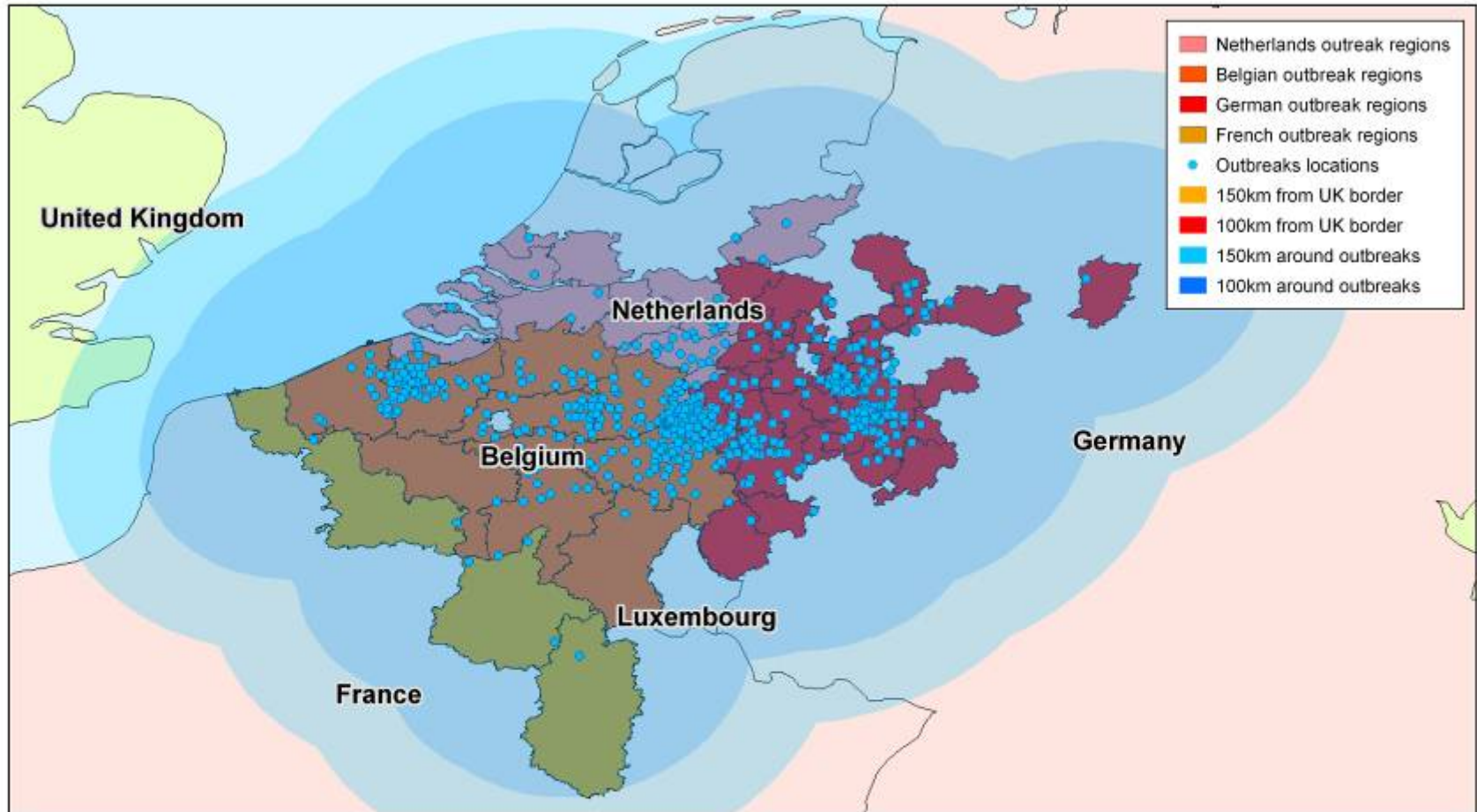


# Bluetongue Surveillance in the UK

SCoFCAH 20 October 2006



# Monitoring the Threat



Produced by Alice Rogers,  
