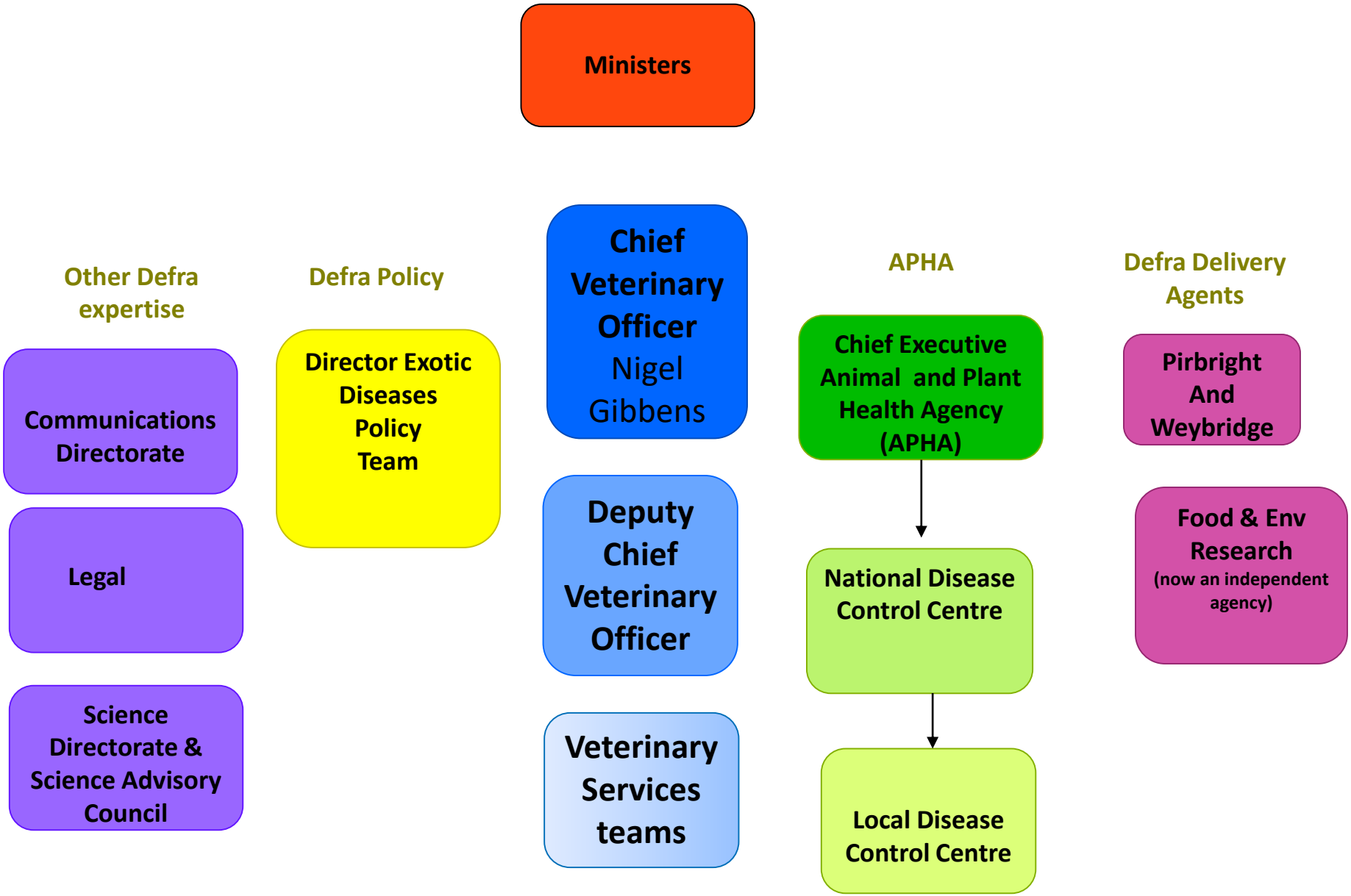
The big picture:

Department for the Environment, Food and Rural Affairs (Defra) and the UK National Policy for Exotic Animal Disease control

United Kingdom

- England
- Wales
- Scotland
- Northern Ireland
- 469 local authorities and Port Health Authorites

Key Defra Players in a disease outbreak



Other Key Players

International

EU
DG SANCO – *liaise with other MS and confirm control measures in line with EU legislation*

OIE
– *international trade rules, notifiable diseases and circumstances for disease free status to be regained*

Central Government

Civil Contingencies Secretariat, Cabinet Office
take keen interest, co-ordinate central briefing, and run COBR

Prime Minister's Office
Invited to telephone conferences, interest varies depending on the disease.

Main Other Government Departments

Department of Health
Officials attend policy meetings, telephone conferences and LDCC

Food Standards Agency
Officials attend policy meetings, telephone conferences and LDCC

OGD Delivery Agents

Health Protection Agency
Co-ordinated response alongside Animal Health

Food Standards Agency Meat Hygiene Service

FSA, but also **Local Authorities**
Enforcement alongside Animal Health

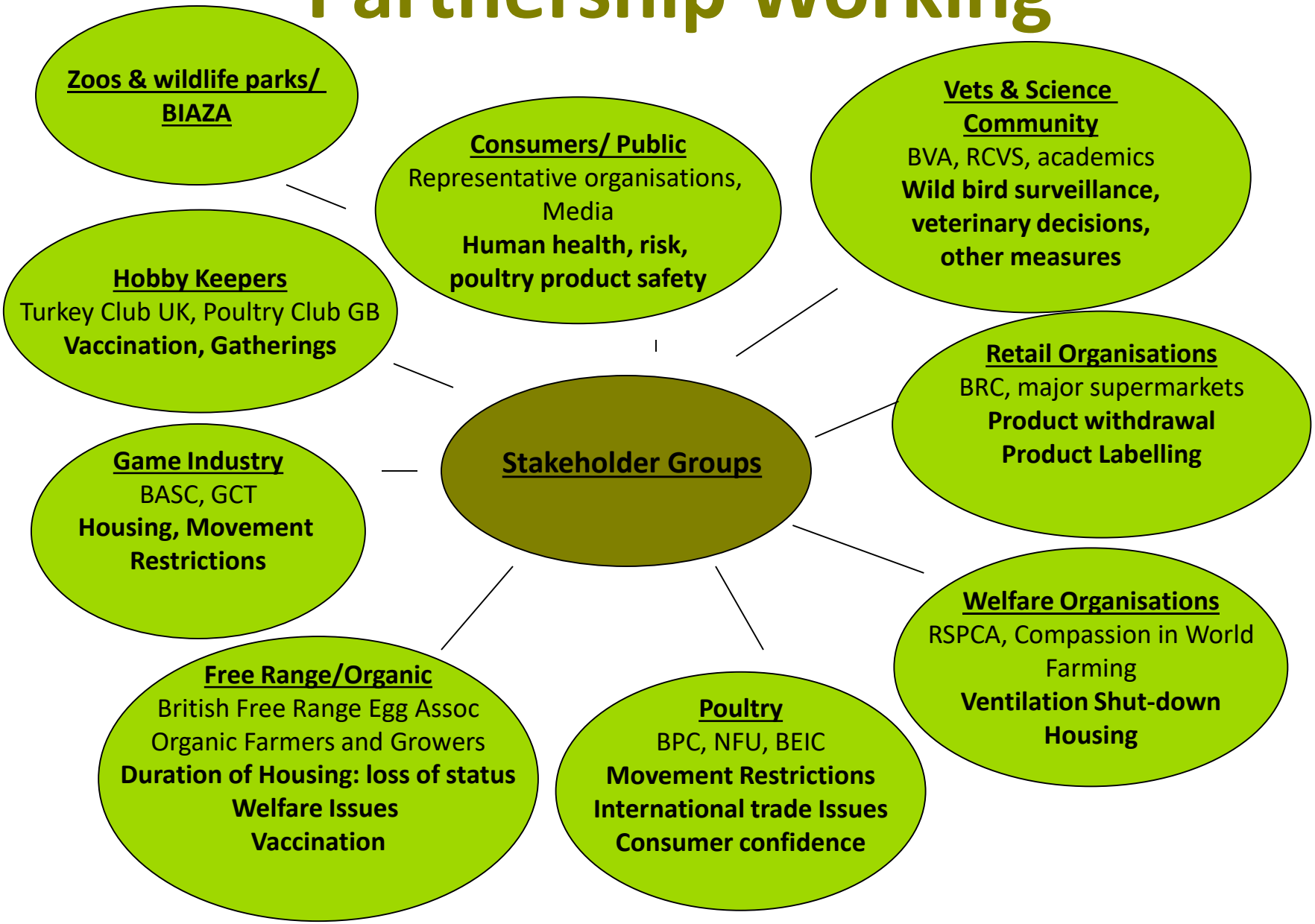
Other groups

Devolved Governments W/S/NI

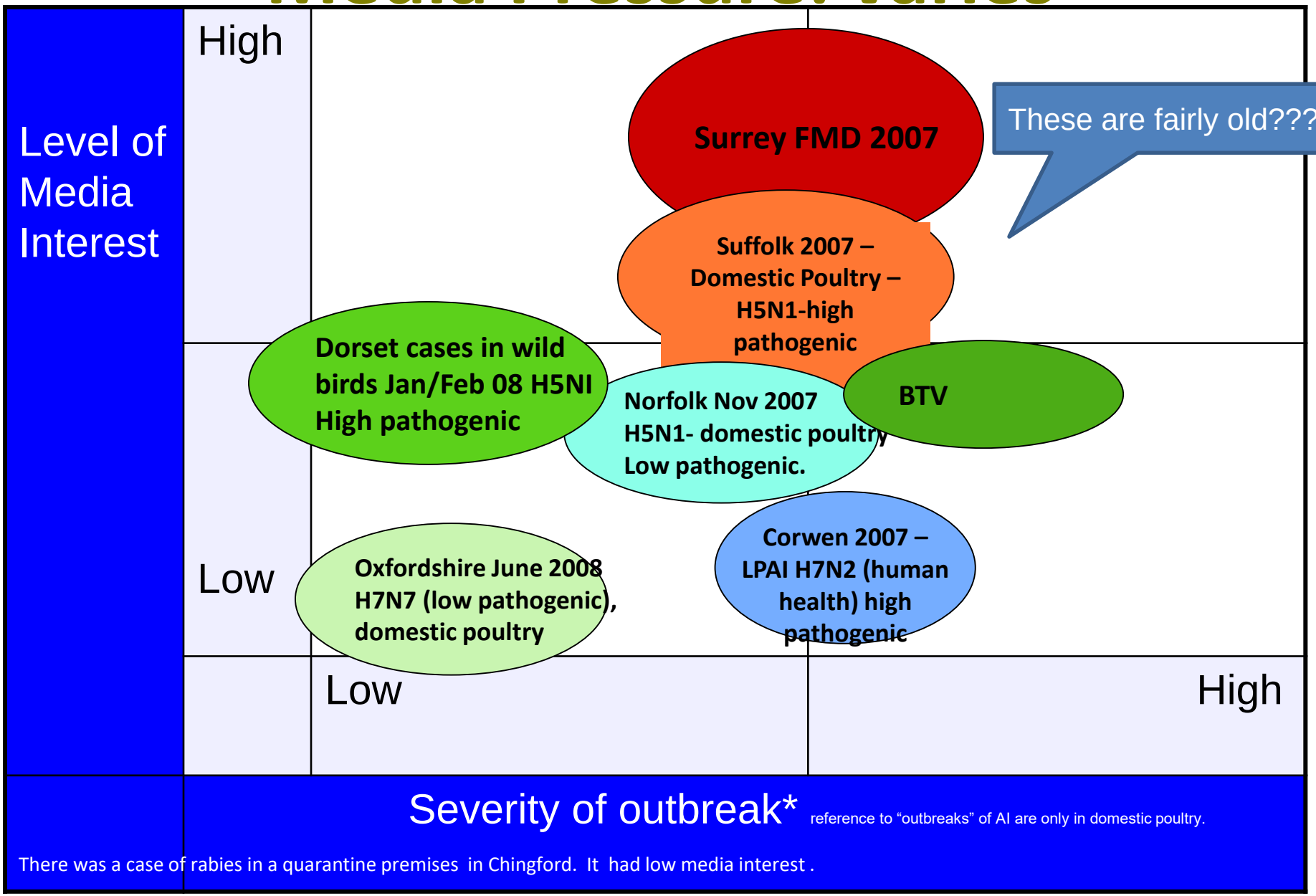
Chief Science Adviser
& wider scientific community

Stakeholders

Partnership Working



Media Pressure: varies



There was a case of rabies in a quarantine premises in Chingford. It had low media interest .

Contingency Planning

- Never ‘zero’ risk so must plan
- Generic Contingency Plan
  - There is no time to invent a plan!

- Role of State Veterinary Services
- Be prepared – Exercises
  - Then follow the plan!
- Different Control Options
  - Culling, Vaccination, Compartmentalisation
  - Rapid disease control vs. minimising culling

Reasons for Government intervention

1. International Trade
2. To protect and promote Animal Welfare
3. To protect the interests of the wider economy, environment and society
4. To protect human health

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

SCOTTISH EXECUTIVE

defra
Department for Environment Food and Rural Affairs

Elephant Herpes virus

CHEETAH CUBS

It is with great sadness that we have to confirm the death of our female cheetah cubs Kinza and Shendi.

Two of four cubs born in June, Kinza and Shendi had been receiving veterinary treatment for an illness for a few weeks. Kinza died on 1 November and Shendi died on 12 November. The siblings had been suffering from cowpox.

The cub's mother KT and the two male cubs, Rufaa and Juba, have also been undergoing veterinary treatment for the same illness. There is no risk to visitors or staff from this illness but the cheetah family is being kept in quarantine and off-show to enable their treatment to continue.

Our adult cheetahs – Matrah, Singa, Burba and Adaeze - remain unaffected and are separated from KT and her cubs. We have also been liaising with experts around the world to seek their advice.

Cowpox is a common virus throughout Europe carried by wild rodents and occasionally seen in domestic cats. We believe it is most likely that one of the cubs picked this up via a wild rodent.

Director General Dr Mark Pilgrim said: "This is very sad news for all of us at the zoo and for our visitors too, who have been so enamoured with our cheetah cubs. Cowpox is a common disease and we believe one of the cubs may have come into contact with a rodent which carries it.

"Kinza and Shendi received the best care possible from the veterinary and carnivore teams and our thoughts are with them. We are treating the remaining cubs and their mother and they are responding well to treatment.

"We would like to reassure visitors that there is no risk to them and these are isolated cases."

