattle. Wildlife rehabilitation, including the treatment and eventual release of badgers back to the wild, carries a potential risk of *M. bovis* transmission. Wildlife groups and the Department for Environment, Food and Rural Affairs (Defra) have come together to produce a Protocol for the Rehabilitation of badgers in England, with a particular focus on bovine tuberculosis.

## Badger rehabilitation and release

Approximately 400 badgers are rehabilitated and released in England each year. This includes adult badgers, frequently admitted for reasons of anthropogenic trauma such as road traffic collisions (Fig. 1) and snaring (Fig. 2). Seemingly orphaned or abandoned badger cubs are also presented in the spring (Fig. 3). Many adult badgers that come in to captivity are unsuitable for release back to the wild and around 60% of these animals are euthanased for welfare reasons. Badger cubs are usually clinically well, but require a long rearing and rehabilitation process at a specialist centre before release. Adult badgers are released where found, for territorial and disease prevention reasons. Badger cubs are mixed to form new social groups and require new sites and artificial setts for their release.

Defra published 'The Strategy for achieving Officially Tuberculosis Free Status for England' in 2014. This is a 25 years plan and includes measures for disease control in both cattle and wildlife. Badger rehabilitation is not specifically mentioned in this strategy, but it is clear to that some control of this practice is required to prevent disease transmission. In 2017 Defra and wildlife groups worked together to update the Badger Rehabilitation Protocol first published in 2003. This provides guidelines about all aspect of how badgers should be handled, cared for, rehabilitated and released. Disease prevention is at the core of the Protocol and appropriate controls for *M. bovis* infection, including testing of badgers are detailed. This reduces zoonotic risks in those handling badgers, and the risk of disease transmission to other animals, including livestock. Maintaining the confidence of landowners providing release sites for badger cubs is key to the rehabilitation of these animals.



## Treatment of badgers in captivity



Badgers admitted to wildlife centres or veterinary practices are provided with suitable first aid (Fig 4.). A full physical examination, usually under deep sedation or general anaesthesia in the case of adult animals, is then required to fully assess casualties. Badgers with a good chance of release back to the wild are then treated appropriately. Those that cannot be returned to the wild must be euthanased for welfare reasons.

## Testing badgers for *M. bovis* infection

The only validated and commercially available serological test for badgers in the UK is the Dual Path Platform (DPP) VetTB assay (Chembio Diagnostic Systems) (Fig. 5). This measures specific antibody response to antigenic targets MPB83, ESAT6 and CFP10. A single test has a relatively low sensitivity (55.3%) but high specificity (97.5%) in badgers.

No routine testing of adult badger casualties is carried out under the Protocol, as they are maintained in isolation during captivity and released where they were found. A single test is not considered sensitive enough to be of significant benefit and these animals are not in captivity long enough to allow for multiple testing.

Badger cubs are grouped in captivity for behavioural and social reasons and are released in these groups into a different location to where they were found. Badger cubs are tested using DPP on three occasions prior to release, in order to maximise test sensitivity (91.1%), but at some cost to specificity (92.7%). Badger cubs testing positive to any one of the three tests are euthanased and sent for standard post mortem examination and *M. bovis* culture. The outcome for remaining cubs in the group is determined by these findings – animals in contact with those found to be positive at post mortem and culture are euthanased.



Badger cubs are BCG vaccinated (Fig. 6) prior to release. They are then 'soft' released into electric fenced artificial setts (Fig. 7). Fences are removed after 6-8wks, with support feeding continued over the first winter.

References are available on request.  
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The Badger Rehabilitation Protocol is available at: [www.secretworld.org](http://www.secretworld.org)