# TB Wildlife Reservoirs: Are badgers really different?

**BovineTuberculosis Workshop**
**University of Glasgow**
**9th -10th May 2013**



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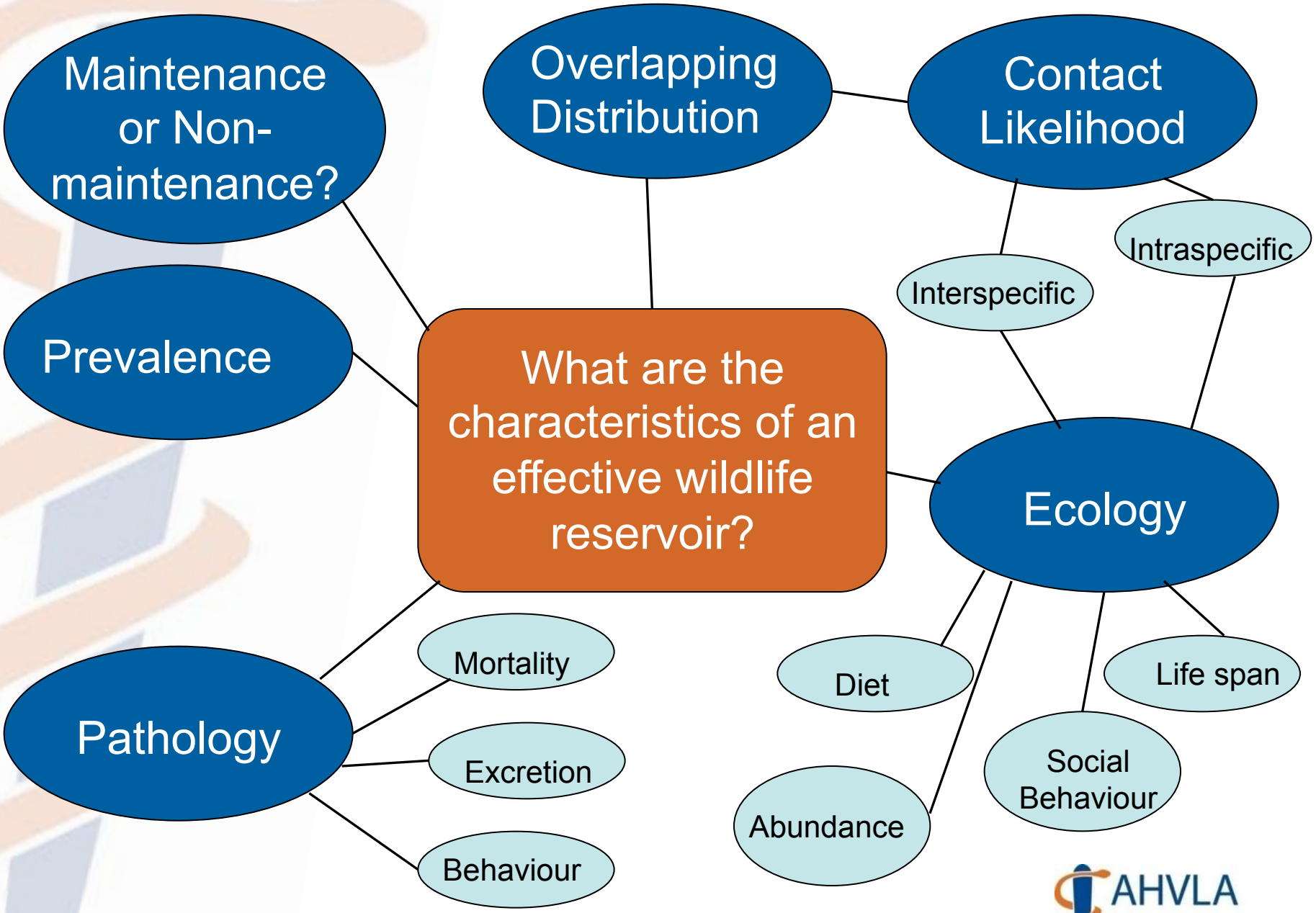
- What makes a good wildlife reservoir?
- TB in Other UK Wildlife
- Possible Suspects
- Are badgers really different?