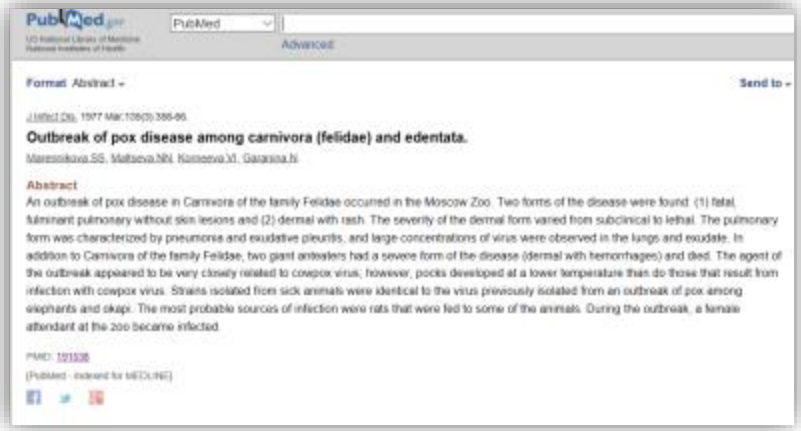
Cowpox

Exmoor zoo penguin colony wiped out by avian malaria

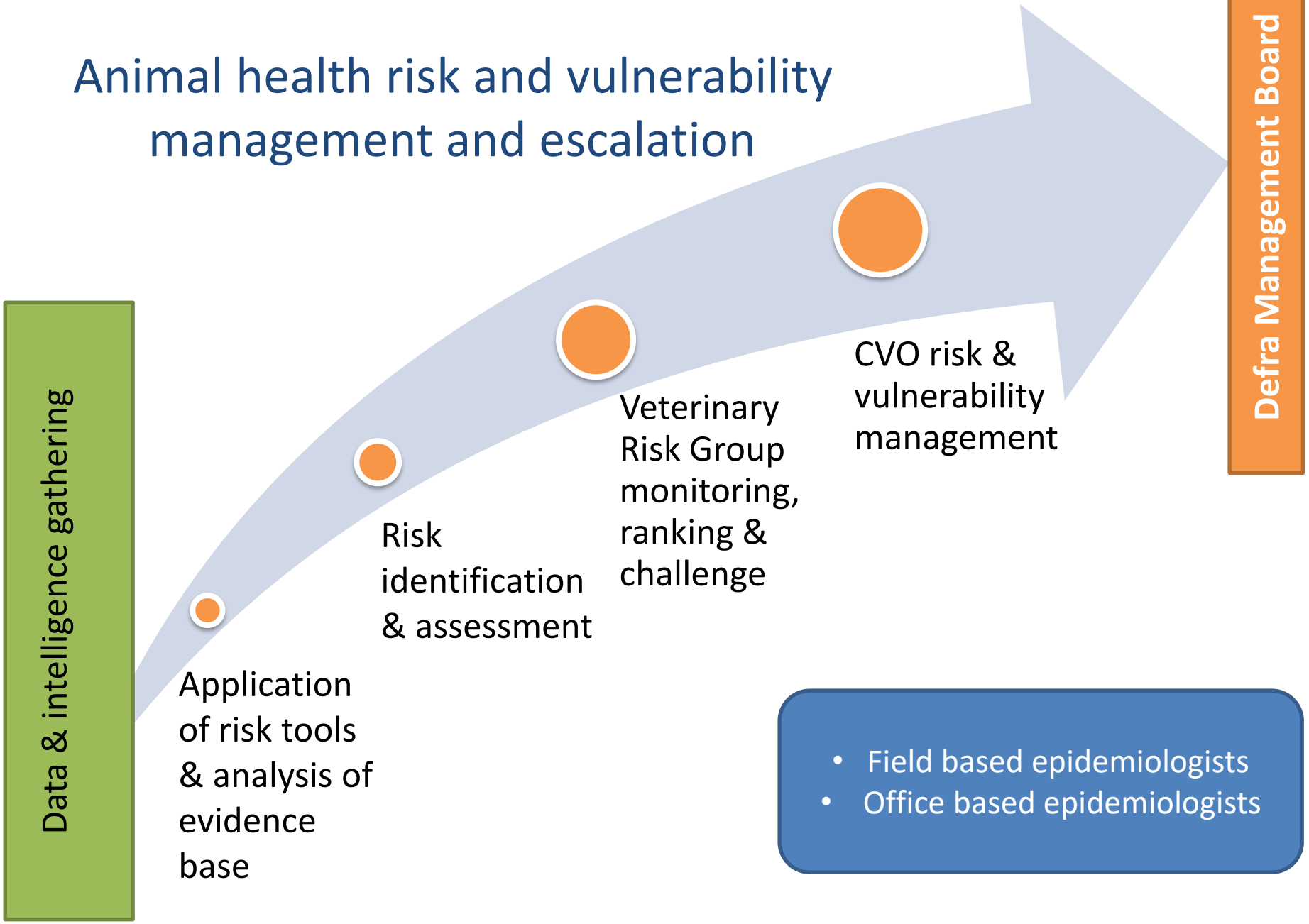
Outbreak kills 10 Humboldt penguins, some of whom were hand-reared and descended from zoo's original 1982 birds

Penguins from Exmoor Zoo. The zoo announced that all of its Humboldt penguins, some of whom had been hand-reared, had died. Photograph: Exmoor Zoo

Avian malaria can be carried by all wild birds and although is not infectious to us or the wild birds, penguins have never had to build an immunity to this as they live on or near the sea where the insects that carry the disease do not occur.



Animal health risk and vulnerability management and escalation



Guidance

Field Epidemiology Training Programme (FETP)

The 2 year programme is aimed at medical, nursing, scientific, or veterinary staff who are, or whose future career may be, in a post involving field investigation and epidemiology and who want to further enhance their specialist skills. The programme provides training and experience to develop the competencies agreed for field epidemiologists in the European Union (EU).

Criteria for entry

The call for applications for the FETP fellowship takes place annually (usually in March) on NHS Jobs.

Applicants must have:

- a masters degree in epidemiology or public health (or equivalent)
- experience of working within public health, health protection or applied epidemiology
- be able to demonstrate how the FETP will be of benefit to their future career

Areas of work covered by the programme

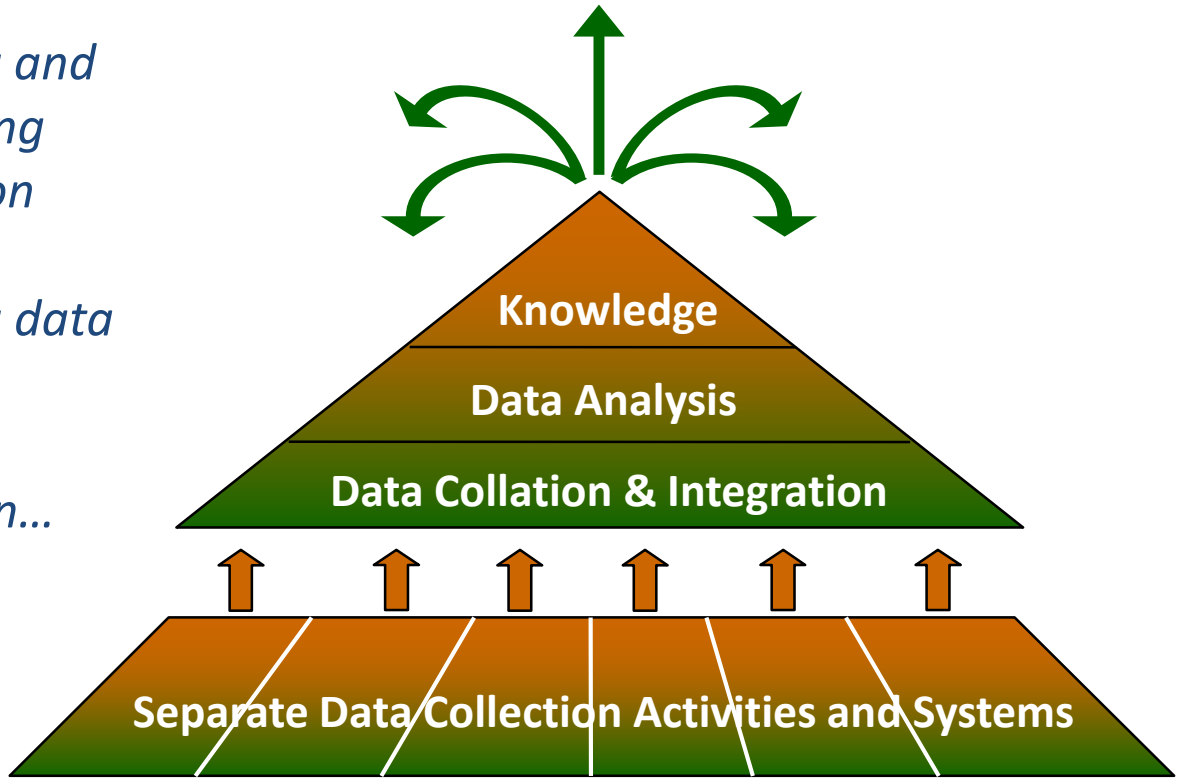
As a workplace-based learning programme it enables individuals to learn what they need to do in their jobs. The FETP is about learning through service, underpinned by theoretical understanding of concepts taught during didactic training modules. The 5 areas are:

- investigation of an acute outbreak or incident
- applied epidemiological study
- surveillance
- communication
- teaching and training

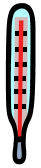
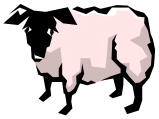
Building the Surveillance Information Pyramid

The Strategy will allow earlier detection of threats by:

- *harmonising and quality tagging data collection*
- *prioritising*
- *streamlining data analysis*
- *improving dissemination…*





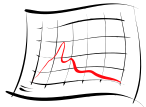
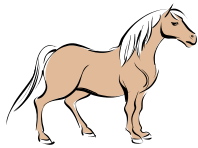





