



# **Preliminary Chronic Wasting Disease surveillance in British deer**

**Alex Barlow**

**VLA Wildlife Group / VLA Langford**

***Veterinary Deer Society***

***Annual Conference***

***5<sup>th</sup> – 6<sup>th</sup> November 2005***



# Chronic Wasting Disease

- **CWD background information from North America**
  - Species affected
  - Time line
  - Clinical signs
  - Geographical spread
  - Epidemiology
  - Surveillance
- **Surveillance in Britain**
  - Sample selection
  - Species and numbers examined
  - Comparison with rest of Europe
- **Future strategy in Europe**
  - Main risks
  - Sample selection



Chronic Wasting Disease (CWD) is a transmissible spongiform encephalopathy (TSE) of deer.

Natural infection has been confirmed in the following wild and captive deer species in the USA and Canada:

- Mule deer

*(Odocoileus hemionus hemionus)*

- Black-tailed deer (sub species)

*(Odocoileus hemionus columbianus)*

- White-tailed deer (*Odocoileus virginianus*)

- Rocky Mountain elk

*(Cervus elaphus nelsoni)*



# Timeline

- **1967** – Clinical ‘wasting’ syndrome seen in mule deer in wildlife research unit in Northern Colorado
- **1987** – CWD confirmed as a spongiform encephalopathy
- **1981** – CWD diagnosed in wild Rocky Mountain elk in Colorado
- **1985** – Confirmed in wild Mule deer
- **1990** – Confirmed in wild White-tailed deer