TB Wildlife Reservoirs

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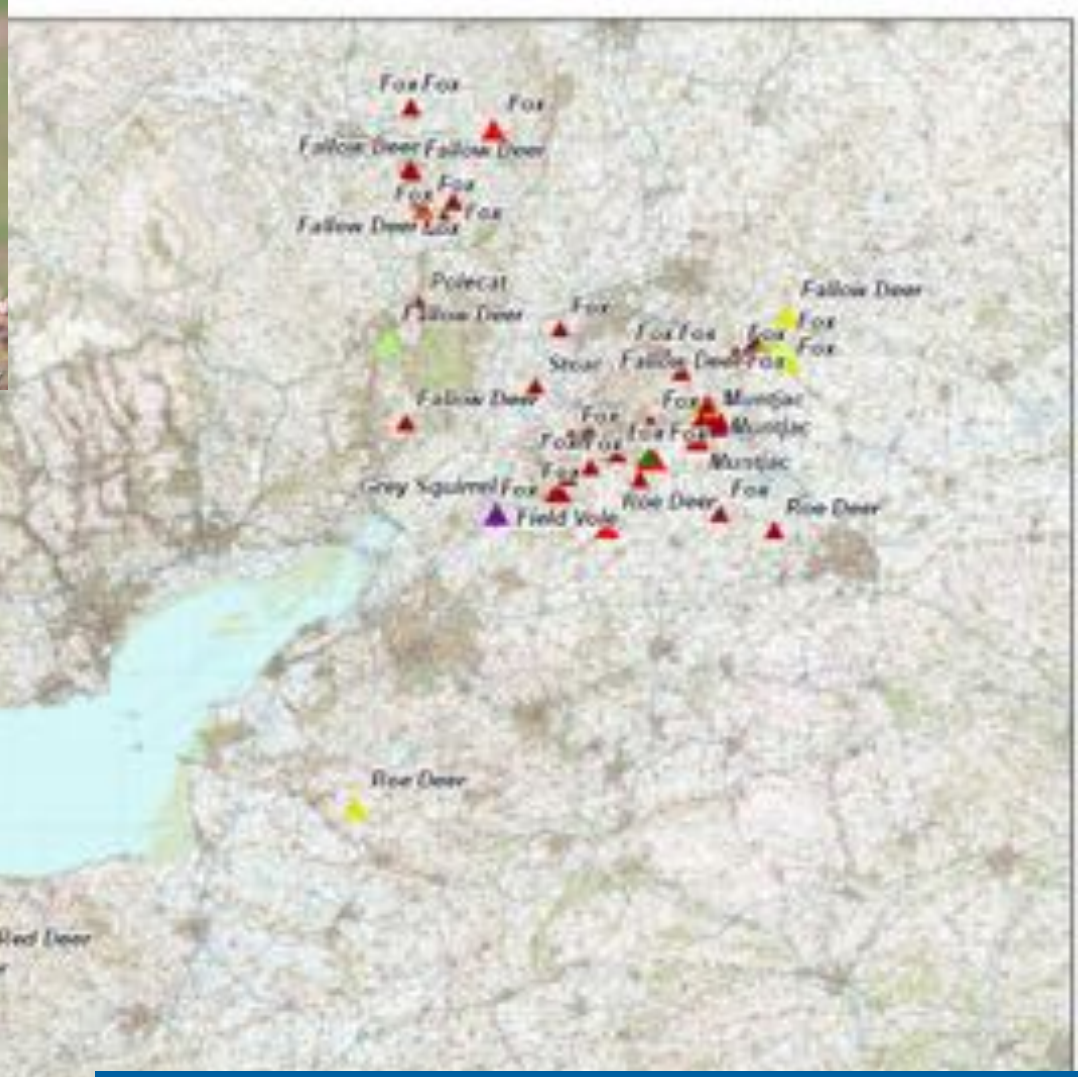
Field Vole

Roe Deer

Fox

Red deer

Fallow Deer




Bovine tuberculosis infection in wild mammals in the South-West region of England: A survey of prevalence and a semi-quantitative assessment of the relative risks to cattle.
Delahay *et al.*, 2007. The Veterinary Journal