IAHD, August - October 2008

Robinson Projection  
Central Meridian: 30°E

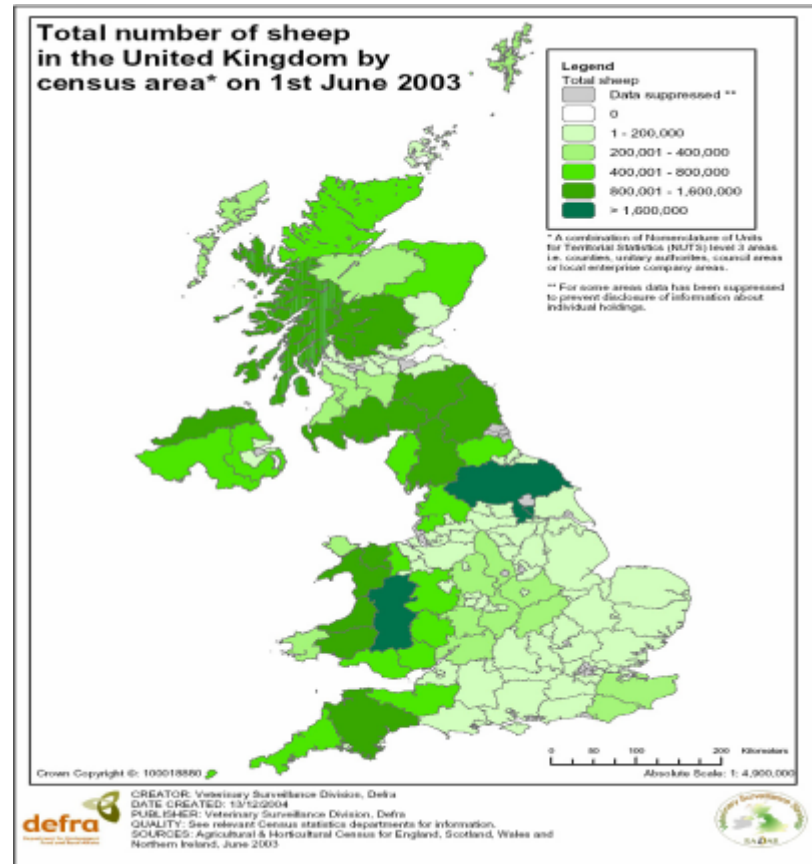
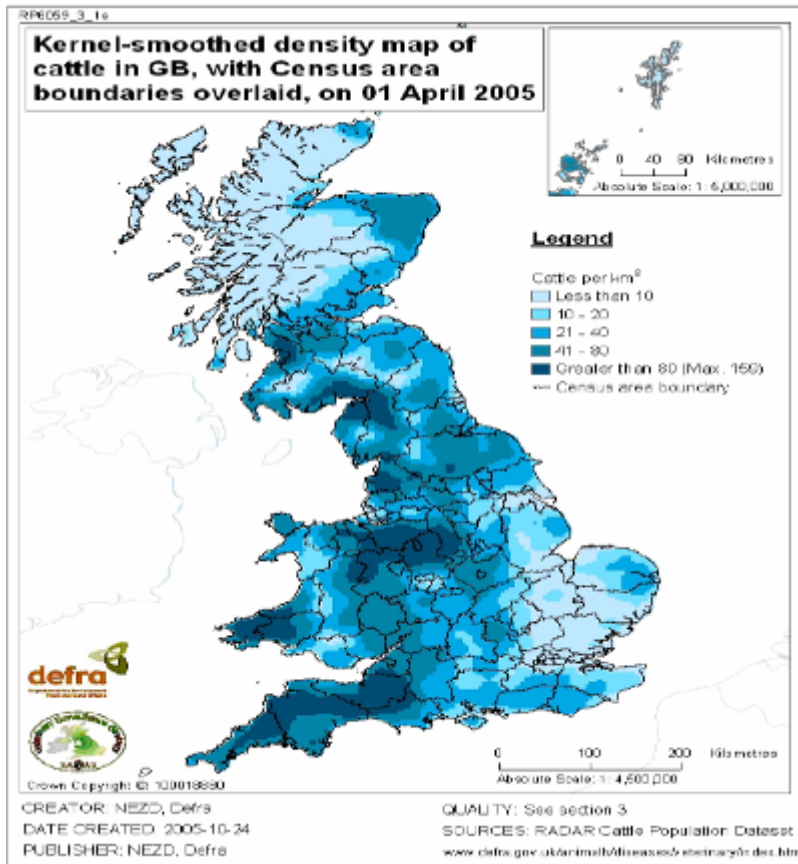