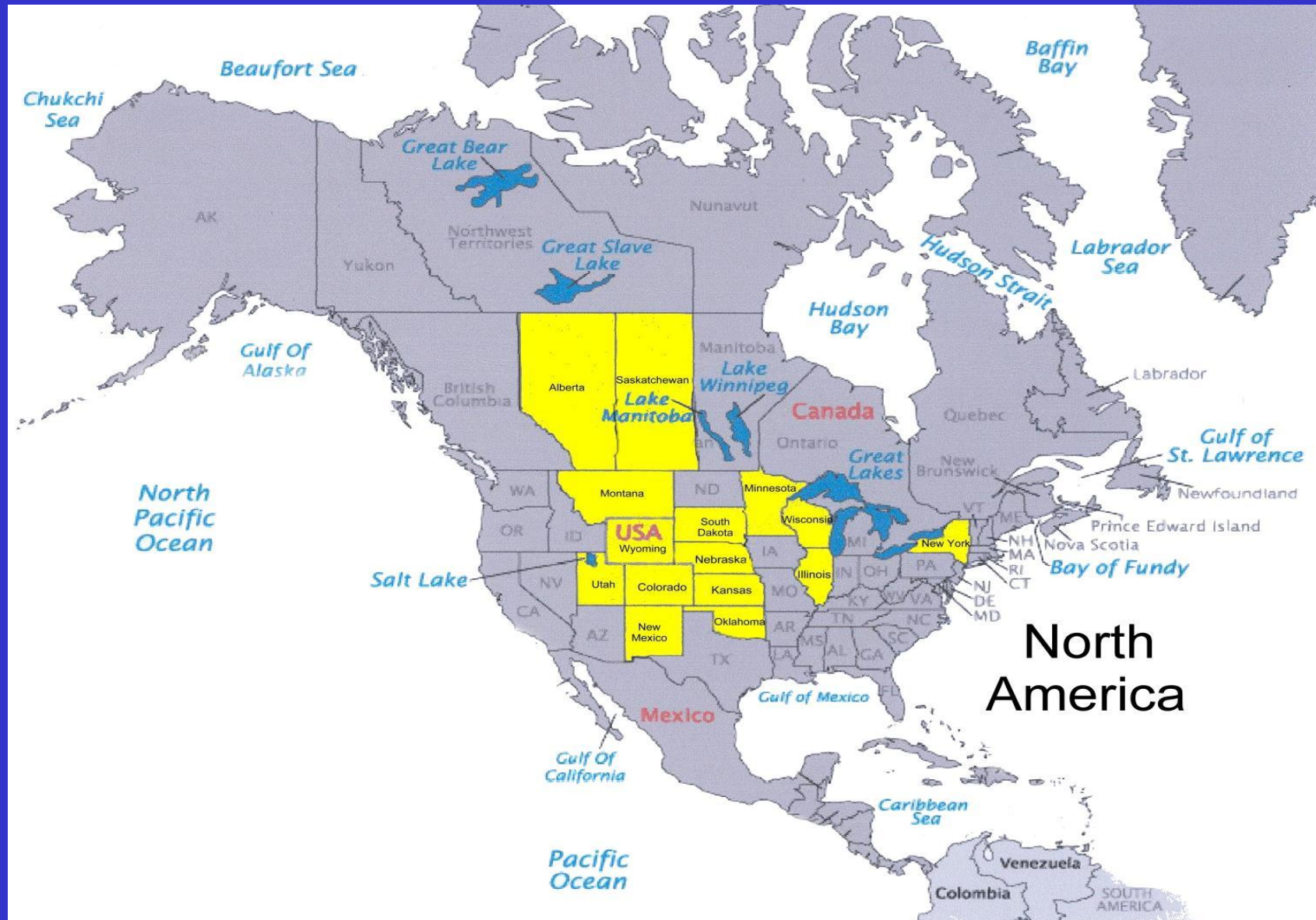


# Clinical Signs

- Most cases in adult deer
- Disease is progressive and always fatal
- Main sign is weight loss
- Behavioural changes:
  - Decrease in interactions with other animals
  - Listlessness
  - Nervousness/hyperexcitability (esp. elk)
- Increased drinking
- Excessive salivation
- 2° aspiration pneumonia



# Extent of CWD in North America





# Epidemiology

- The origin is unknown
- Transmission likely to be lateral, animal to animal. Maternal transmission may occur
- No evidence of transmission to domestic cattle, sheep & goats housed in direct or indirect contact with CWD affected deer
- Susceptibility of other deer species not known but no disease after 2 years following I/C inoculation in fallow deer (*Dama dama*)



# Surveillance

## USA/Canada:

- Hunter harvested deer and road kills
- Farmed deer at slaughter
  - Saskatchewan CWD in 7 out of 7,000 deer (0.1%)





# Great Britain

At VLA Langford, beginning in 2000, the following samples were collected from cases submitted for the TB in Wild Mammal project

- Medial retropharyngeal lymph node
- Brain stem including obex
- Spleen
- Distal ileum
- Mesenteric lymph node