Yellow necked mouse

Grey squirrel



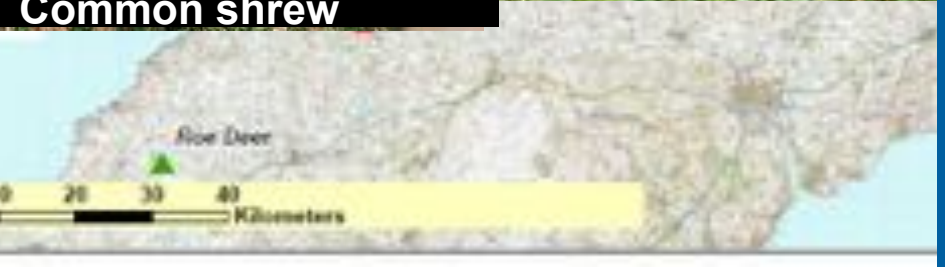
Muntjac

Wood mouse

Stoat

Common shrew

Polecat

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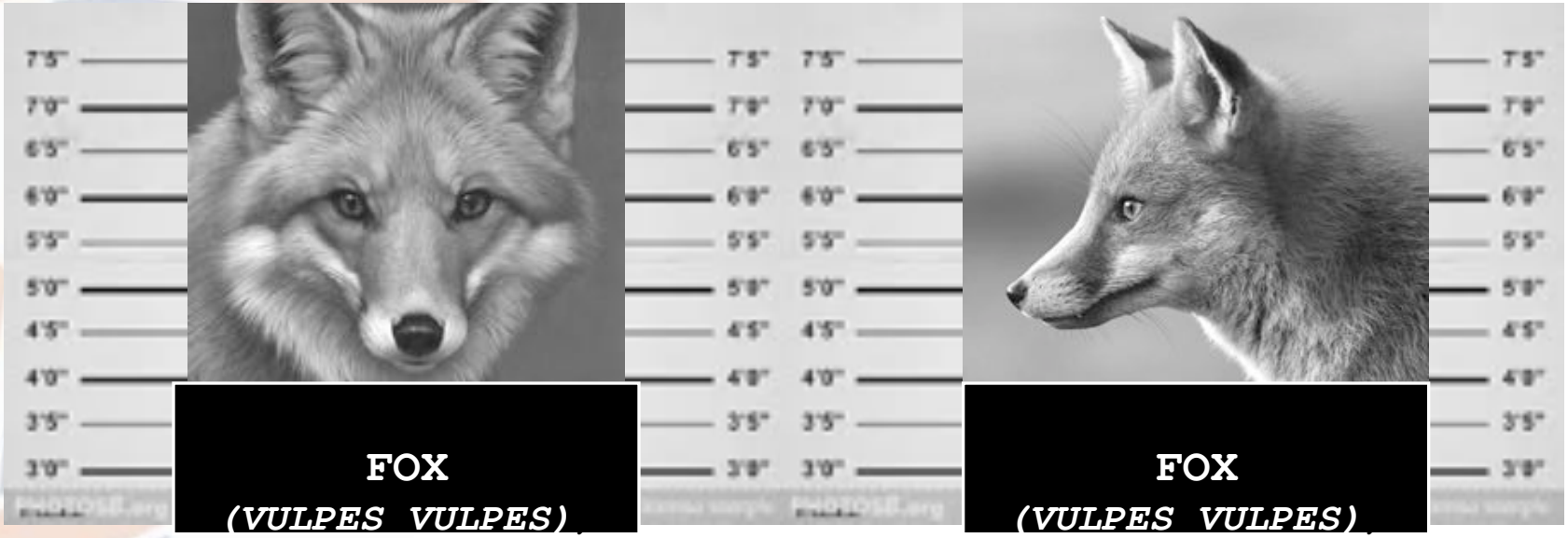
# Possible Suspects




- ✓ Contact with cattle possible
- ✓ Contact with badgers possible
- ✓ Disease present
- ✓ Very widespread
- X Gross pathology rarely detected
- X Prevalence low **2.04 - 4.69%**
- X Low likelihood of excretion

## TB Wildlife Reservoirs

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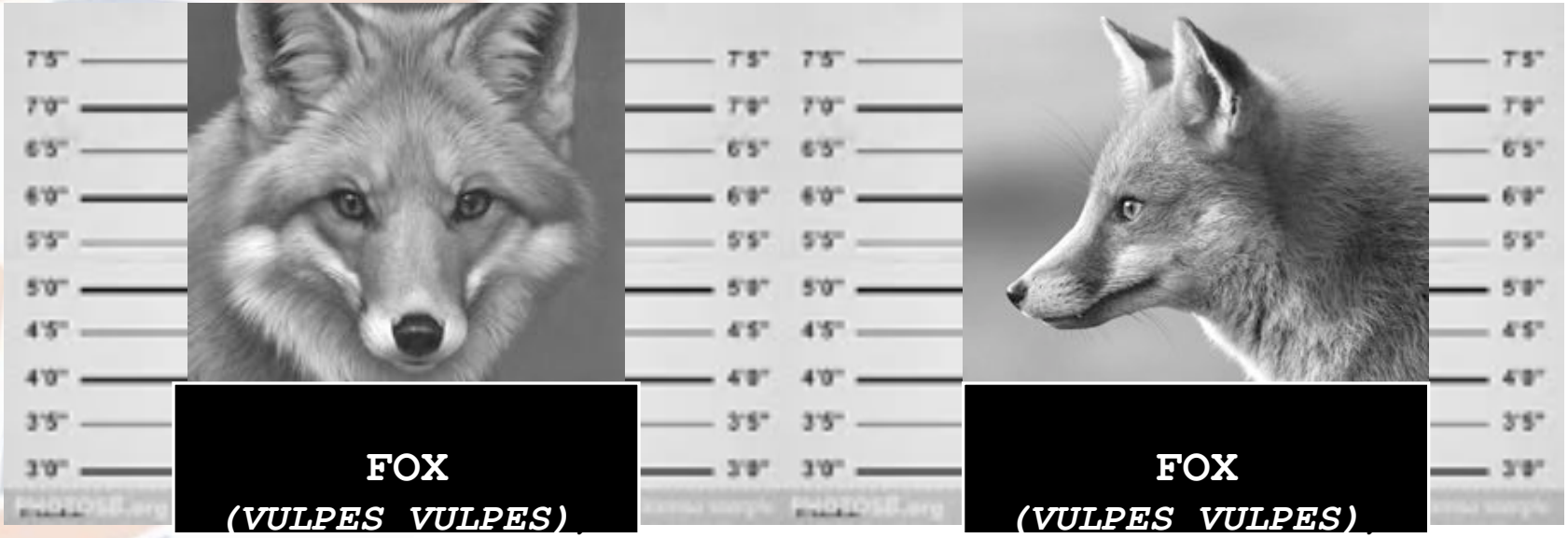