**Bluetongue outbreaks in  
the Netherlands, Belgium, Germany and France  
17 August - 16 October**

ArcoGIS & Development Team  
March 2008  
Source: ESRI Data & Maps CD  
Created in ArcoGIS 8 using ArcMap

Robinson Projection

# Populations at Risk

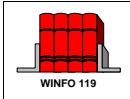


# Scanning Surveillance by VLA Regional Laboratories

- July-Sept 2006
- East & South East England
- 513 cattle
- 487 sheep
- 70 goats
- Regular contacts with practitioners
- No suspicion of BT
- No change in proportion of 'diagnosis not reached' suggestive of BT

## Bluetongue – Key Facts

# Raising Awareness



Veterinary Laboratories Agency - Winchester Information Note 119

### BLUETONGUE - A SUMMARY (Revised 09/06)

There is currently much interest in Bluetongue, following confirmation of disease in the Netherlands, Belgium, Germany and Northern France. It is notable that the current cases in Belgium have a higher occurrence in cattle than in sheep (1). This WINFO highlights the key features of the disease and to provide an awareness of the clinical signs. Further disease fact sheets, with links to images are available on the Defra website at <http://defraweb.defra.gov.uk/pests/diseases/animal/diseases/bluetongue.htm> and also the ICAM website at <http://www.icam.vetmed.uni-wuerzburg.de/bluetongue.pdf> (2).

#### Clinical Signs

##### Sheep

In sheep there appears to be variation between breeds in the severity of clinical signs – although all breeds are equally susceptible to infection. The incubation period is 5-20 days and clinical signs in sheep are characterised by 'fever, face and feet'.

Following infection, virus is transported to the lymph node draining the site of infection and to the capillaries, where the virus can cause haemorrhage and oedema. Lesions due to capillary fragility are often seen at sites of mechanical injury (e.g. oral mucosa). Affected sheep present with pyrexia, excessive focal oedema (of the jaw, muzzle and tongue, which is occasionally cyanotic, and hence the name Bluetongue), salivation, +/- hyperaemia of the distal pad, +/- blood in the mouth and severe conjunctivitis, followed by corneitis (with lameness) and wool break during conformation.

Death can occur from primary viral damage (haemorrhage) or secondary smooth muscle paralysis of the oesophagus and inhalation pneumonia. Mortality rates may be as high as 70%.



Note: The images below are from the Centre for Food Security and Public Health, Iowa State University (2).  
Fig 1 Bovine. The muzzle is covered by an adherent crust, and the underlying (eroded) tissue is hyperemic.

#### Other Species

**Cattle** – generally, bovine cases are sporadic and infected cattle show clinic and with excretion of mucus and tears. Recent cases in Belgium have pre-condition, mild hyperthermia (which may be unnoted) and necrotic + haemorrhagic nasal discharge, lacrimation accompanied by periorbital skin oedema and other photosensitisation-like skin lesions have been noted (1).



**Goats** – as cattle.

**Deer** – clinical signs similar to sheep have been reported in white tailed deer.

**Camelids** – clinical disease not reported in adult alpacas or llamas, although both have been recognised as possessing antibodies. The significance of an antibody response and any correlation with carrier status is unclear.

#### Epidemiology

BT is an insect-borne viral disease, to which all species of ruminants are susceptible, although sheep are most severely affected. It is classified as an OIE list A disease (3). Midges are attracted to cattle, which may become infected and become a major source of infection for sheep. Once infected, a *Culicoides* midge is infected for life and adults generally survive 2-3 months. Peak populations of *Culicoides* occur in the late summer and autumn and therefore this is the time when BT is most commonly seen.

Generally, BT is present in a geographical band around the world covering much of the Americas, Africa, Southern Asia, Northern Australia and Southern Europe. Spread of disease is dependent on the presence of biting midge vectors within these geographical boundaries. BT has never been recorded in Great Britain. However, *Culicoides* midges, which are capable of transmitting the disease can be found in the UK.

BT is a notifiable disease and any suspicion of disease must be notified to the local Animal Health Divisional Office of Defra. For further information on BT control and government policy see defra website (4).

- (1) Veterinary Record (2006) 159, 327
- (2) <http://www.cfsph.iastate.edu/Factsheets/pdfs/bluetongue.pdf>
- (3) [http://www.oie.int/eng/maladies/feches/a\\_A090.htm](http://www.oie.int/eng/maladies/feches/a_A090.htm)
- (4) <http://defraweb/animal/diseases/notifiable/disease/bluetongue.htm>

Please contact a VIO for further information or to discuss individual cases.