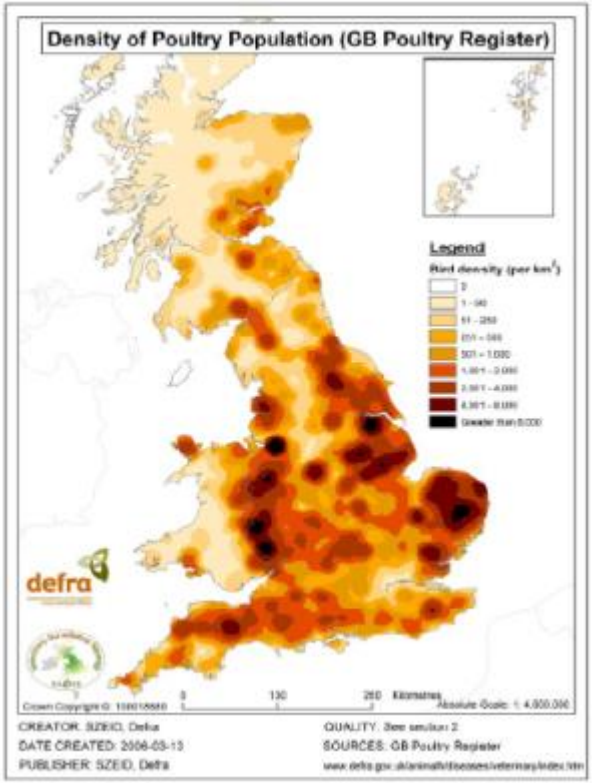


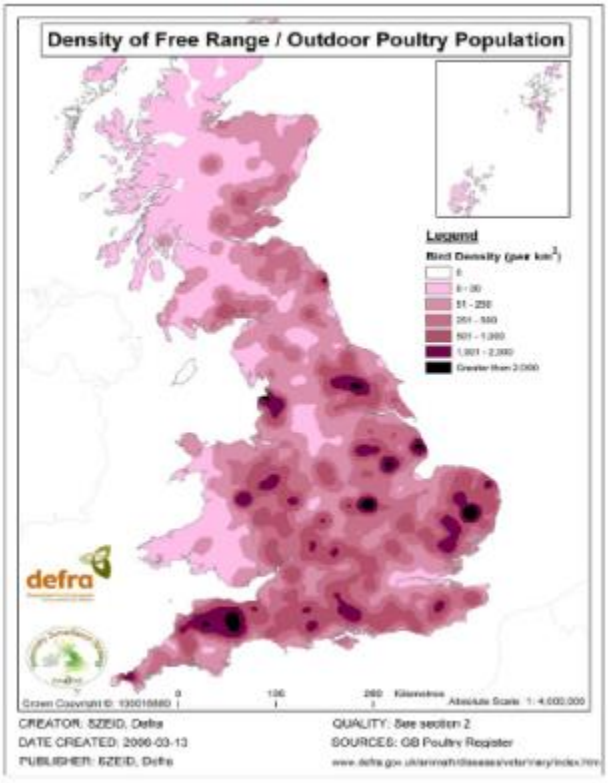


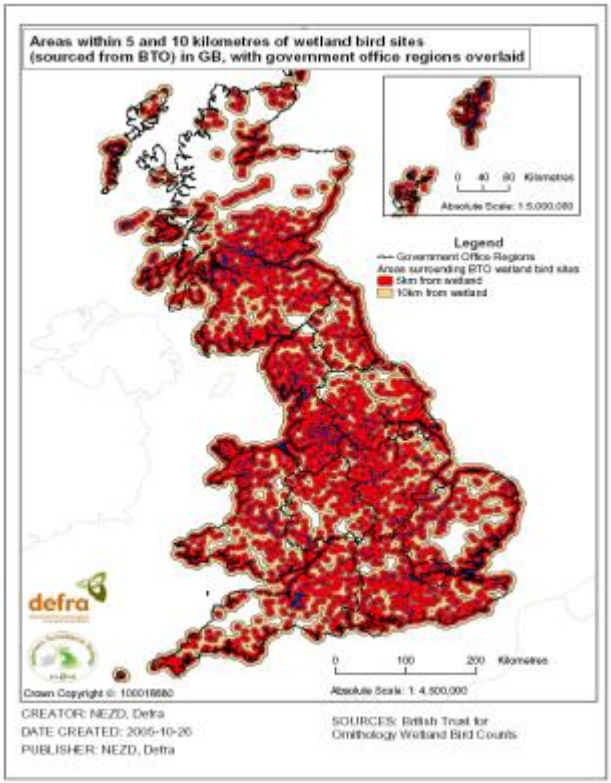


RADAR - Rapid Analysis and Detection of Animal-related Risks



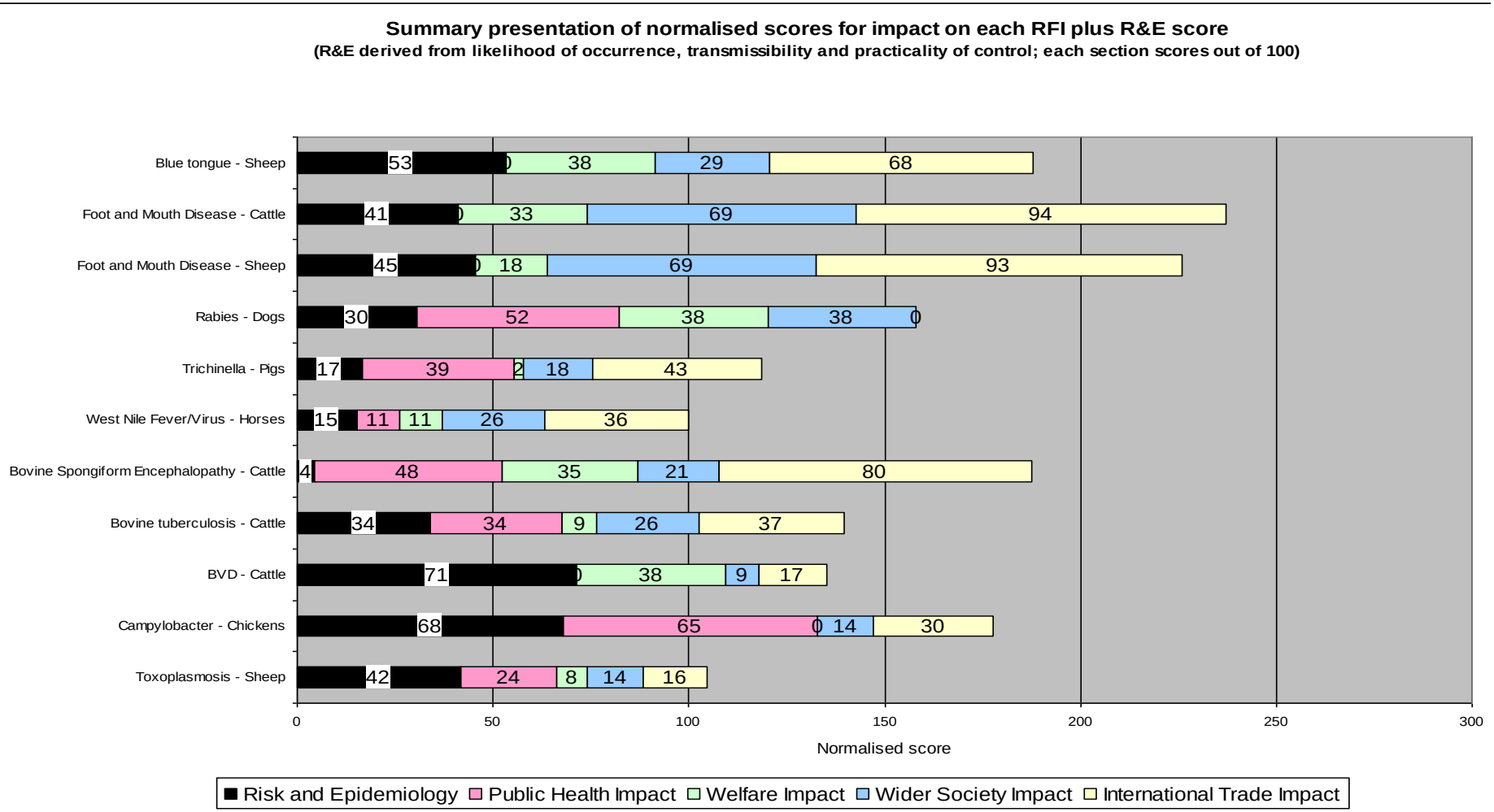




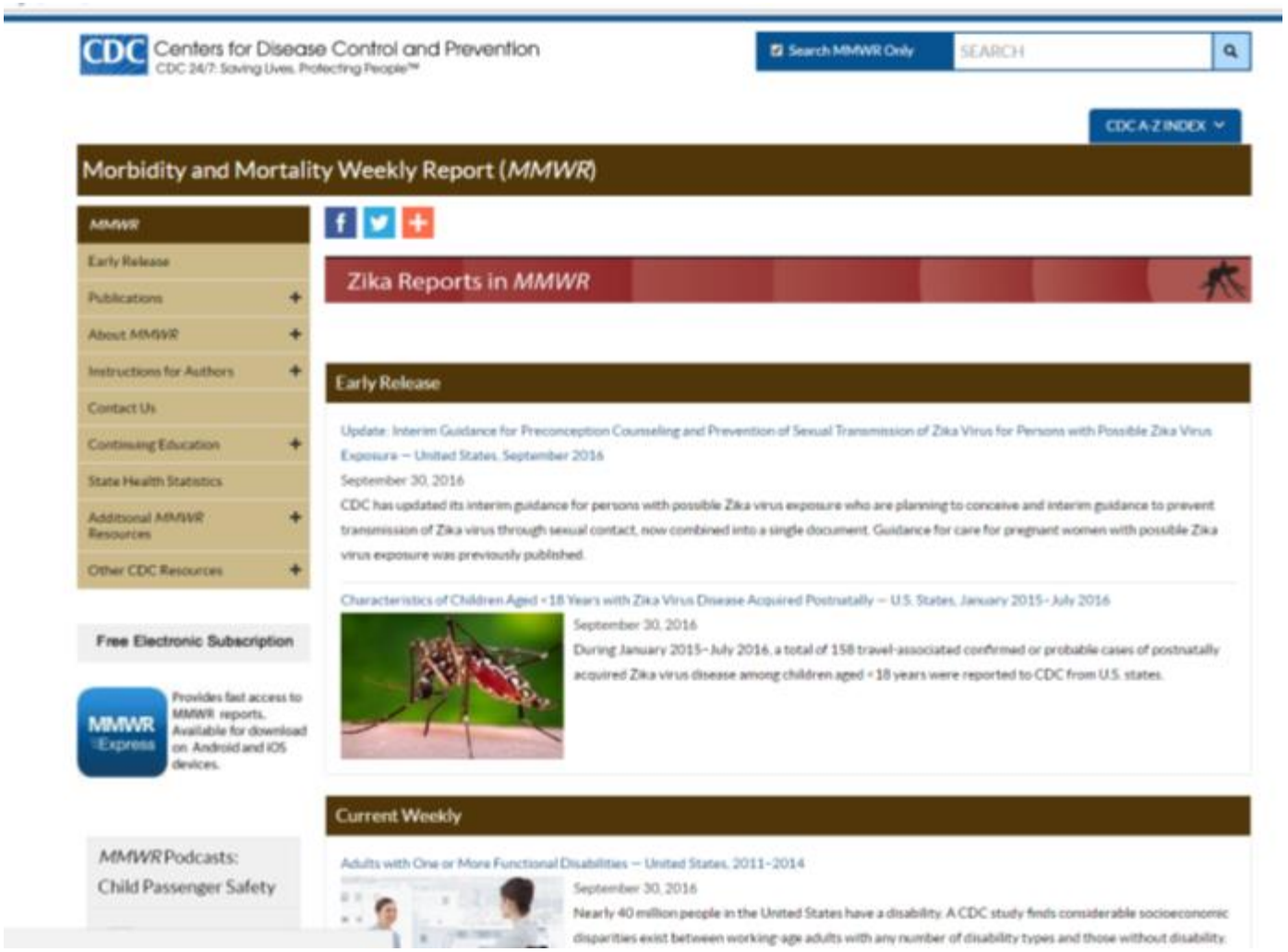
Surveillance Profiles Database and Prioritisation Project

- Profiles Database: collection of profiles on specific animal diseases or welfare issues.
- Drafted by experts and peer reviewed.
- Prioritisation Project: system to rank different diseases using the 4 reasons for Government intervention.
- Assist in setting priorities in the context of government policy and the AHW strategy.

Priorities: Example output



Morbidity vs Mortality



Prevalence

- Proportion of a population affected by the disease at a given point in time.
  - Includes old & new cases.
- **Period Prevalence** = disease over a period of time.
- **Point Prevalence** = disease at a single point in time.
- Can be impossible to know when animals became diseased.

Calculating Prevalence

- Example: flock of 45 Humboldt's penguins *(Spheniscus humboldti).*
- Blood samples taken to assess the presence of avian malaria.
- 23 birds showed presence of malarial agent in sample.
- 23/45 = 0.51
- 0.51 x 100 = 51%

51% of the penguins have avian malaria

Cumulative Incidence

- The proportion of disease-free individuals developing a disease over a specified time period.
- **Condition: these individuals do not die from another disease during this period**
- **Condition: all animals must be disease-free at the start of the time period**
- Also termed **incidence risk.**

Calculating Cumulative Incidence

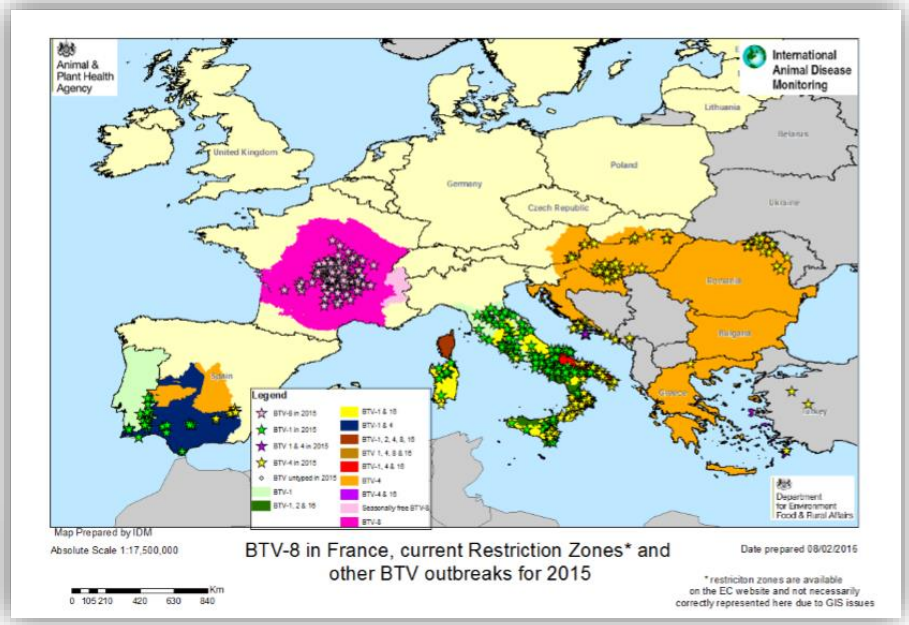
- Example: herd of 130 bison *(Bison bison).*
  - Tuberculin testing to assess bovine Tb infection.
- 2014 = all 130 animals negative.
- 2015 = 27 animals show a positive result .
- CI for this 12 month period: 27/130 = 0.21
- 21% chance of a random animal in the herd becoming infected in this time frame.

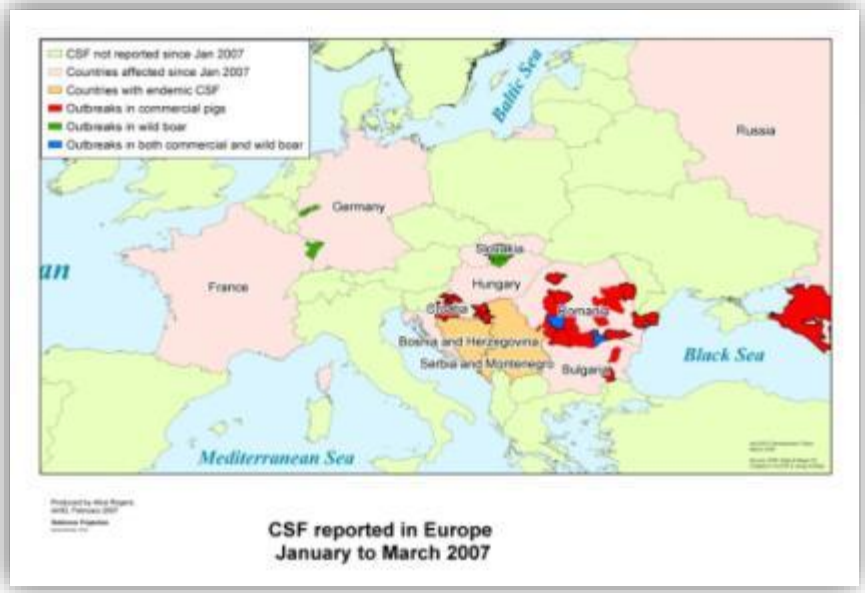
International Disease Risk Assessment

- Monitor outbreaks of high impact diseases to identify:
  - new disease incursions
  - disease trends
- Undertake rapid Qualitative Risk Assessments (QRAs)
- Inform Defra's disease surveillance and preparedness and other government departments
- Inform UK Customs and support work on illegal imports
- Communicate information to technical and non-technical audience
- Contribute to the UK input into developments of EU rules to protect animal health

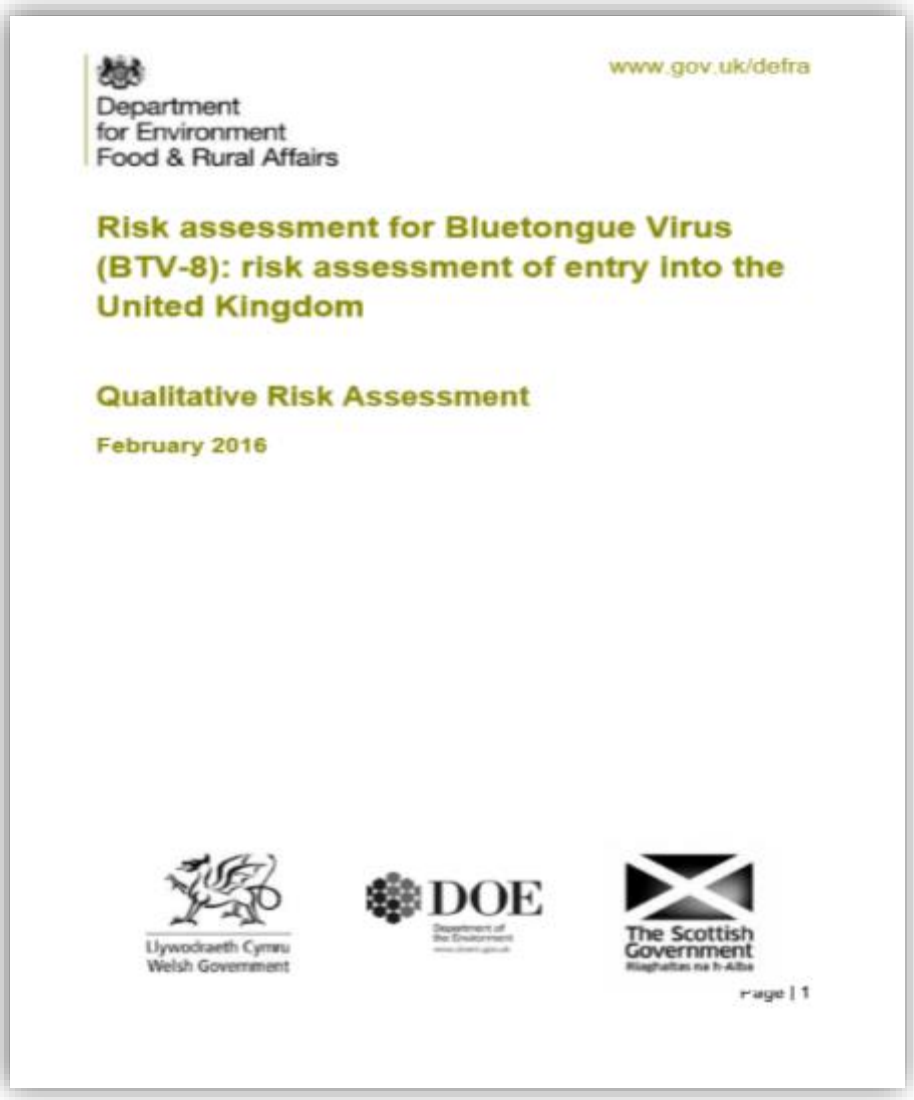
Veterinary Risk Assessment

- Intelligence
- Surveillance
- Judgement
- Communication





Veterinary Risk Assessment



www.gov.uk/defra

Department
for Environment
Food & Rural Affairs

Risk assessment for Bluetongue Virus (BTV-8): risk assessment of entry into the United Kingdom

Qualitative Risk Assessment

February 2016

Llywodraeth Cymru
Welsh Government

DOE

The Scottish Government

Page | 1

Emergency Response Framework

GB and NI Contingency Plan for

Exotic Notifiable Diseases of Animals

Department of Agriculture and Rural Development

Talmhaíochta agus Forbartha Tuaithe

Fairms an Kintra Fordèrin

The Scottish Government

Llywodraeth Cymru
Welsh Government

defra
Department for Environment Food and Rural Affairs

Contingency Plan for Exotic Notifiable Diseases of Animals
March 2016

- Eradicate the disease and regain disease free status;
- Protect public health and safety;
- Safeguard the health and safety of those involved directly in controlling the outbreak; and
- Minimise the burden on the taxpayer and public as well as the economic impact of the outbreak on industry.

defra
Department for Environment Food and Rural Affairs

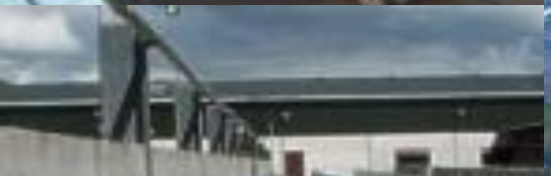
Aims of disease control

- Keep to a minimum the number of animals that have to be humanely destroyed either for disease control purposes or to safeguard animal welfare; and
- Minimise adverse impacts on animal welfare, the rural and wider economy, the public, rural communities and the environment.

Animal Disease Outbreaks In Context

- APHA owns Contingency Plan and updates annually
- Often the ‘start’ of an outbreak is hidden and spread occurs before disease is recognised
- Usually have a long tail of activity (incidence curve)
- Disease control is defined/constrained by EU Directives and domestic legislation
- Scope for local decision-making can be limited
- Local issues have a major impact on trade
- Can seem to have a disproportionate impact relative to their size
- FMD 2001 estimated to have cost tourism alone £3.6bn and delayed a General Election


FeedCo




301
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Travelling with pets?
Do you and your pet need a change of scene?
Check out the changes to the Pet Travel Scheme!
Visit www.defra.gov.uk or call 0870 241 1710
defra


Paul Mutton 2006


FOOT & MOUTH DISEASE
PATH CLOSED
ENTRY
PROHIBITED
Surrey County Council Trading Standards
SURREY
SERVICE
FIRE & RESCUE


Footpath
40
AVIAN INFLUENZA
CONTROL MEASURE
YOU ARE ENTERING A
PROTECTION ZONE


EB


STOP

'We would rather die than let them kill our flock'

Sandra Barwick finds that Britain's sheep farmers are opposed to the Government policy of mass slaughter

BRIAN and Josephine Wheatley, tenant farmers in Cumbria with 1,200 ewes, said yesterday they would rather die than see their healthy ewes slaughtered.