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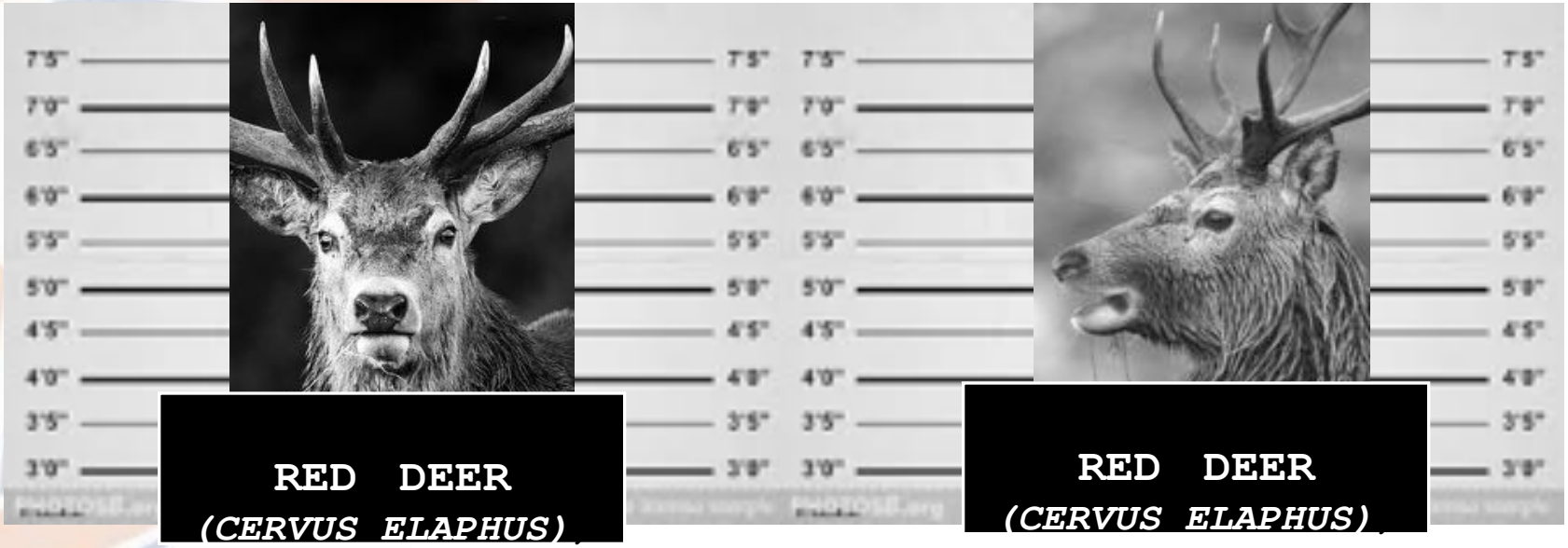


- ✓ Extensive Pathology
- ✓ Potential to shed large bacterial load
- ✓ Chronic Infection
- ✓ Long lived (10-15 years)
- X Low Prevalence **0.12 – 3.64%**
- X Patchy distribution