Dear Colleague,

I would like to update you on the current Bluetongue disease situation in North-West Europe, and ask for your help in ensuring that we remain vigilant for the disease in the UK. **Bluetongue** is an insect-borne viral disease which affects all ruminants, such as cattle, goat, deer and, in particular, sheep.

The disease is controlled by surveillance zones of up to 150km – it is therefore possible that further outbreaks on the continent could lead to surveillance zones reaching the UK.

#### Current Situation

Over the past month, Bluetongue has been found in the Netherlands, Belgium, in parts of Western Germany and in areas in Northern France. New outbreaks continue to be reported.

#### Clinical signs

**Cattle:** Although Bluetongue usually causes no apparent illness in cattle or goats, cattle are displaying clinical signs during the current outbreak in Western Europe. These have included nasal discharge, swelling and ulceration of the mouth and swollen teats.



**Sheep:** May include: fever; swelling of the head and neck; lameness; haemorrhages in the skin and other tissues; respiratory problems; and a high mortality rate. Rarely, there may be some discolouration and swelling of the tongue.



#### How you can help

Bluetongue is a notifiable disease. **Be vigilant**, if you suspect disease then you should report this to your local Animal Health Office. Raising awareness of the current disease situation with your clients is also vital. It is important that people know what they need to look out for.

I will continue to keep you updated with any major developments.

Best Wishes,

Fred Landeg,  
Deputy Chief Veterinary Officer

For further information visit the Defra website – [www.defra.co.uk](http://www.defra.co.uk)



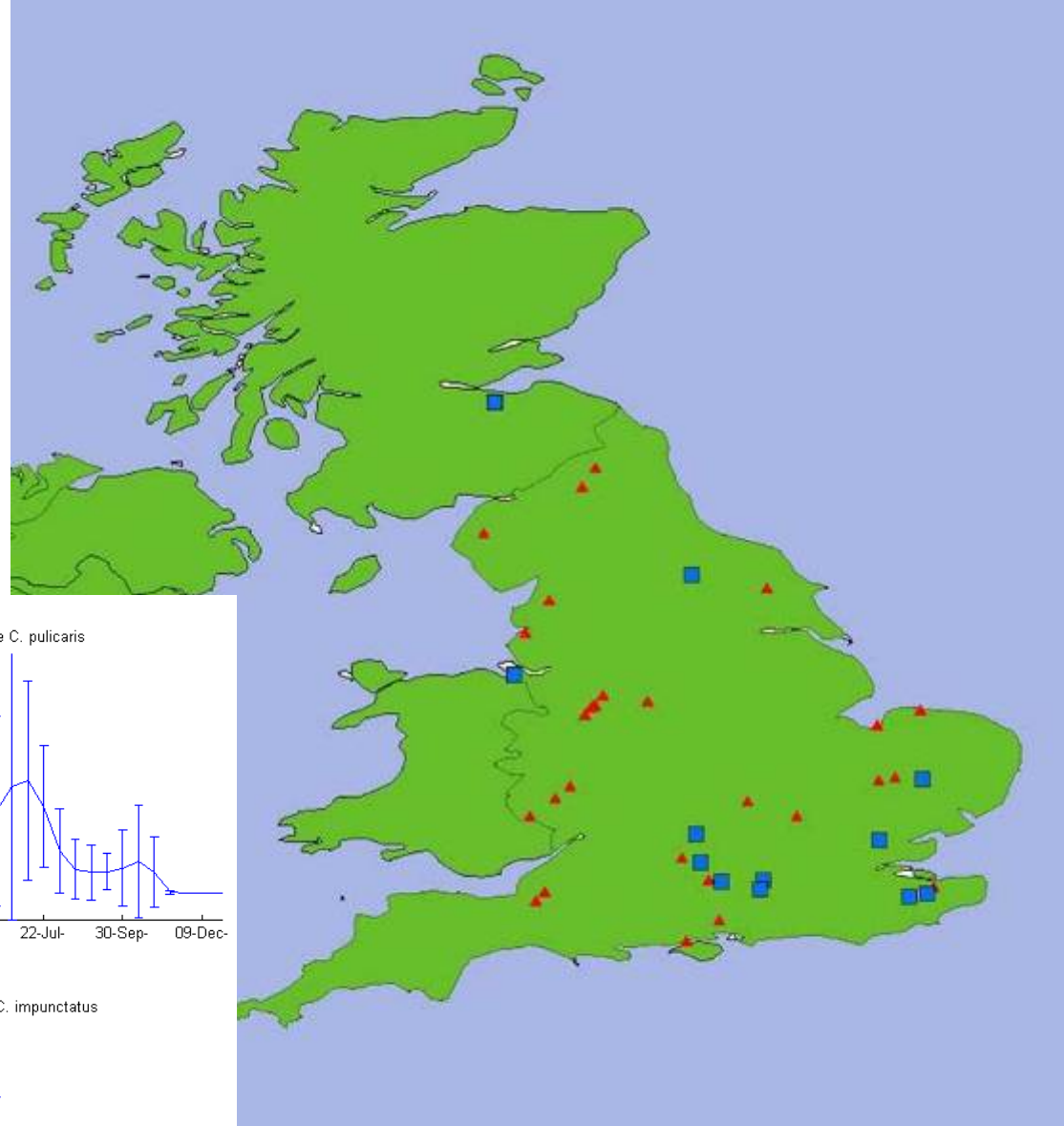
# Clinical Surveillance Cases Investigated