"We will not accept it," said Mr Wheatley. "We will do our best to fight them at the farm gates if we have to. I would rather be dead than come back to an empty farm.

"They would have to build new jails to put farmers in. They would have to bring troops in to deal with us, not the animals, if they want to carry it out. That's what everyone is saying."

The Wheatleys, who farm at Inglewood, near Penrith, kill the healthy sheep unless they get their act together."

They have 200 lambs at the moment and, in another three weeks, lambing will start in earnest, with possibly 2,000 more to come. They will be in the fields up to 20 hours every day because they cannot move the ewes into the shed. This lambing represents their income for the next 12 months.

Compensation is not the issue but it is also true that, if their stock is slaughtered, it will be six months before they can restock and 18 months before they have any income. They could not survive for that period.

The Wheatleys believe

Picture: JAMES FRASER

Illegal Imports

- Customs responsible for anti-smuggling controls on POAO since April 2003 and target based on risk and intelligence.
- 3500 (100 dedicated) customs officers; 10 detector dogs and X-ray scanners are all used in detection.
- Defra provides information on disease worldwide to Customs so they can match resources to greatest threat.
- Increasing public awareness at the border, overseas, and inland.

Illegal Imports

- Important, difficult and with potentially devastating consequences
- EU personal imports rules
- Need a system to look outside the legal flow of goods
- UK working on publicity, intelligence-led checks at ports and checks inland.

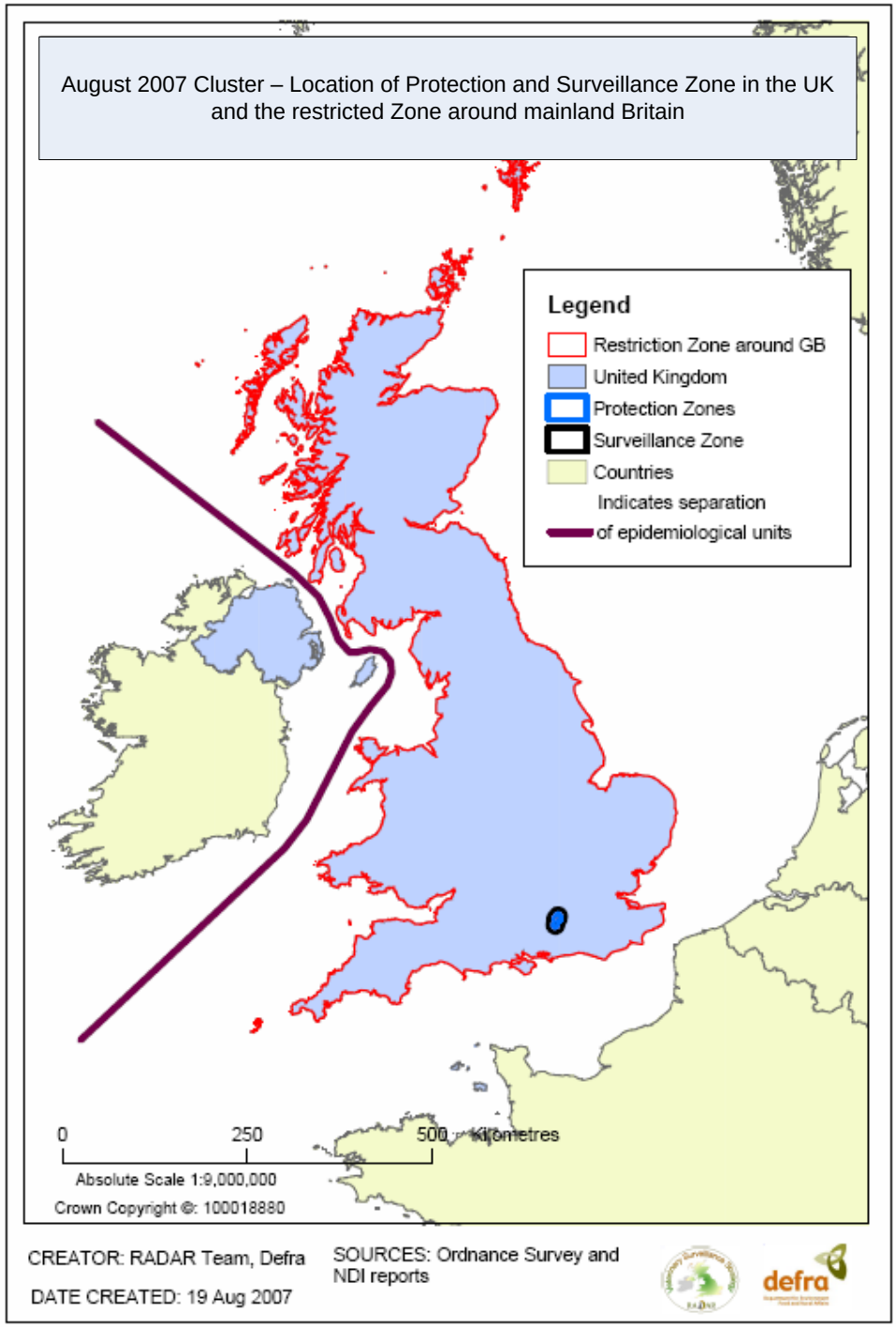
Questions ?

Foot and Mouth Disease in the UK (Surrey) 2007

FMD Control Principles

- TCZ (1 km) and slaughter on suspicion options
- Confirmation
  - National movement bans
  - Premise restrictions - culling
  - Area Restrictions (min 3 and 10 km)
  - Tracings – forward and back
  - Dangerous Contacts culled
  - Export bans

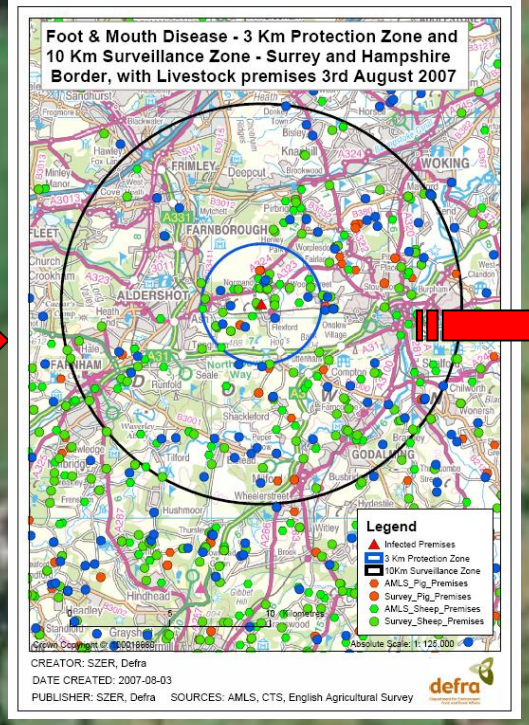
August 2007 Cluster – Location of Protection and Surveillance Zone in the UK and the restricted Zone around mainland Britain



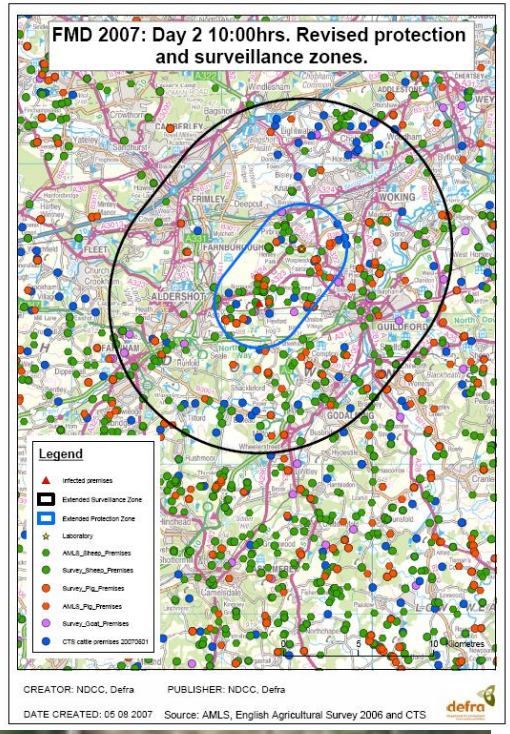
Disease control measures

Suspicion – 2 Aug 07

Confirmation 3 Aug 07



PZ/SZ established



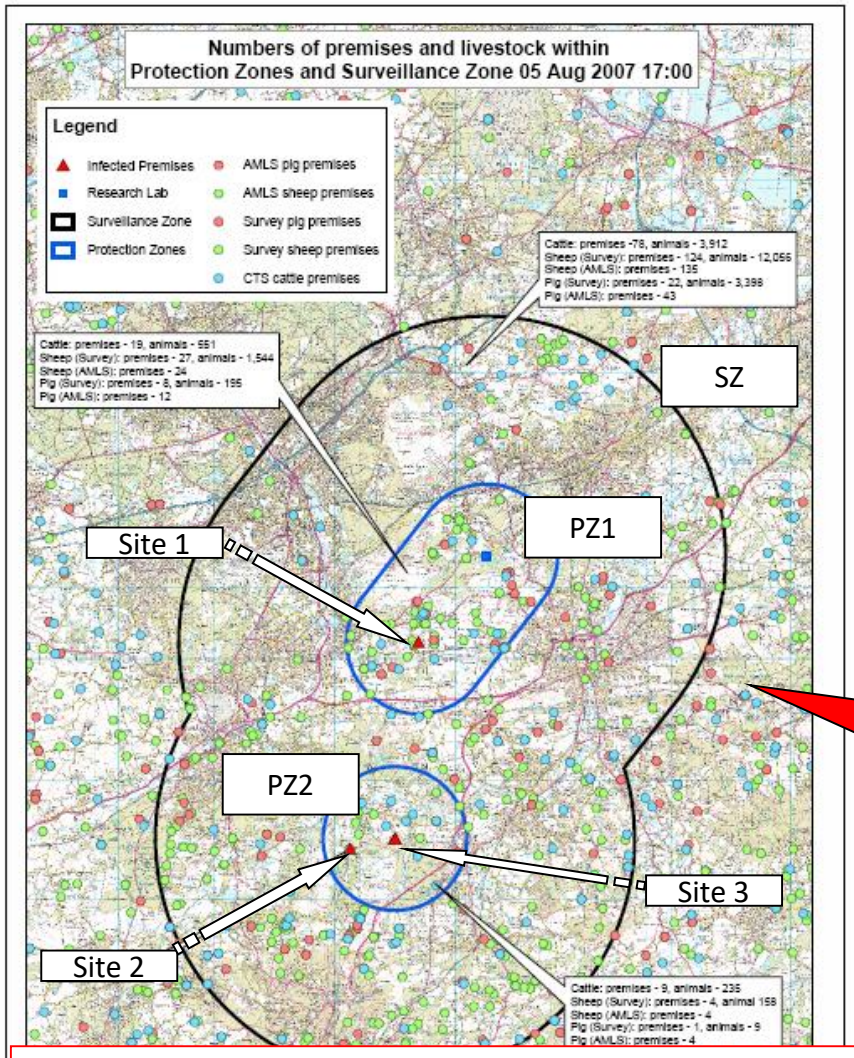
Protection (PZ) and Surveillance (SZ) zones

- Low density livestock area
- Mainly small and hobby farms

Affected holding (PZ1)

- **Beef finishing cattle**
- **Four separate sites under the same ownership – cattle present at three sites only**
  - **Site 1 (38 cattle at grass): Clinical signs – FMD confirmed by IAH, Pirbright, on 3 Aug 07**
  - **Site 2 (4 housed cattle): No clinical signs**
  - **Site 3 (22 cattle at grass): No clinical signs**
- **All 64 animals culled on 4 Aug 07 and sampled**
- **IAH, Pirbright report – 5 August 07**
  - **Site 2: no evidence of infection**
  - **Site 3: Only 1 animal tested RT-PCR positive**

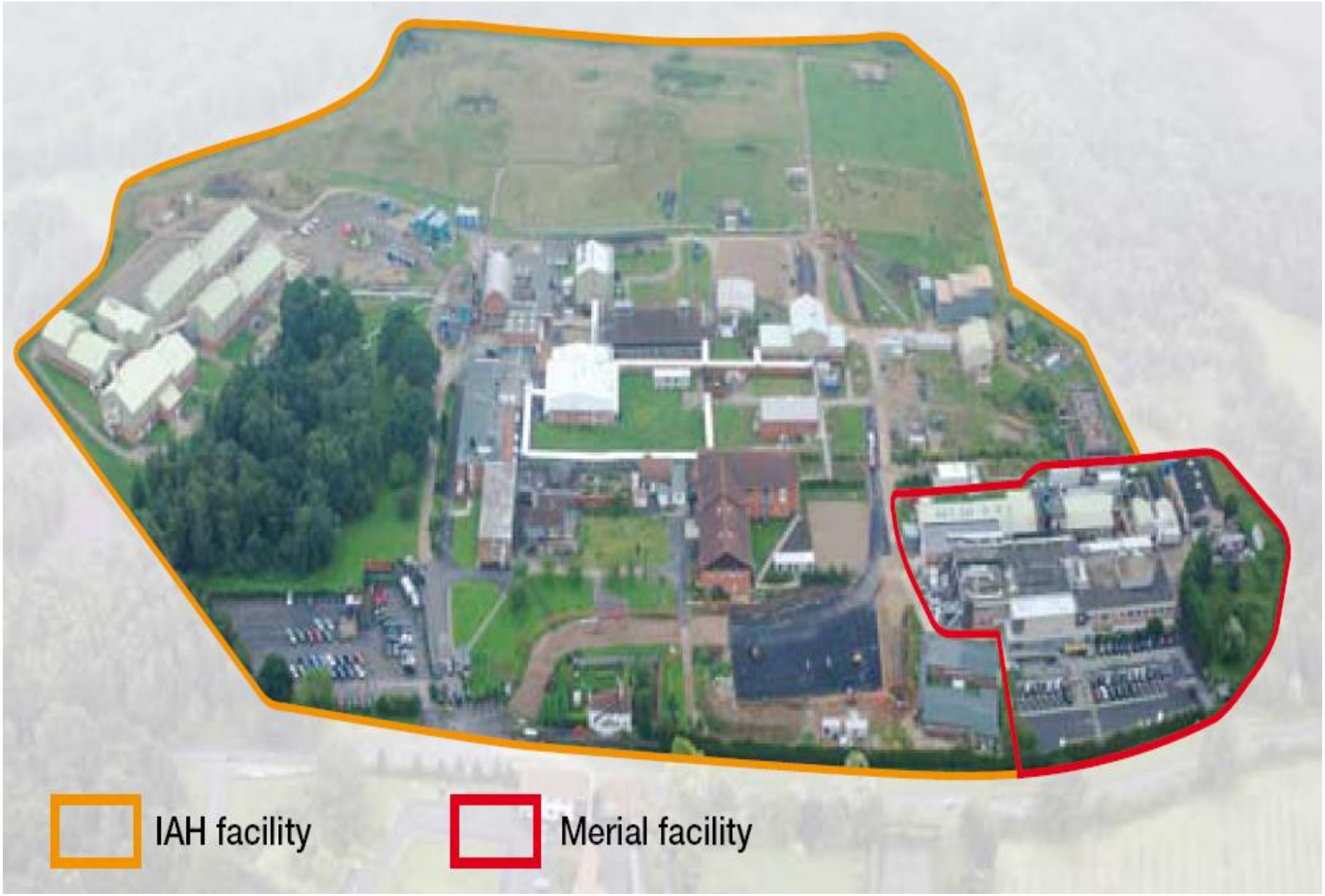
Disease control measures



- Affected holding (Site 3 – 5 Aug 07)
  - 1 culled animal RT-PCR (+)ve
- PZ and SZ adjusted (5 Aug 07)

Initial cluster 2007

- 3 Aug: IP1 (3 locations belonging to the first farm)
- 6 Aug: IP2 (also with 3 locations)
  - Virus only found at 1 location
- 3 contact herds culled
- 24 Aug: PZs lifted
- 8 Sep: SZ lifted
- Origin: contamination from Pirbright site
- Virus: O1 BFS (1967 British Field strain)


IAH facility
Merial facility

From Merial 6th Aug Press Release

To support these investigations, we voluntarily suspended antigen production at this centre. However, on Monday, August 6, Merial recommenced production of strain-specific foot and mouth vaccine, in specific response to DEFRA's order of 300,000 doses from previously prepared antigens. Producing vaccine from antigen does not involve use of live virus. Merial's voluntary decision to suspend all other vaccine production remains in place while the investigation continues. Permanent production at Pirbright will not recommence without full consultation with DEFRA. We are constantly reviewing this decision with them.