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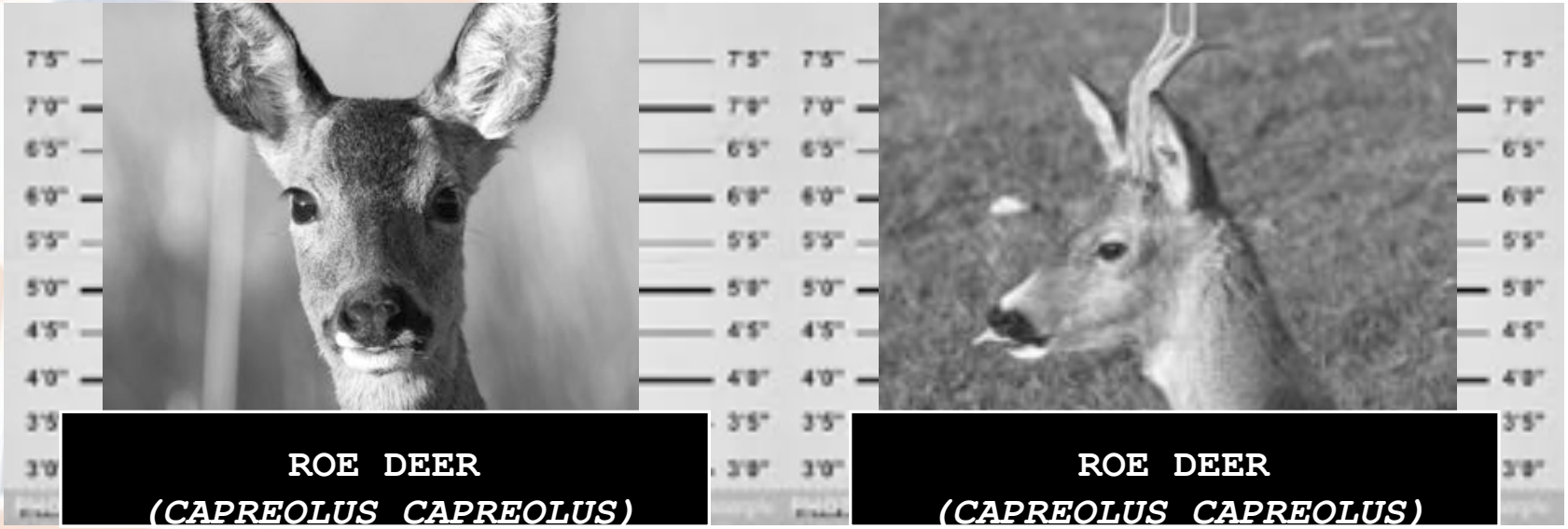


- ✓ Extensive Pathology –generalised widespread infection
- ✓ Potential to shed comparable bacterial load
- ✓ Widespread and common
- ✓ May feed in open farmland / farm visits
- ✓ Chronic Infection observed
- ✓ Long lived
- X TB Prevalence **0.47 – 1.92%**
- X Less gregarious

## TB Wildlife Reservoirs

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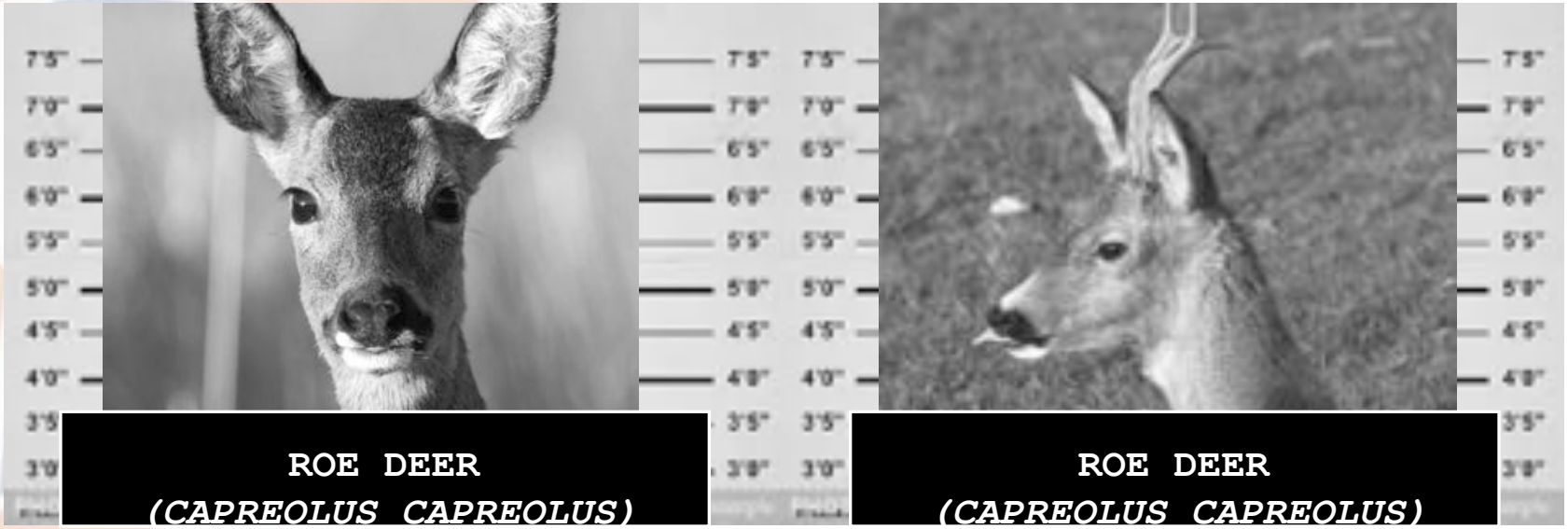