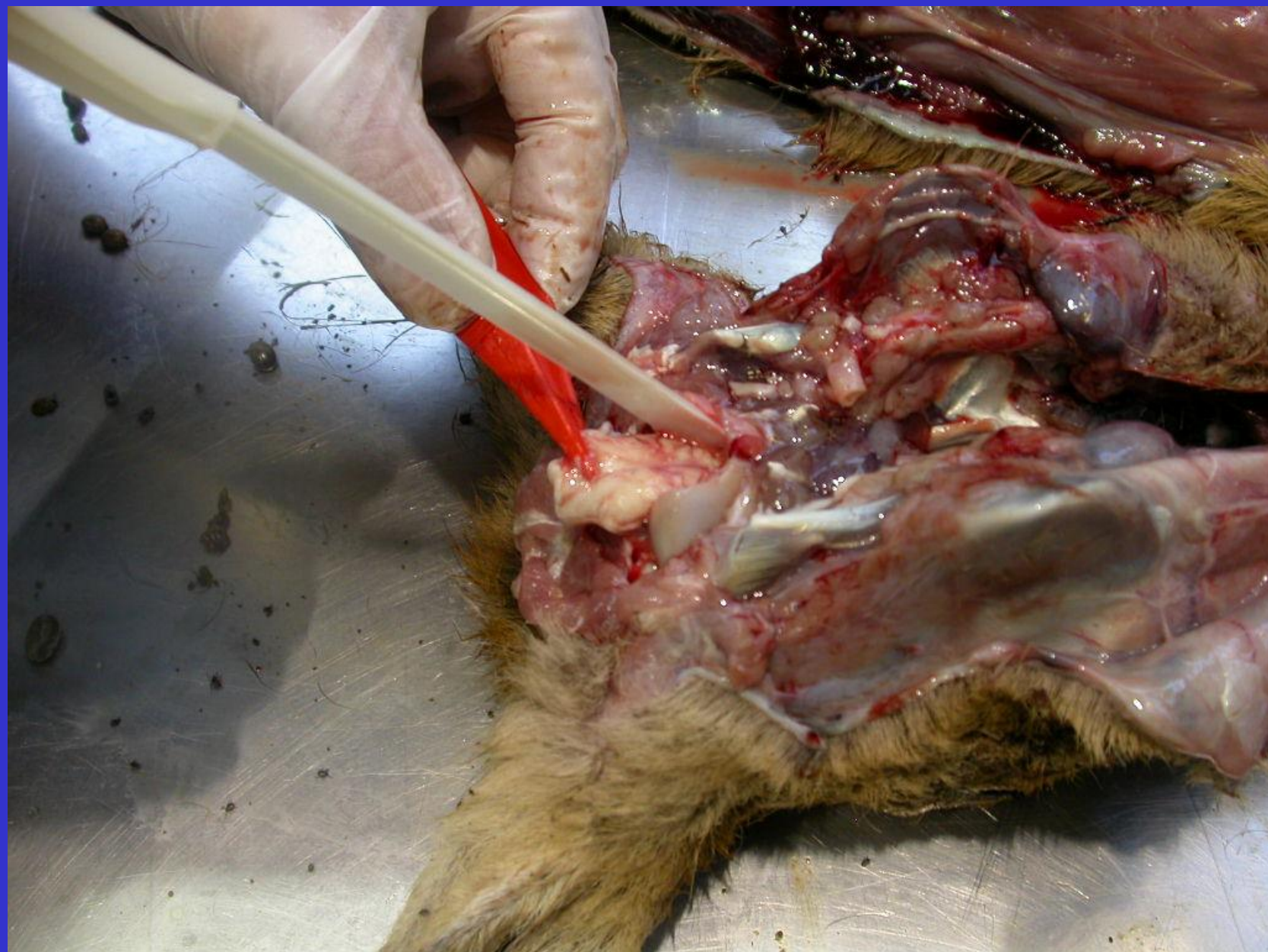










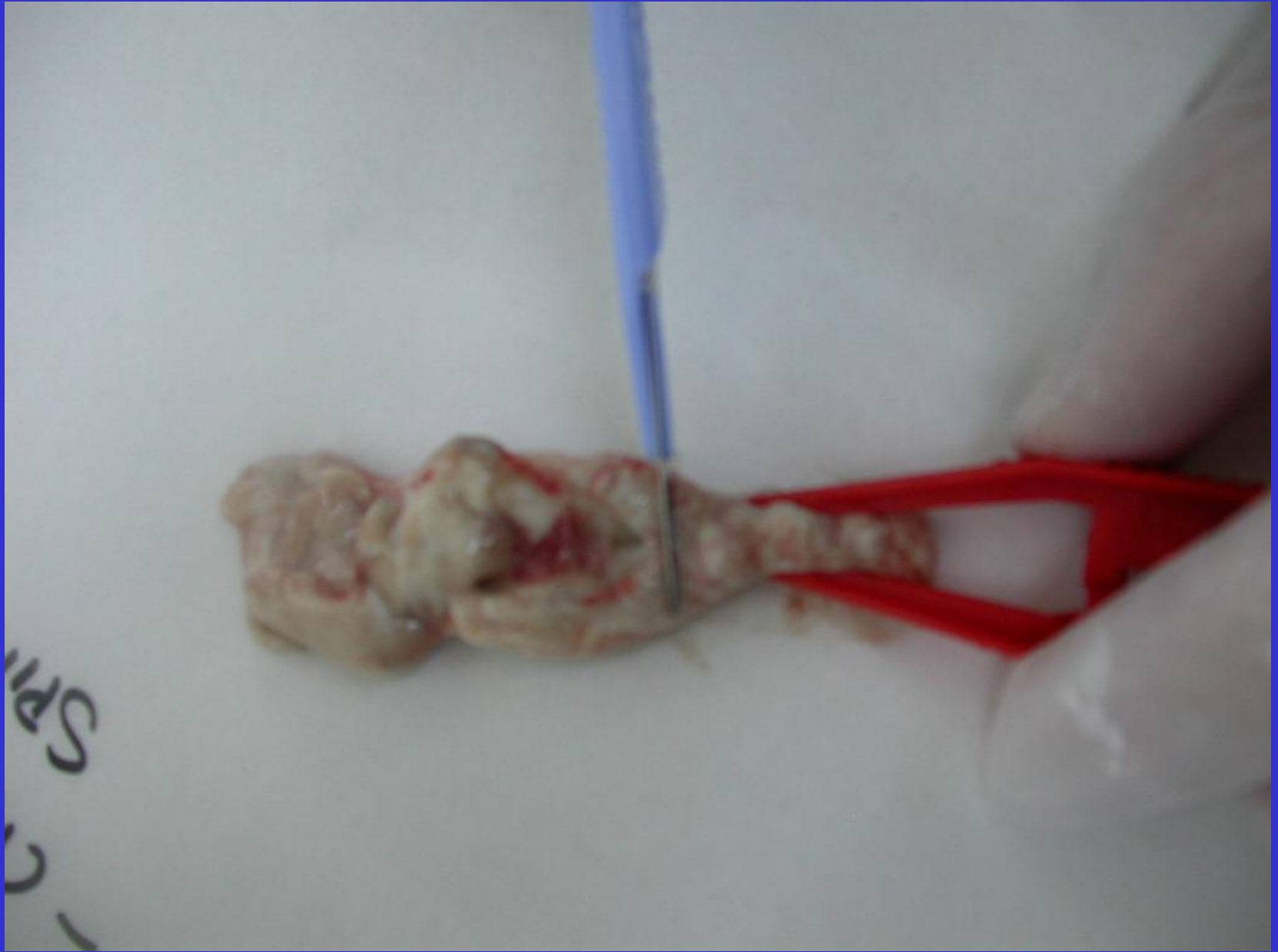




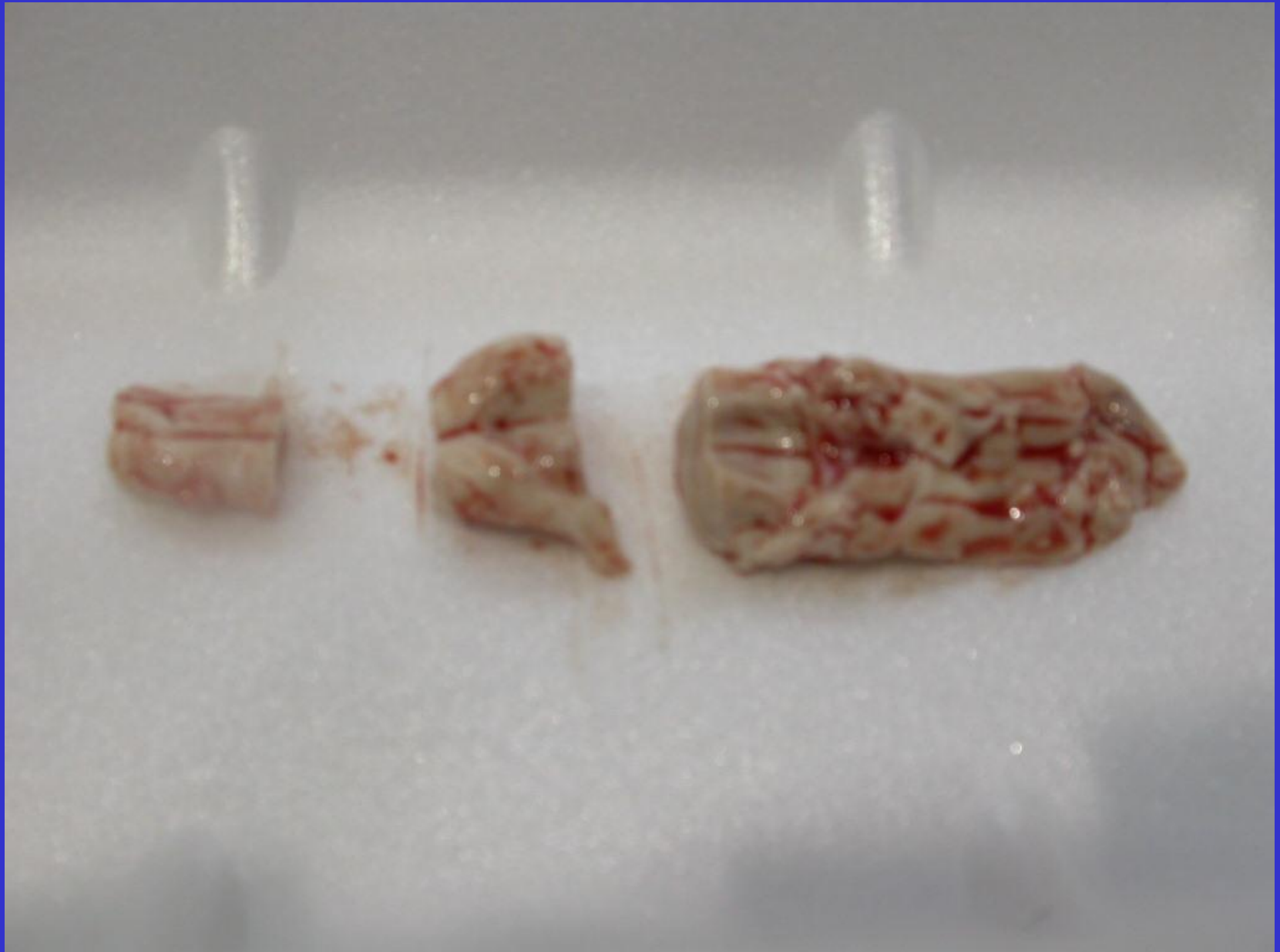














23/M360/09/05



- OBEX
- MED. RETROPHARYNGEAL L.N.
- S.I. / PEYER'S PATCH
- M.L.N.
- SPLEEN

- CAUDAL MEDULLA/  
SPINAL CORD





## Species examined:-

SPECIES	NUMBER EXAMINED
Roe ( <i>Capreolus capreolus</i> )	189
Red ( <i>Cervus elaphus elaphus</i> )	22
Fallow ( <i>Dama dama</i> )	66
Muntjac ( <i>Muntiacus reevesi</i> )	13
Not known	14
<b>TOTAL</b>	<b>* 304</b>

**\* All Negative for CWD**



# Europe

- Belgium:** 38 cervids
- Denmark:** 6 farmed Fallow deer, 7 wild Roe deer