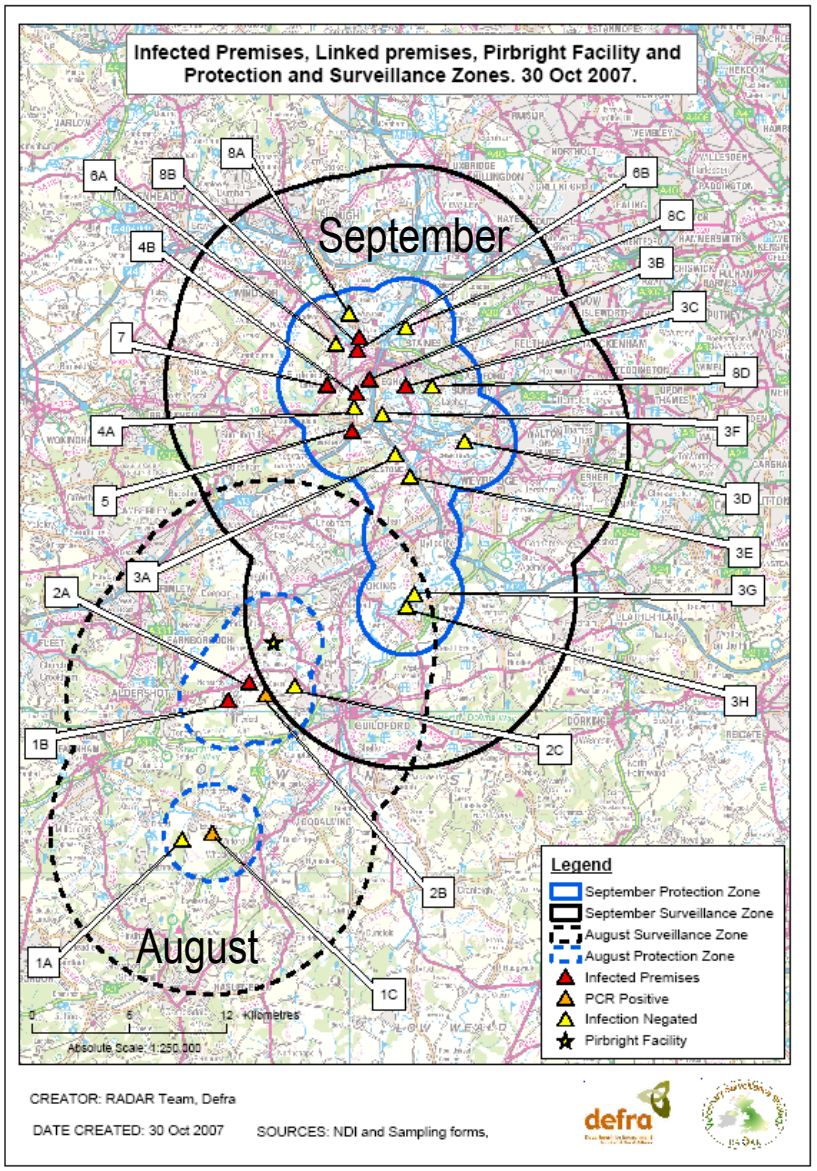
Modeller	**Base case No IPs**	**No. IPs if vaccinate**	**Benefits of Vaccination**
Imperial - London	0-2	0-2	No effect
Keeling - Univ Warwick	1.7 (0-~5)	~0.8	Positive effect but only saves ~1 IP
Massey – Morris	7	6	Max reduction of 1 IP
EXODIS	8 IPs (worst case)	6 IPs	Reduce by ~2IPs. Vaccination adds £20M to cost

Additional Culling

- 160 cattle + 1 goat on 4 holdings

  (5 locations) within 3km of IP8
- Likely to be exposed to infection and incubating disease
- Laboratory tests negative

Surrey - FMD clusters



August 2007 cluster

- **3 Aug: PZ and SZ established**
- **2 IPs (IP1-IP2)**
- **Last case 6 August**
- **24 Aug: PZs lifted**
- **8 Sep: SZ lifted**

September 2007 cluster

- 12 Sept: PZ and SZ established
- 6 IPs (IP3 – IP8)
- Last case 30 September
- 17 Oct: PZs lifted
- 5 Nov: SZ lifted

Infected Premises 5

- Detected 16 September. No acute signs.
- 17 out of 22 cattle with 4-5 week old lesions. All seropositive, virus negative.
- 15 out of 16 sheep seropositive; 10 with old lesions.
- 2 pigs – no lesions; seronegative, virus negative.
- Confirmed 17 September. Single location.

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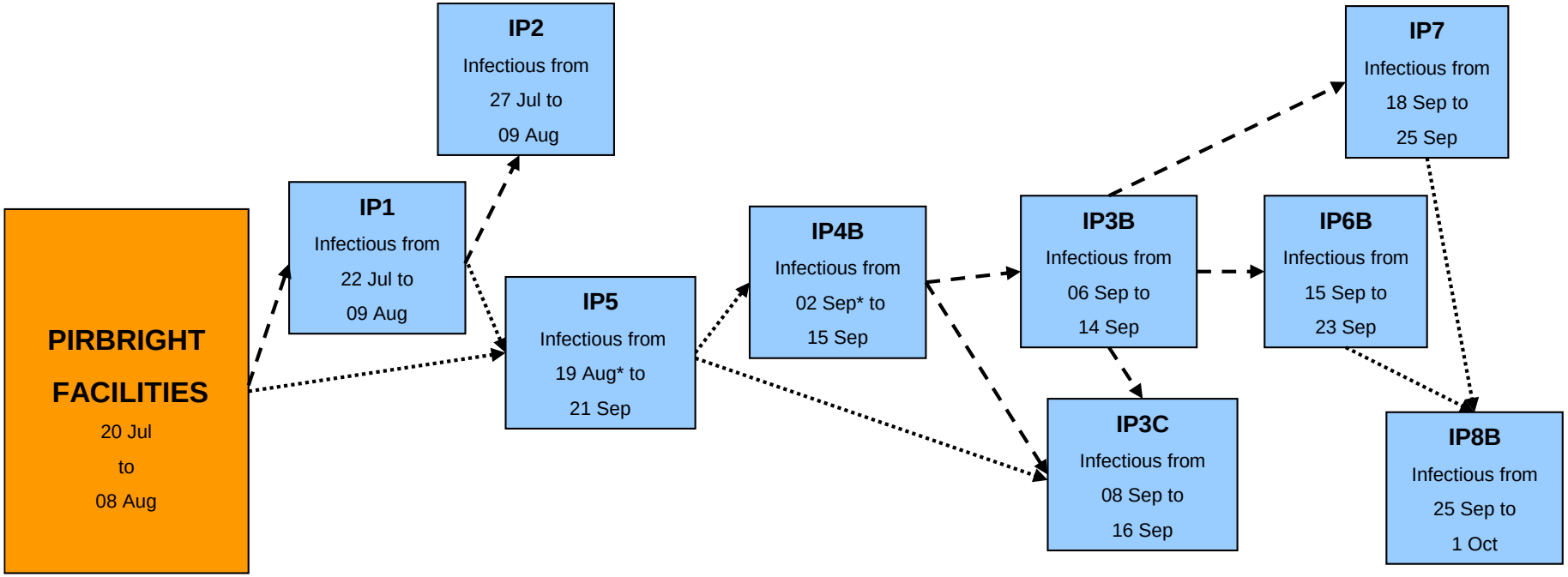
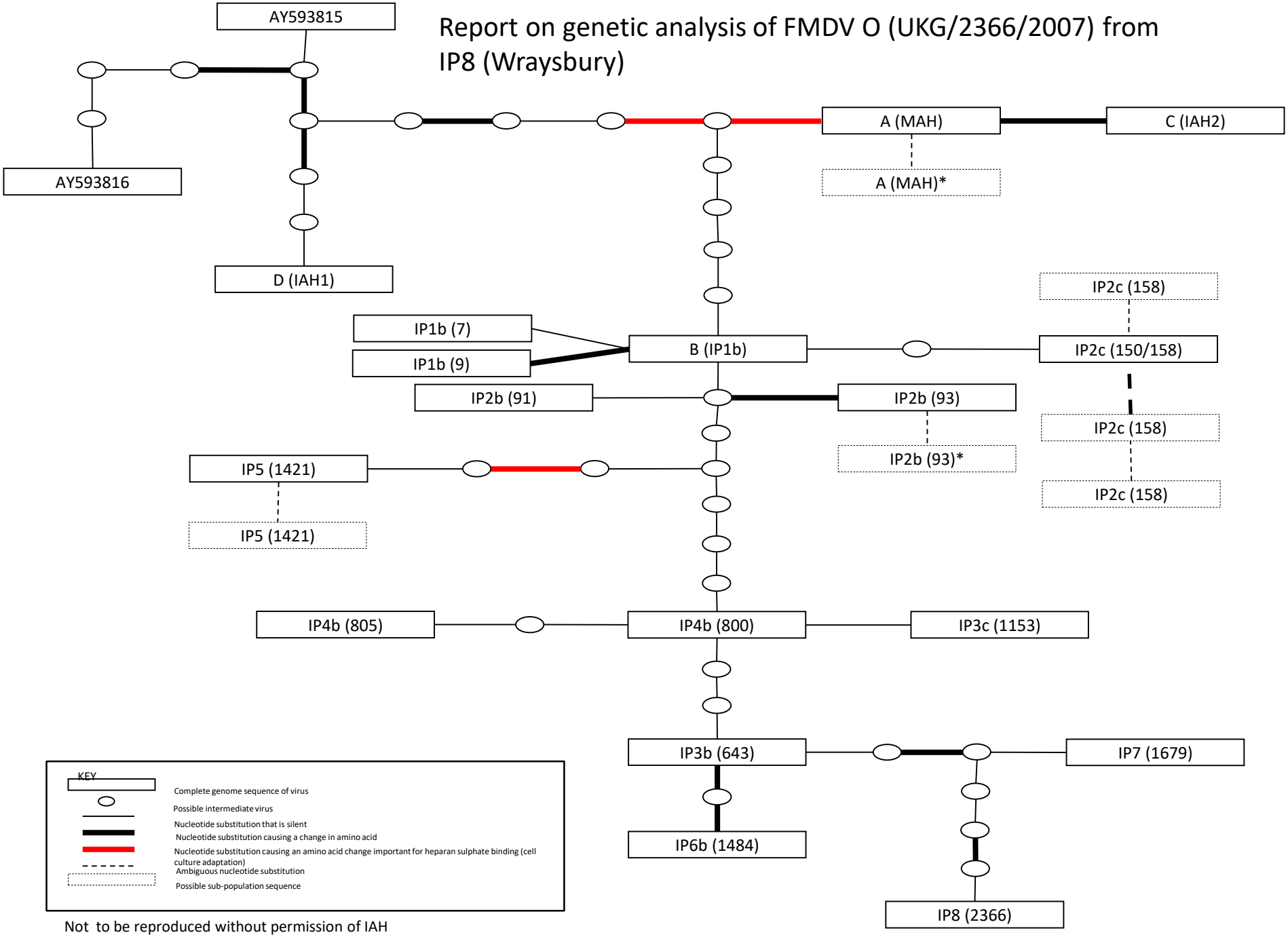
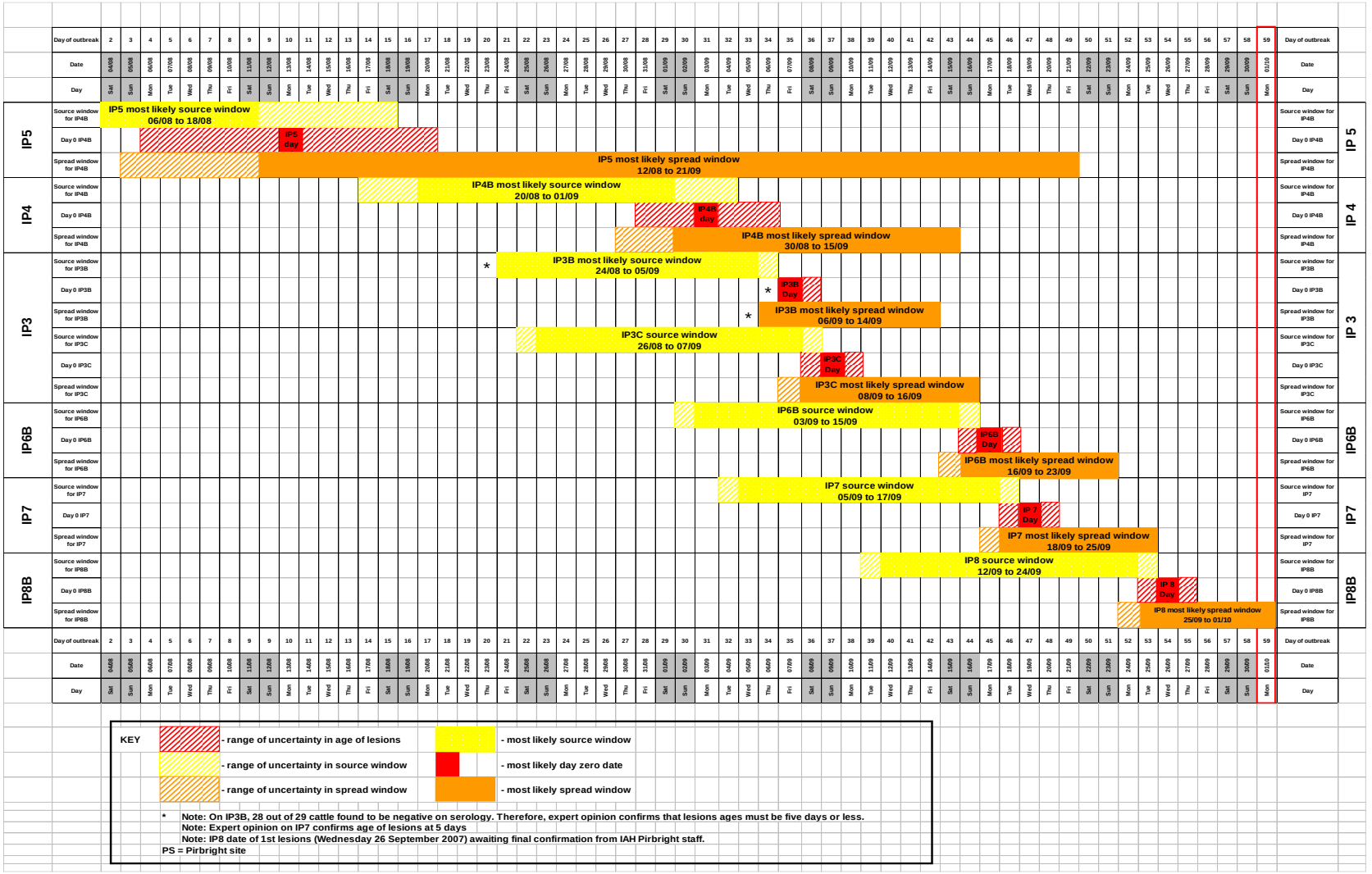
Links between IPs



Report on genetic analysis of FMDV O (UKG/2366/2007) from IP8 (Wraysbury)



Infection Timeline – September Cases



Reinforced biosecurity

Foot and Mouth Disease

Your role in stamping it out

Foot and Mouth Disease is not harmful to human health but can be very easily spread. We need your help to prevent it spreading around our county. This leaflet contains useful, practical information for people who live, work or are visiting the area shown on the accompanying map, and what you can do to help stamp it out. This message comes from Surrey Trading Standards, NFU, Defra, Animal Health and Surrey Police.

About Foot and Mouth Disease

Foot and Mouth is a highly infectious disease affecting cattle, pigs, sheep, goats and camelids (which includes camels, alpacas and llamas). These are known as the 'susceptible' animals. Animals can be infected and be shedding virus before they show signs of disease so anything that has been in contact with animals, their products or the land they have been on can add to possible spread.