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## TB Wildlife Reservoirs

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- ✓ Extensive Pathology –generalised widespread infection
- ✓ Potential to shed excrete similar bacterial load to badgers
- ✓ May feed close to open farmland
- ✓ TB Prevalence **2.67 – 6.53%**
- ✓ Chronic Infection observed
- ✓ Long lived
- X Widespread but patchy distribution



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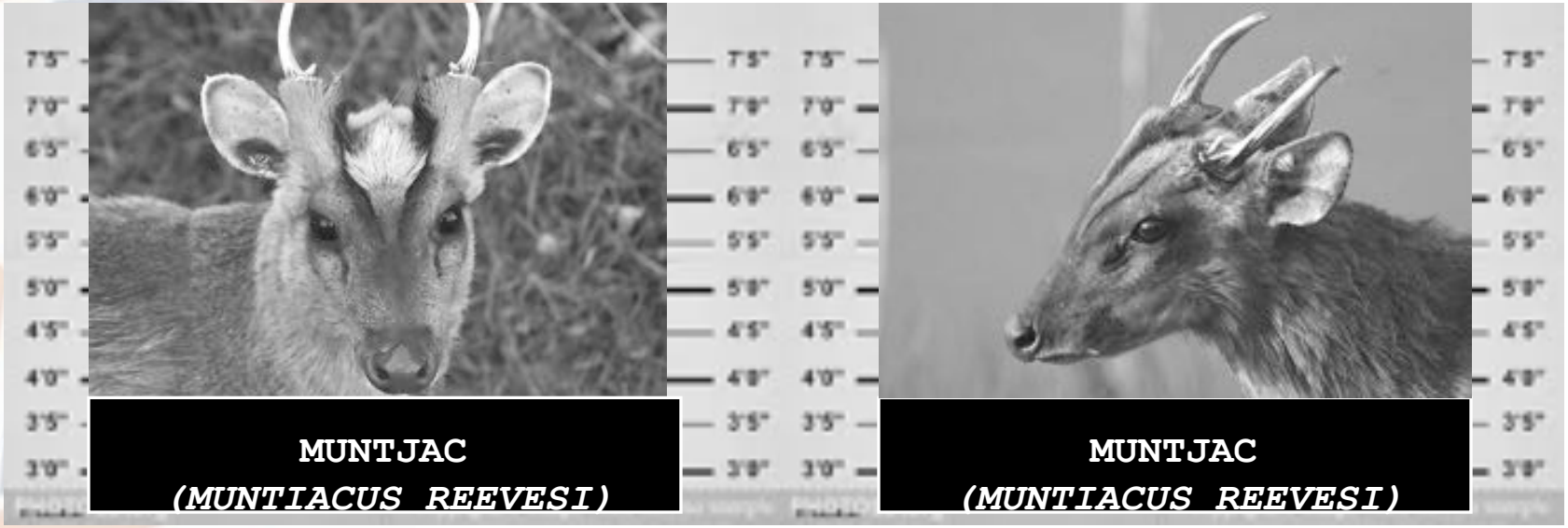


- ✓ TB Prevalence **1.08 – 14.38%**
- ✓ Chronic Infection observed
- X Widespread but clumped distribution
- X Little evidence of generalised widespread infection
- X Likelihood of contact with cattle lower than other deer species
- X Likelihood of excretion lower than other deer species
- X Generally solitary