- Germany:** over 4,000 Roe, Red & Fallow deer
- Italy:** 21 cervids
- Sweden:** 6 Moose, 2 Roe deer, 1 Reindeer
- Switzerland:** 72 mainly Fallow deer



# Surveillance of TSE in Europe

## Main Risks:

- White-tailed deer (*Odocoileus virginianus*) population in Finland/Sweden (~ 30,000) originating from imported animals from North America
- Red deer (*Cervus elaphus elaphus*) close phylogenetic proximity to Rocky Mountain Elk (*Cervus elaphus nelsoni*) NB interbreeding between Red deer and Elk in Britain and Germany
- Roe deer same subfamily as Mule/White-tailed deer
- Fallow deer same subfamily as Red deer



# Further Surveillance in Europe

Farmed deer and 'fallen stock' cervids older than 18 months

- Red deer (*Cervus elaphus elaphus*)
- White-tailed deer (*Odocoileus virginianus*) in Finland and Sweden
- Animals possibly exposed to BSE and/or scrapie or known to have been given concentrates
- Farmed and free ranging cervids with CNS signs, sick or in poor condition



# Conclusions

- **No evidence of CWD in Britain**
- **But only limited surveillance so far**
- **Responsible to agree and put in place Europe-wide surveillance strategy**
- **Research into sensitivity/resistance of European species needed**