The impact of Foot and Mouth Disease is devastating for farmers and their livestock. That's why restrictions are in force. Movements of susceptible animals are banned and livestock keepers have increased their bio-security to prevent the virus spreading. Some public footpaths are also closed.

The situation now

The disease is contained within the Protection Zone but some new cases have occurred in the northern-most part of this zone. Our normal disease control measures aim to identify disease early, and to cull any infected animals as soon as possible.

At this time your area is the front line in the fight to control and eradicate the disease and we need your help to reduce the risk of spreading the virus.

What next?

If Foot and Mouth Disease spreads, serious economic losses are likely to follow and large numbers of animals may suffer. However, we do have an opportunity to avoid this if we take the right action now.

What the law requires you to do:

- You must not use footpaths which have been closed, or remove any of the closure notices.
- You must not move susceptible animals (pigs, goats, sheep, cattle, camelids and, when on livestock premises, horses) or livestock products (such as milk, manure) without a specific licence.
- In the Protection Zone (the inner zone), horses must not leave or be taken to premises where susceptible animals are kept.
- Horses must not leave the Protection Zone, even to see a vet.
- Horse keepers must not organise or take part in hunting a drag or other trail, or point-to-point meetings in this area.
- In the Protection Zone you must not hold any gathering of animals (even horses).

animalhealth defra NFU Slough SURREY

- Livestock keepers
- General public

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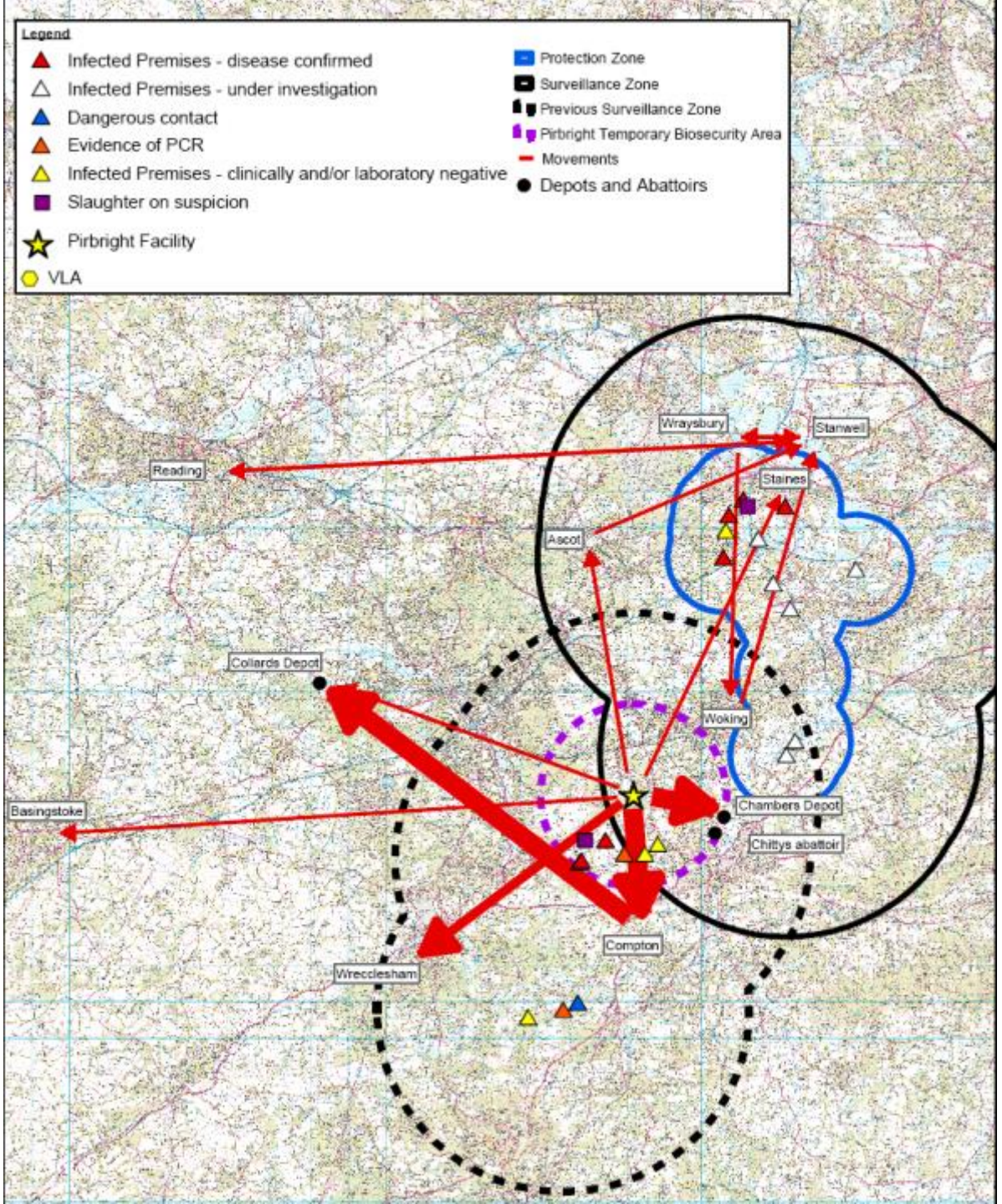
Department for Environment Food and Rural Affairs

Vehicle movements from Pirbright



Enhanced Surveillance Area 3A: cattle to be blood tested once

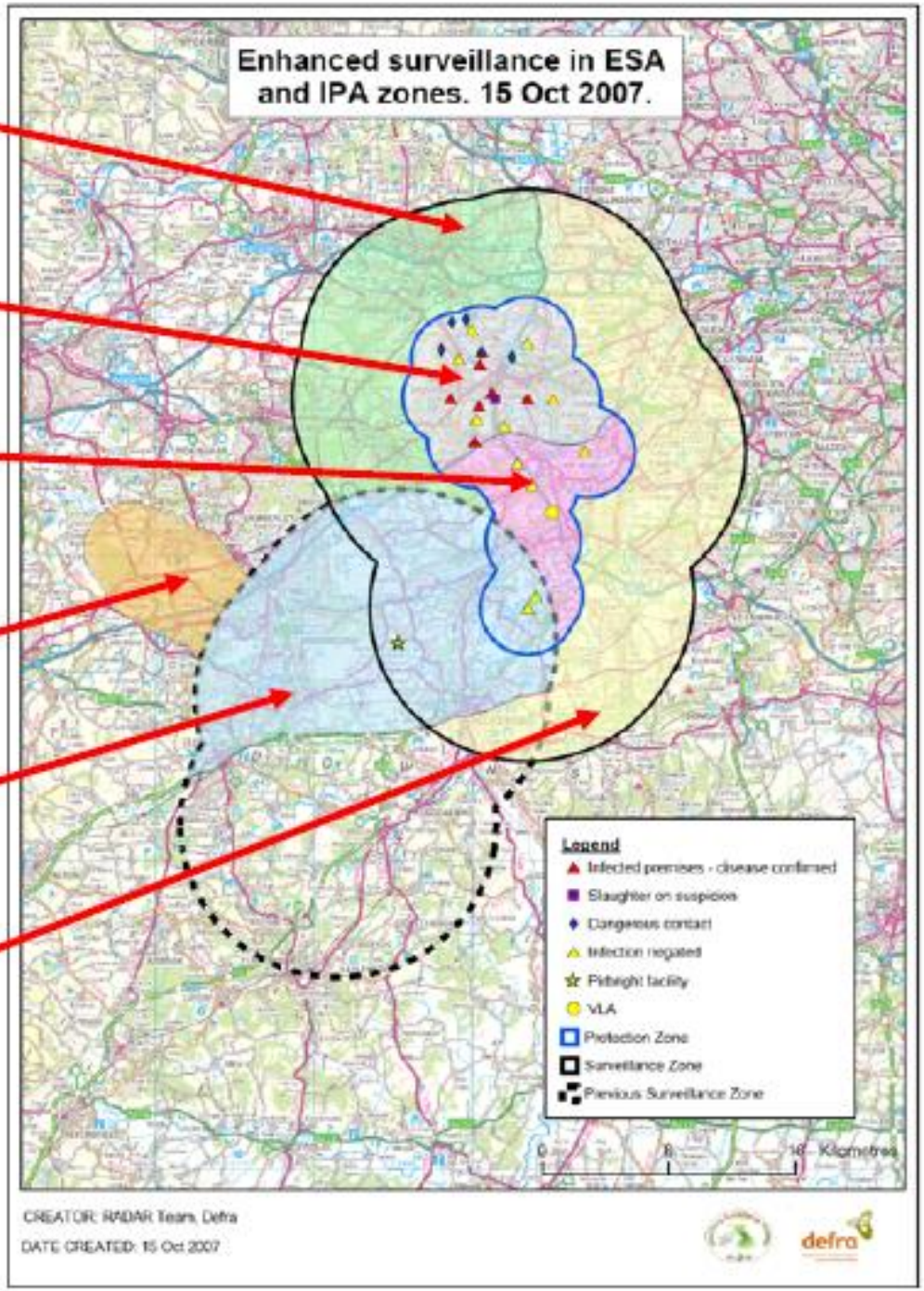
Intensive Patrol Area: blood test cattle every 2 days; clinically inspect cattle every day.

Enhanced Surveillance Area 2: cattle to be blood tested once

Enhanced Surveillance Area 4: cattle, sheep and goats to be blood tested once

Enhanced Surveillance Area 1: cattle to be blood tested once

Enhanced Surveillance Area 3b: cattle to be blood tested once



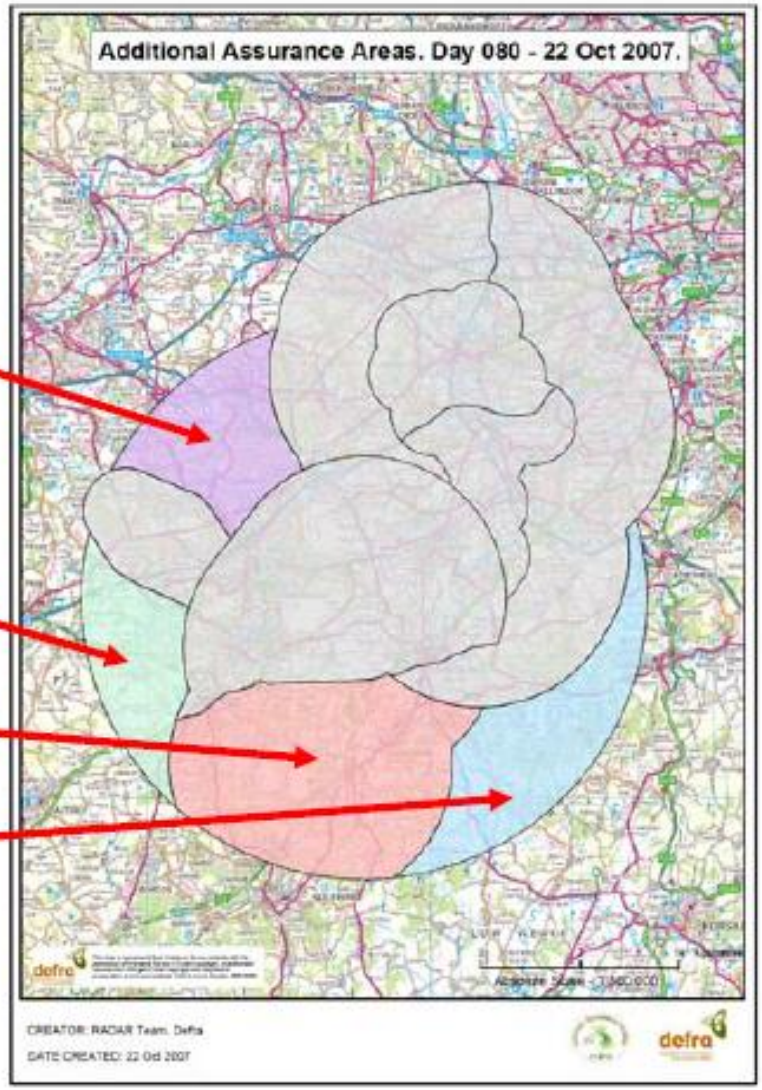
September cluster – Additional Assurance Areas

Additional Assurance Area 1

Additional Assurance Area 4

Additional Assurance Area 3

Additional Assurance Area 2



COMPLETED

Abattoir surveillance

Intensified AME & PME (August-September)

- 347,656 cattle
- 2,495,320 sheep
- 1,336,396 pigs
- 8,162 deer
- 862 goats

Clinical Inspections at welfare visits (as at 11 October)

- 283 groups of animals on-farm
- 235 groups of animals at markets

Pre-movement licensing inspections of pigs

- 945 Certificates
- 1 887 456 animals

Census in PZ and SZ

Zone	No of holdings with susceptible species	Number of animals				
		Sheep	Goats	Cattle	Pigs	Deer
Protection	88	4322	91	1616	1429	0
Surveillance	286	6891	595	5043	320	130

Source: NEEG, 17 October 2007 (Note: these figures may be updated as work in the areas progresses)

Tracings

Assessment of the risk of infection having been spread from the affected area in Surrey has been carried out by looking at the historical pattern of movements of susceptible species out of the area during July, August and September 2006.

All holdings in the PZ and SZ are contacted for details of livestock movements. Analysis of these data showed that low number of moves of susceptible stock occurred from the area and that the moves took place over very short distances. This informed a veterinary risk assessment on boundaries of the current FMD risk area.

All known susceptible live animal movements to date have been traced. If live animals were moved other than to slaughter, the recipient holdings were restricted and animals subjected to testing. No positive animals were detected.

The most recent changes to the PZ and SZ resulted in further premises which have been identified and restricted, while inspection and sampling is being carried out.

Conclusions of Risk Assessment

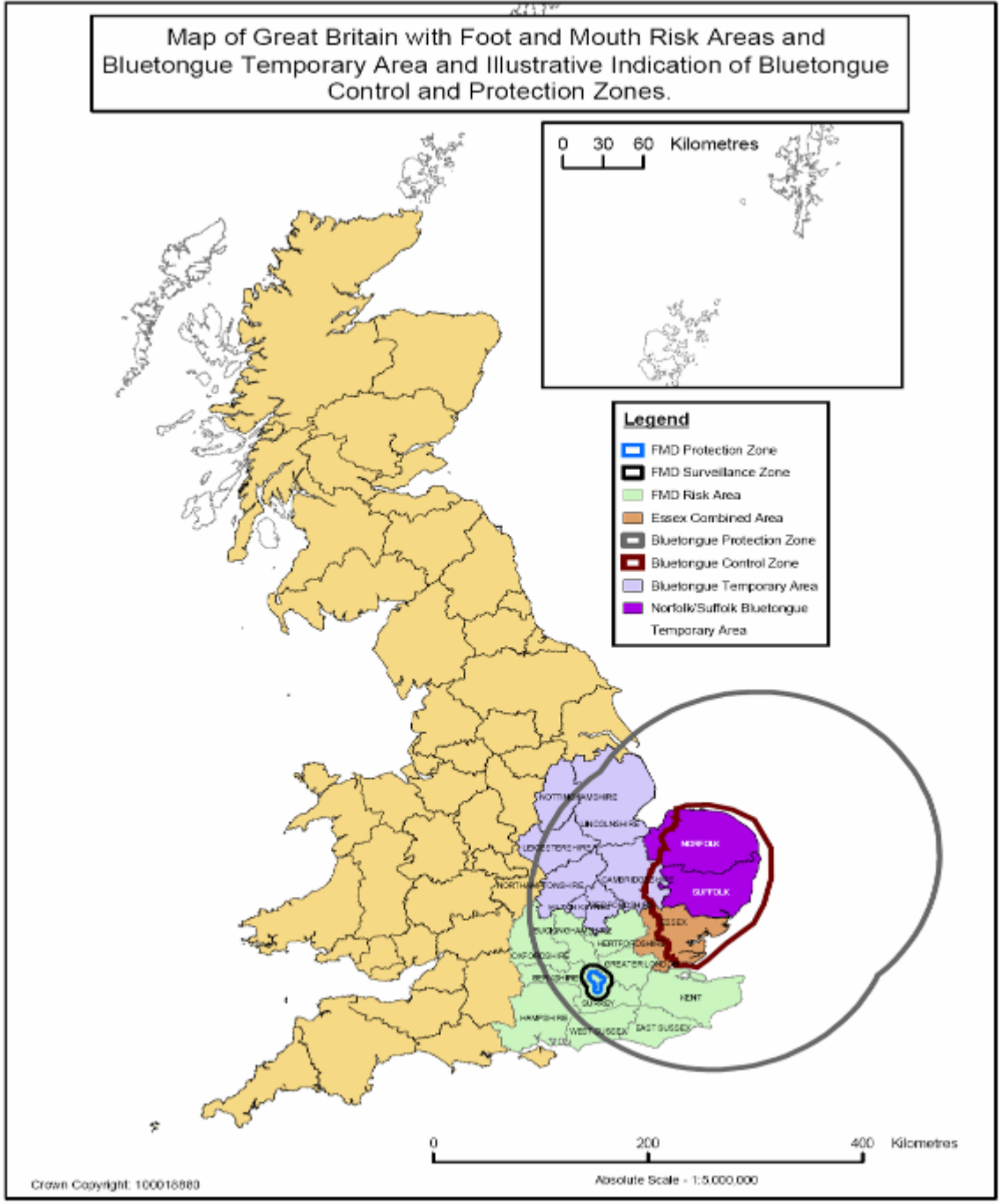
- A great deal of surveillance activity has been carried out since 3 August. This increases confidence that there are no undetected cases of FMD outside the current PZ.
- As a precaution, to address the very low risk of long distance fomite spread from the September infected holdings [the reduced RZ should include the area] within a 20km radius of those holdings.
- The overall level of risk of FMD in the area of GB outside [the reduced RZ] is now very low, although it cannot be considered to have returned to levels which applied before 3 August 2007 until all the remaining surveillance has been completed with negative results.
- However, given the risk mitigating measures in place or proposed, the risk of returning the area of GB outside that reduced RZ to the baseline levels of biosecurity and the movement standstill regime applicable before 3 August 2007 is acceptable.