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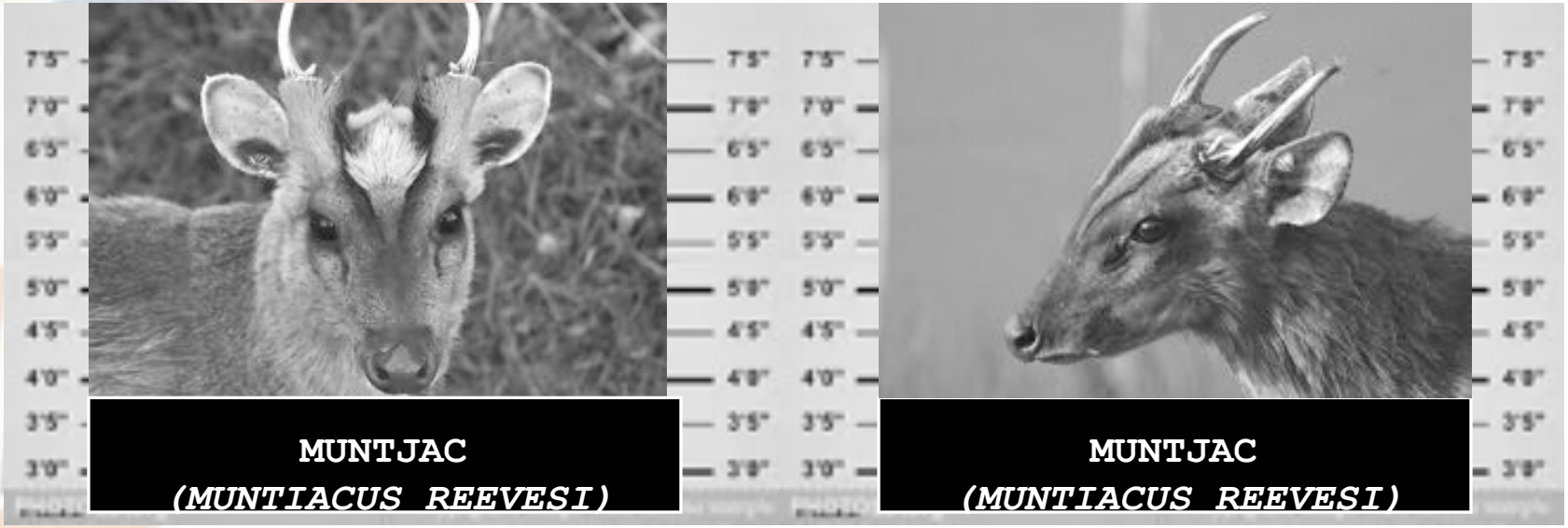
Muntjac
(you might have to take our word for it…)
Bushnell
08-03-2012 03:14:13

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**Bovine TB found in wild boar for first time in UK**

- ✓ Pathology –high proportion with generalised lesions(Spain)
- ? Contact opportunities with cattle
- ✓ TB Prevalence (Spain **46-62%** but much higher densities)
- ? Chronic Infection
- ✓ Aggregations between individuals

# TB Wildlife Reservoirs

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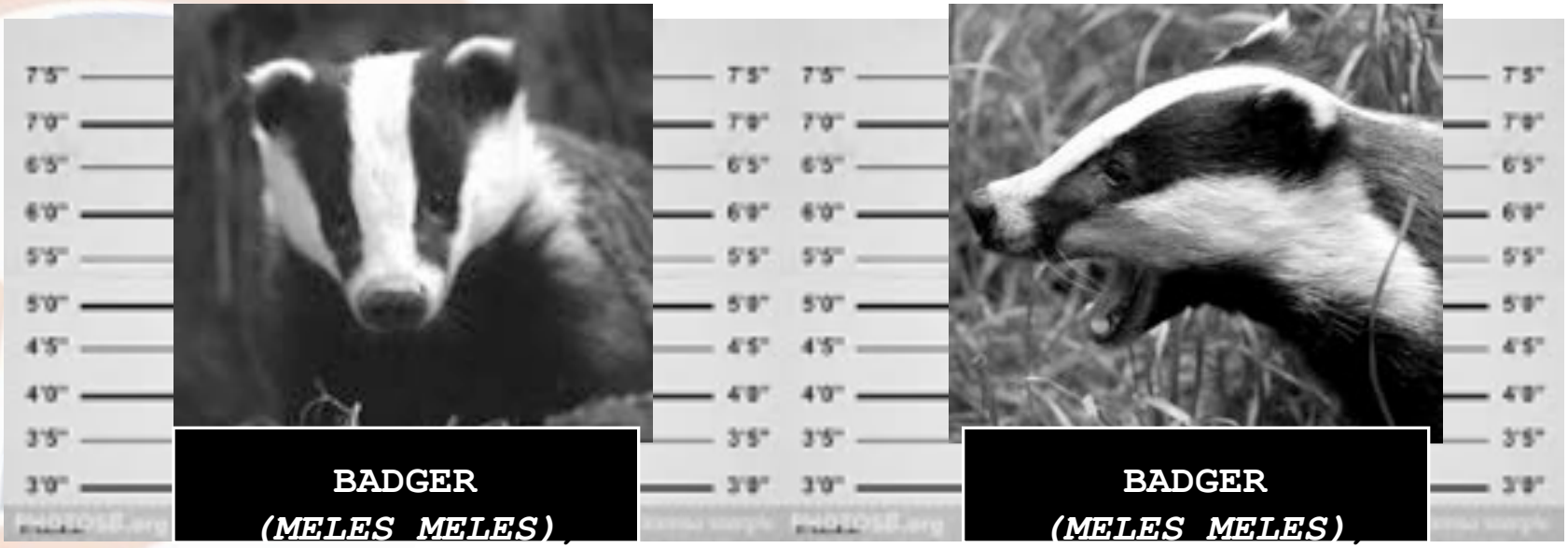