- Cattle, Scotland, import. Lab negative
- Cattle, Gloucester. Negative clinical.
- Sheep, Surrey. Negative clinical.
- Cattle, Gloucester, import. Lab negative
- Cattle, Somerset. Negative clinical.
- Sheep, Yorkshire. Reported by VLA Negative clinical.

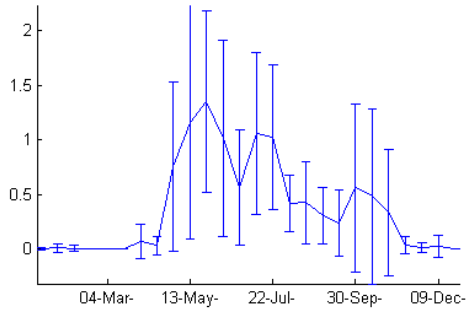
# Import Tracings

- Risk period back to 1 May – 1 August, depending on exporting country
- All current imports from continental Europe tested
- PCR and ELISA
- 1 700 animals tested to date in GB, all results negative

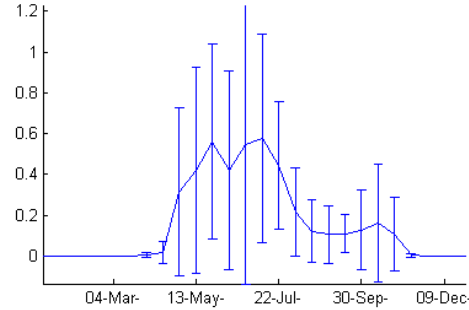
# Vector surveillance



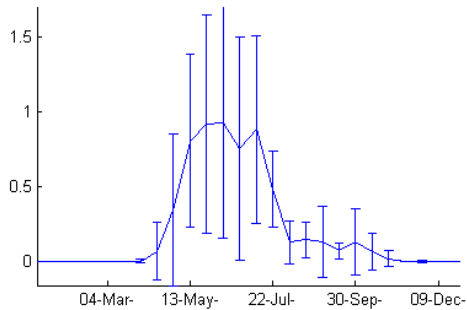
Female *C. obsoletus*



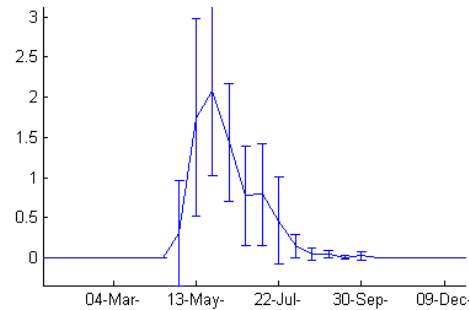
Female *C. pulicaris*



Female *C. punctatus*



Female *C. impunctatus*



# Research

€ 4,000,000

- Survey of the distribution of *Culicoides* sp and species profile and vector competence in the UK
- Molecular epidemiology
  - Virus characterisation to determine virus relationships and sources of incursions
- Modelling using
  - Remote sensing, GIS and Satellite Imaging
  - Traditional modelling to obtain  $R_0$
  - Meteorological data – wind, temperature, humidity
- Development of new BTV vaccines
  - sub-unit vaccines and delivery systems