Summary 19 Oct 2007

- 8 IPs, 2 clusters in Surrey. Very low risk that infection has spread outside this area
- Unlikely that contaminated meat or other products are in circulation
- Intensive surveillance well beyond minimum requirements of Directive
- Over 12 000 surveillance samples tested with negative results (except sheep on IP5)
- Tracings from IPs, PZs, SZs negative
- Nationwide monitoring through report cases, abattoirs, welfare and licensing inspections.

Summary 29 Nov 2007

- **51 Days since last case confirmed**
- **8 IPs in two clusters in Surrey**
- **Intensive surveillance well beyond minimum requirements of Directive**
- **Total of 48,229 surveillance samples tested with negative results**
- **FMD freedom surveillance near completion – no cases detected**
- **Tracings from IPs, PZs, SZs negative**
- **Nationwide monitoring through report cases, abattoirs, welfare and licensing inspections – no disease detected**
- **Random surveillance of cattle herds and sheep and goats flocks within 150km of Pirbright well underway – no disease detected so far.**



CREATOR: RADAR Team, Defra

DATE CREATED: 28 Sept 2007

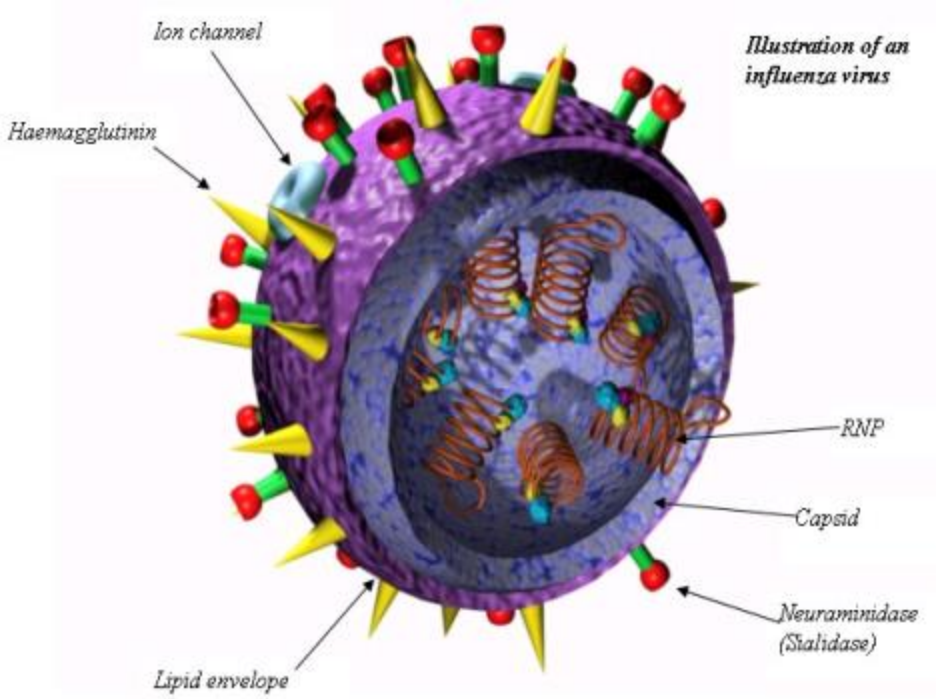
Reports

- Spratt - biosafety
- HSE
- Beringer – funding governance
- Jeggo – review plans
- Callaghan
- Anderson
- HofC Cmtees
- Scudamore

Questions ?

Avian Influenza

Avian Influenza



Highly pathogenic

- severe disease
- high mortality up to 100% in poultry
- to date only viruses of H5 or H7 subtype

Low pathogenic

- mild respiratory disease, depression, egg production problems
- may exacerbate other infections/condition

Both high and low pathogenic strains have human health implications.

Risk of introduction of avian influenza viruses

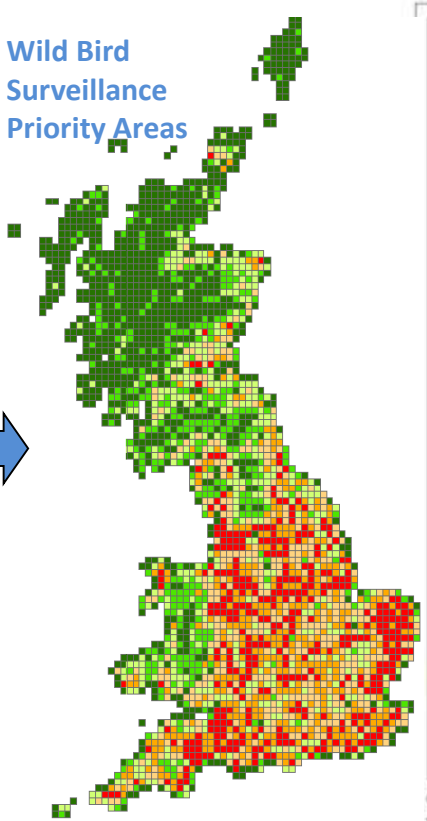
- UK poultry population is at constant of risk of introduction of avian influenza via wild or migrating birds
- Controls are applied on other high risk material e.g. import of live birds or high risk poultry products

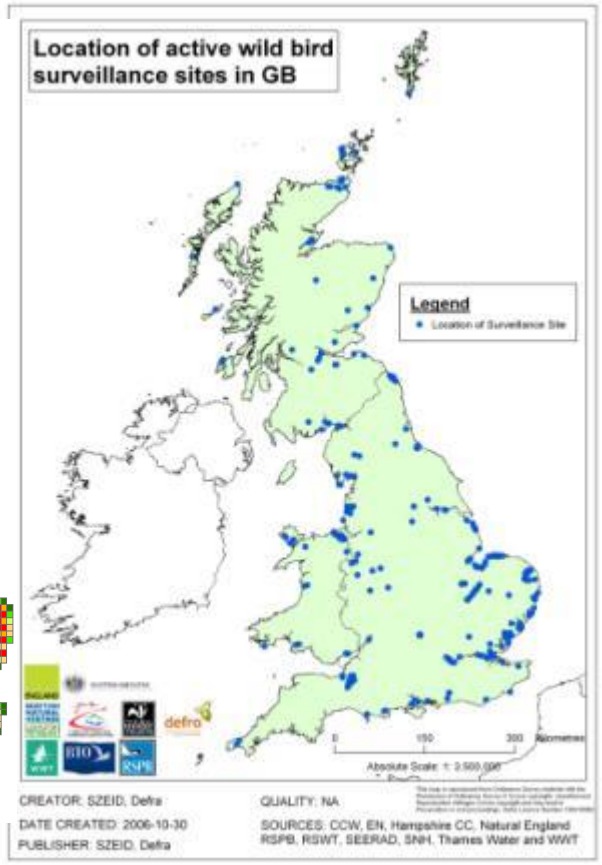
Avian Influenza – wild bird surveillance

GB Poultry Register

Wetland Bird Survey Points

Wild Bird Surveillance Priority Areas





Mass Mortality Incidents

- Mass gull mortality investigation
- 700 birds
- Botulism diagnosed by VLA Regional laboratory

Highly Pathogenic Avian Influenza (H5N1) in Suffolk, UK

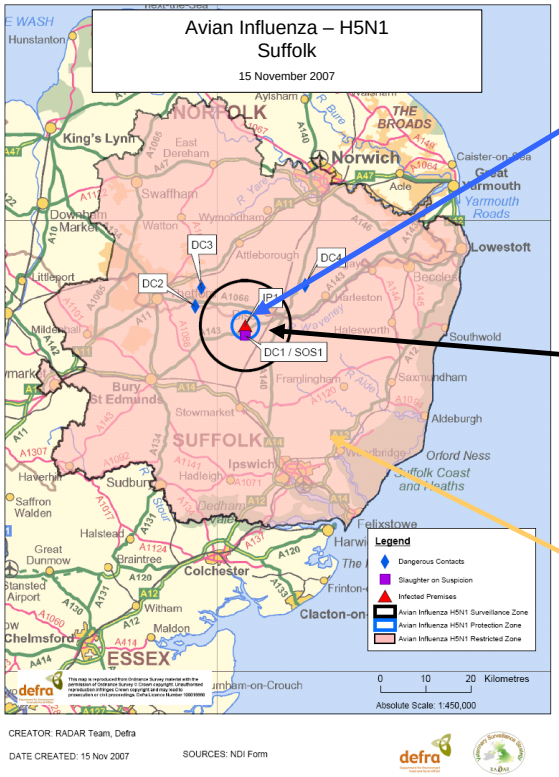
November/December 2007

Chronology 2007

- 11 Nov disease suspected
- 12 Nov +ve H5.
  - PZ, SZ, RZ established
- 13 Nov HPAI H5N1 confirmed (IP1)
- 19 Nov IP 2 confirmed as a result of samples taken from a contact holding at slaughter; zones extended
- 8,10 Dec PZs lifted
- 19 Dec SZ (& RZ) due to lift

Zones - Commercial poultry premises

Preliminary data(*)



- Protection Zone 3km radius
  - **4 premises (including the IP) ~ 32,000 birds in total**
- Surveillance Zone 10 km radius
  - **84 premises ~ 4,100,000 birds in total**
- Restricted Zone
  - **1,227 premises ~ 25,000,000 birds in total**

(*) Source: Poultry Data from GBPR of premises with more than 50 birds

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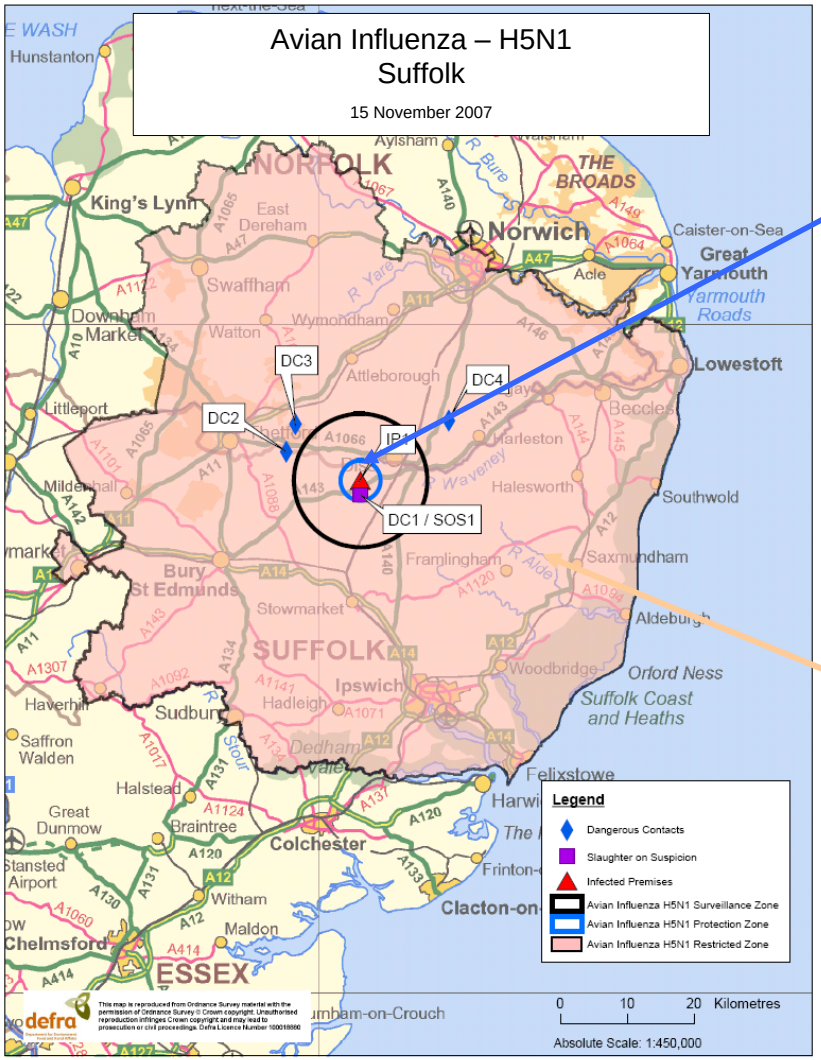
Infected Premise and Dangerous Contacts



CREATOR: RADAR Team, Defra

DATE CREATED: 15 Nov 2007

SOURCES: NDI Form

Protection Zone

1 Infected Premise (IP)

- 5000 turkeys
- 1186 ducks
- 400 geese

1 Dangerous Contact (DC) → Classified as → SoS

- 5500 turkeys

Restricted Zone

3 Dangerous Contacts (DCs)

~ 18000 turkeys

All birds culled

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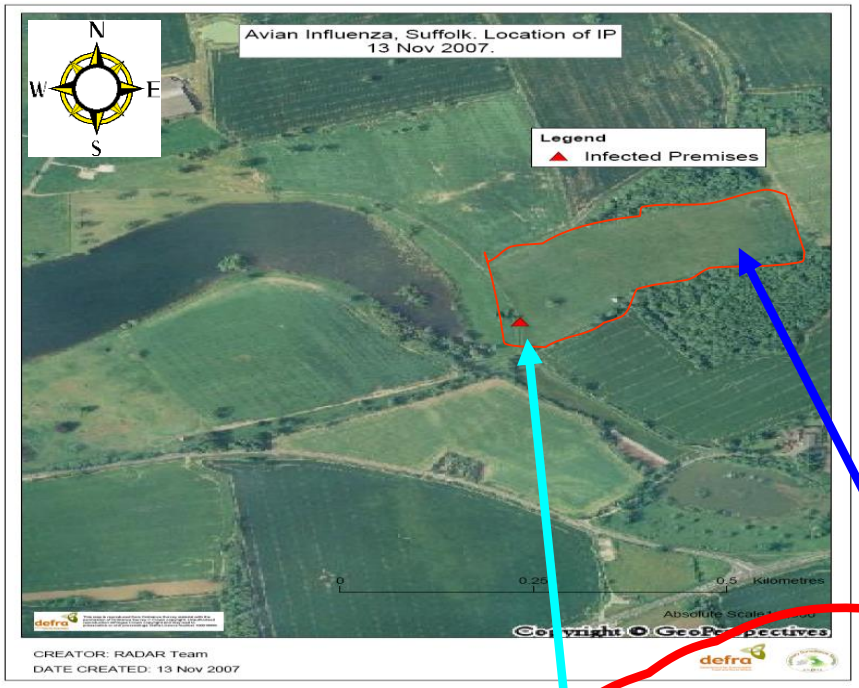
Protection Zones