- ✓ TB Prevalence **9.76 - 12.21%**
- ✓ Long lived with disease
- ✓ Infection may be linked to increased ranging behaviour
- ✓ Widespread
- ✓ Excrete *M.bovis* effectively through multiple routes
- ✓ Lots of shared space with cattle; pasture & farm buildings
- X Social animals, barrier or facilitator?



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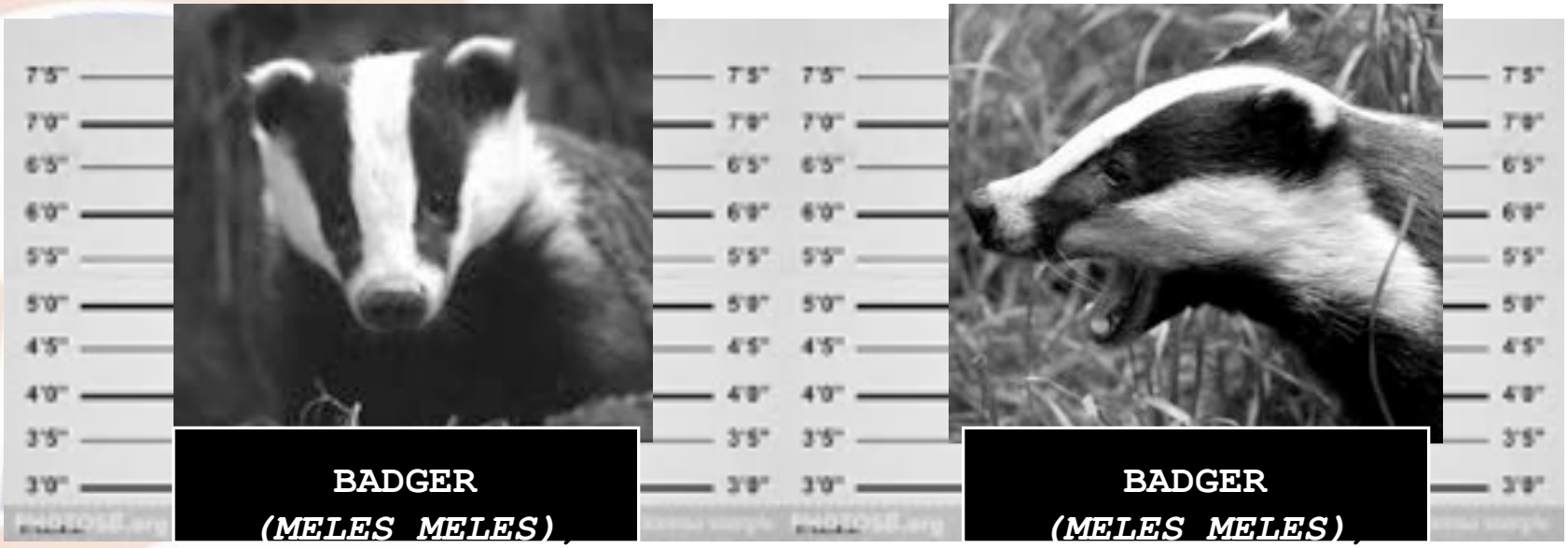


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- Risk from deer species (esp fallow and red) potentially substantial, where abundant

- Wide variation in deer densities, localised risk

***'The role of some deer species in the epidemiology of TB in cattle may become more significant in parts of the UK if deer populations continue to expand in geographical range and abundance' (Ward et al. 2009)***

- High levels of uncertainty – are deer a maintenance reservoir? Future role of wild boar?

- Badgers tick lots of the boxes!

- But dynamic epidemiological picture….

## References


• Bovine tuberculosis infection in wild mammals in the South-West region of England: A survey of prevalence and a semi-quantitative assessment of the relative risks to cattle.
Delahay *et al.,* 2007. The Veterinary Journal

• The Status of *Mycobacterium bovis* Infection in UK Wild Mammals: A Review.
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• Wildlife disease reservoirs: the epidemiology of *Mycobacterium bovis* infection in the European badger *(Meles meles)* and other British mammals.
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•The state of tuberculosis in European wild mammals.
Gortázar *et al.,* 2012. Mammal Review




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