- All flocks inspected – total 103
- Ducks, geese, other waterfowl sampled 95%/5% (plus 300 fowl)
- Blood, cloacal & oropharyngeal swabs
- 854 bloods, 2192 swabs
- Serology & virology all negative

Surveillance Zone

- Census of all holdings with more than 50 poultry – total 241
- Geese, ducks, other waterfowl sampled at 95%/5% unless in close contact with fowl or turkeys (poultry act as ‘sentinels’)
- Flock of 30,000 outdoor geese owned by same company sampled at 95%/2%
- 1366 bloods, 3706 swabs
- Serology & virology all negative

IP – Preliminary Epidemiological investigation



Road

Mud track fence

Shed 1 (1000 turkeys)

Shed 2 (1000 turkeys)

Shed 3 (1000 turkeys)

Shed 4 (1000 turkeys)

Shed 5 (1000 turkeys)

50 m

300 m

400 geese (12 wk)
1188 ducks (6 wk)

Pond

Folly

Slope (south-west)

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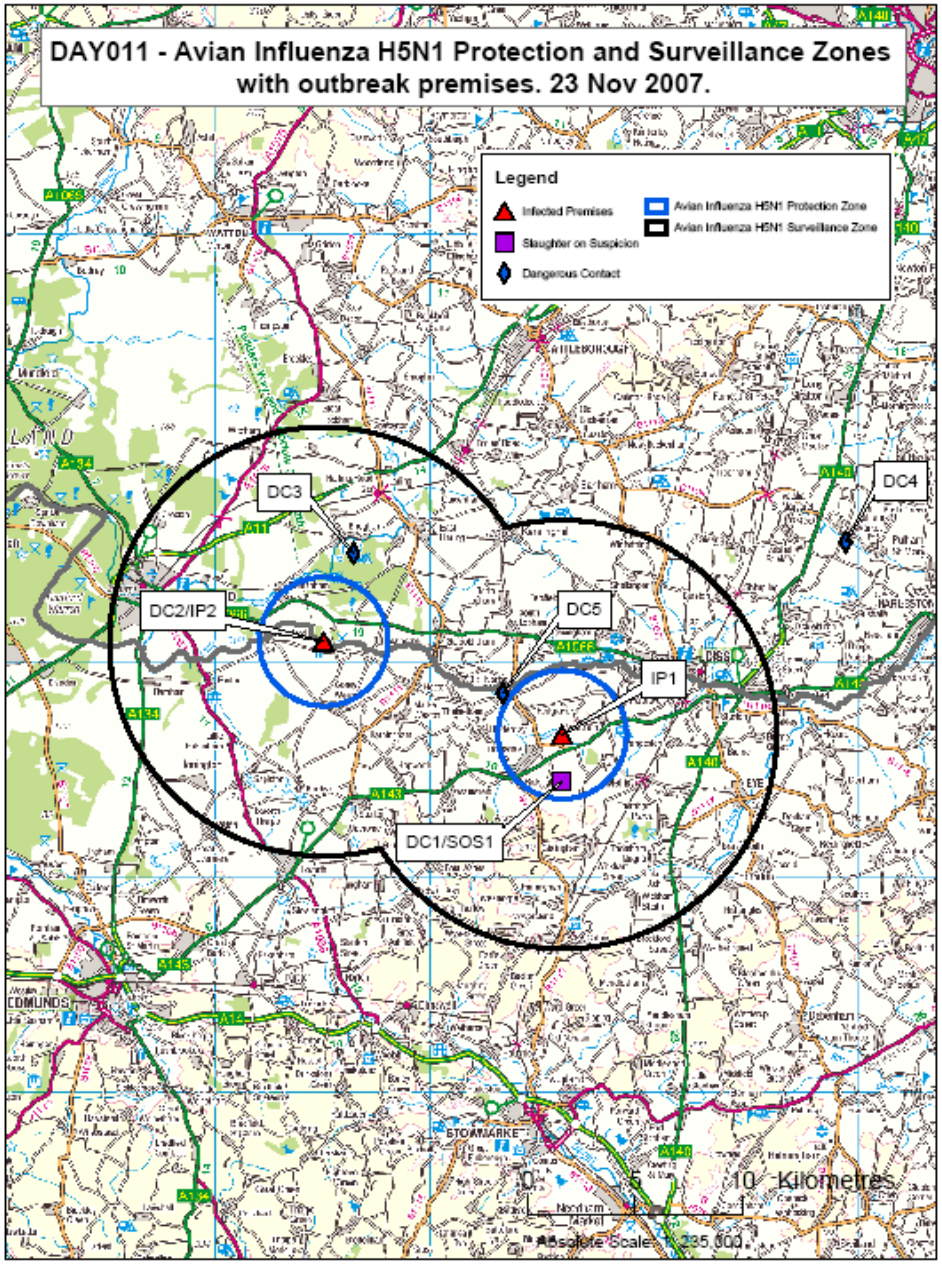

CREATOR: RADAR Team, Defra

DATE CREATED: 2007-11-23

SOURCES: NDI and EXD65 forms

Ornithological assessment

A) Affected area

- Relatively 'dry' area of eastern England
- Few water bodies in the 10 km surveillance zone
- Only a few large water bodies within a 50 km zone

B) Species present

- Non-migratory (mute swan, greylag goose, Canada goose, Egyptian goose, moorhen)
- Small numbers of migratory species (widgeon, gadwall, teal, mallard, shoveler, pochard, tufted duck, coot)
- Three gull species (black-headed, lesser black-backed, herring)
- Other migratory species (golden plovers, lapwing)
- Starling population

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Birds Culled

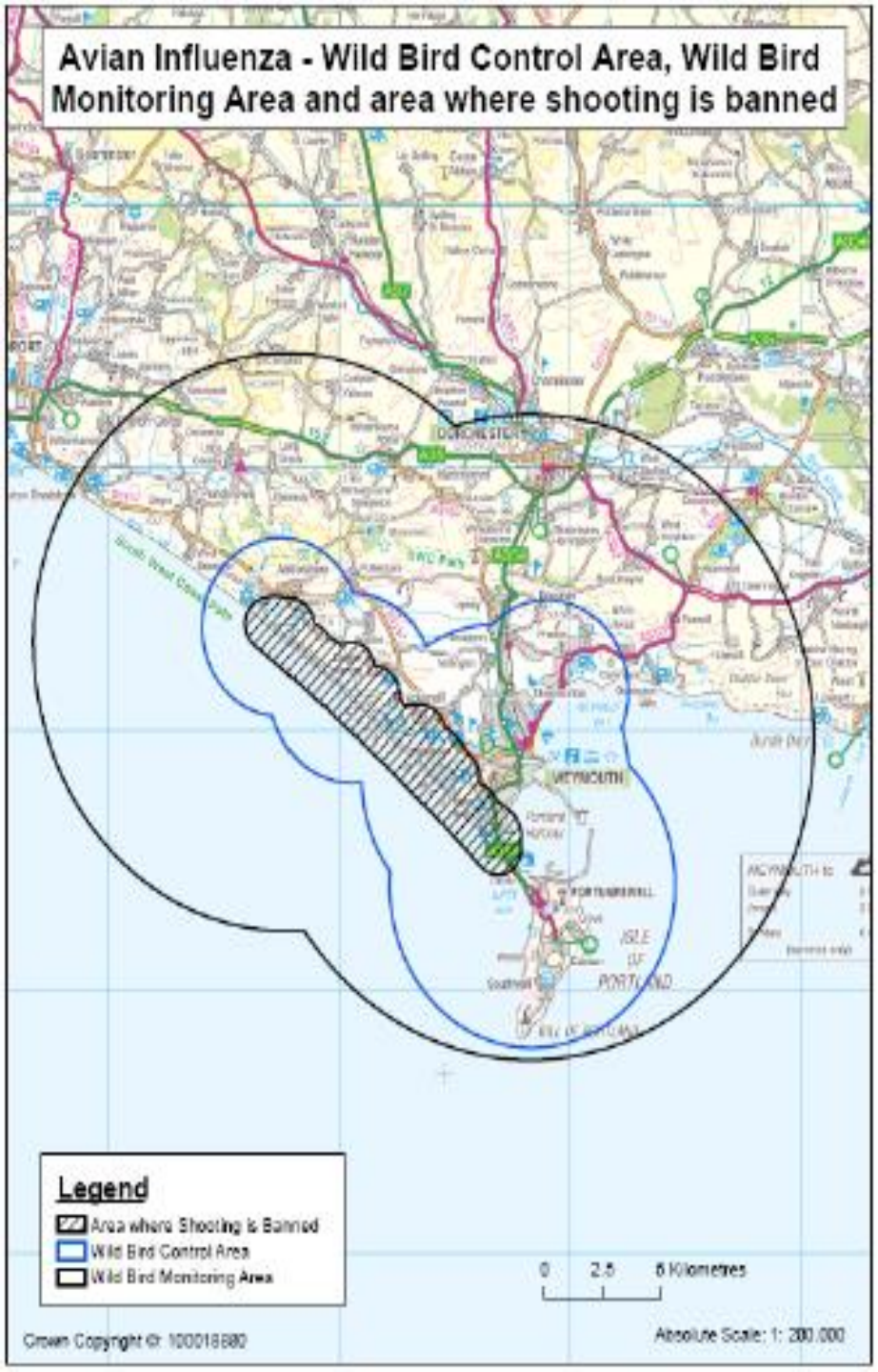
Outbreak Ref	Turkeys	Geese	Ducks	Total	Date Culling Complete	Date Preliminary C&D
IP1	4,673	410	1,176	**6,259**	15-Nov	17-Nov
SOS1	2,593			**2,593**	15-Nov	18-Nov
IP2	9,229			**9,229**	17-Nov	19-Nov
DC3	2,385			**2,385**	17-Nov	19-Nov
DC4	4,127			**4,127**	17-Nov	19-Nov
DC5	11,056	4,165	47,434	**62,655**	25-Nov	29-Nov
	34,063	**4,575**	**48,610**	**87,248**		

Highly Pathogenic Avian Influenza in Wild Birds in the UK

Early 2008

Abbotsbury Swannery

- The Swannery was established by Benedictine Monks
- Built a monastery at Abbotsbury during the 1040's and farmed the swans as a food source.
- Currently a wild life reserve for free flying swans and wild birds - an internationally important wetland
- Supports up to 1,100 mute swans and 92 species of waterbird including 12 species of geese, 20 species of duck, 25 species of waders and 9 species of gull.



Location of wild bird Monitoring and Control areas
29 February 2008

Wild Bird Surveillance

- 60 healthy swans tested (oropharyngeal, PCR) – all negative
- 44 coots + 56 mallards (faecal, PCR) – all negative
- 36 Dead wild birds collected (PCR negative) (to 24 Jan)

- **91 further dead wild birds from South West Region tested (to 28 Feb)**
  - 10 positive mute swans
  - 1 positive Canada goose

Domestic poultry surveillance

- Low poultry density in this area
- 4 possible personnel contacts traced
- 230 holdings in Control area, 5149 birds
- Surveillance completed 23 January
- Small flocks, free range, 40% with waterfowl
- Waterfowl sampled unless in close contact with poultry
  - 223 ducks & 64 geese (44 flocks)
- 28 flocks of over 50 birds in Monitoring Area

Bluetongue

BTV Outbreak 2007

BTV8 in North-west Europe

- Bluetongue typically seen in Southern EU Member States

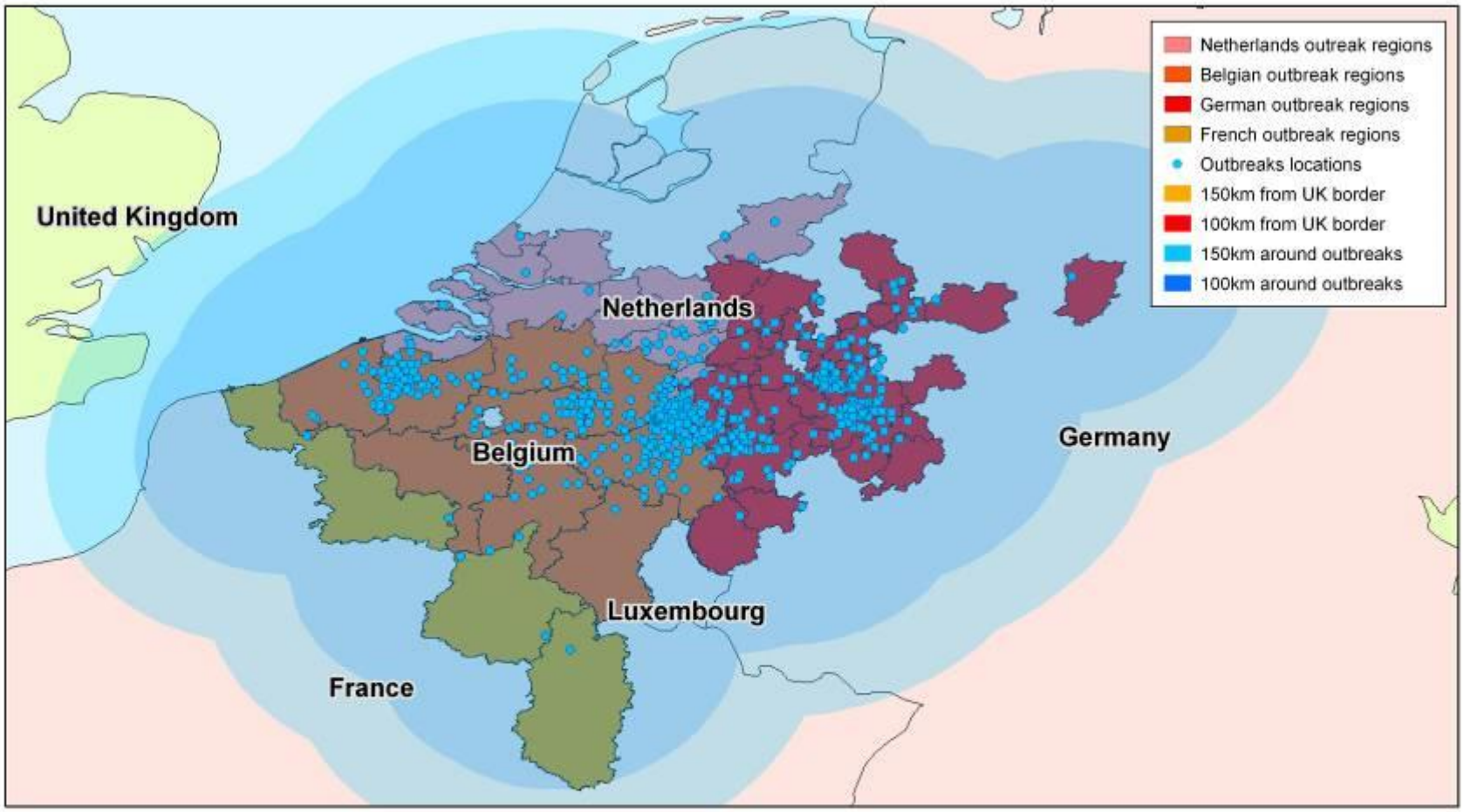
- Associated with the range of the vector midge *Culicoides imicola*

- BTV-8 in the EU (the Netherlands) in August 2006 and subsequently confirmed in Belgium, France, Germany and Luxembourg
Culicoides obsoletus and *C.pulicaris*

•In 2007, the virus reemerged in these countries (over-wintered) and spread

•In 2007 BTV-8 was confirmed in the UK, Denmark and in Switzerland.

Monitoring the Risk Oct 2005



Produced by Alice Rogers,
IAHD, August - October 2006

Robinson Projection

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

ArcGIS 8 Development Team
March 2000

Source: ESRI Data & Maps CD
Created in ArcGIS 8 using ArcMap

defra

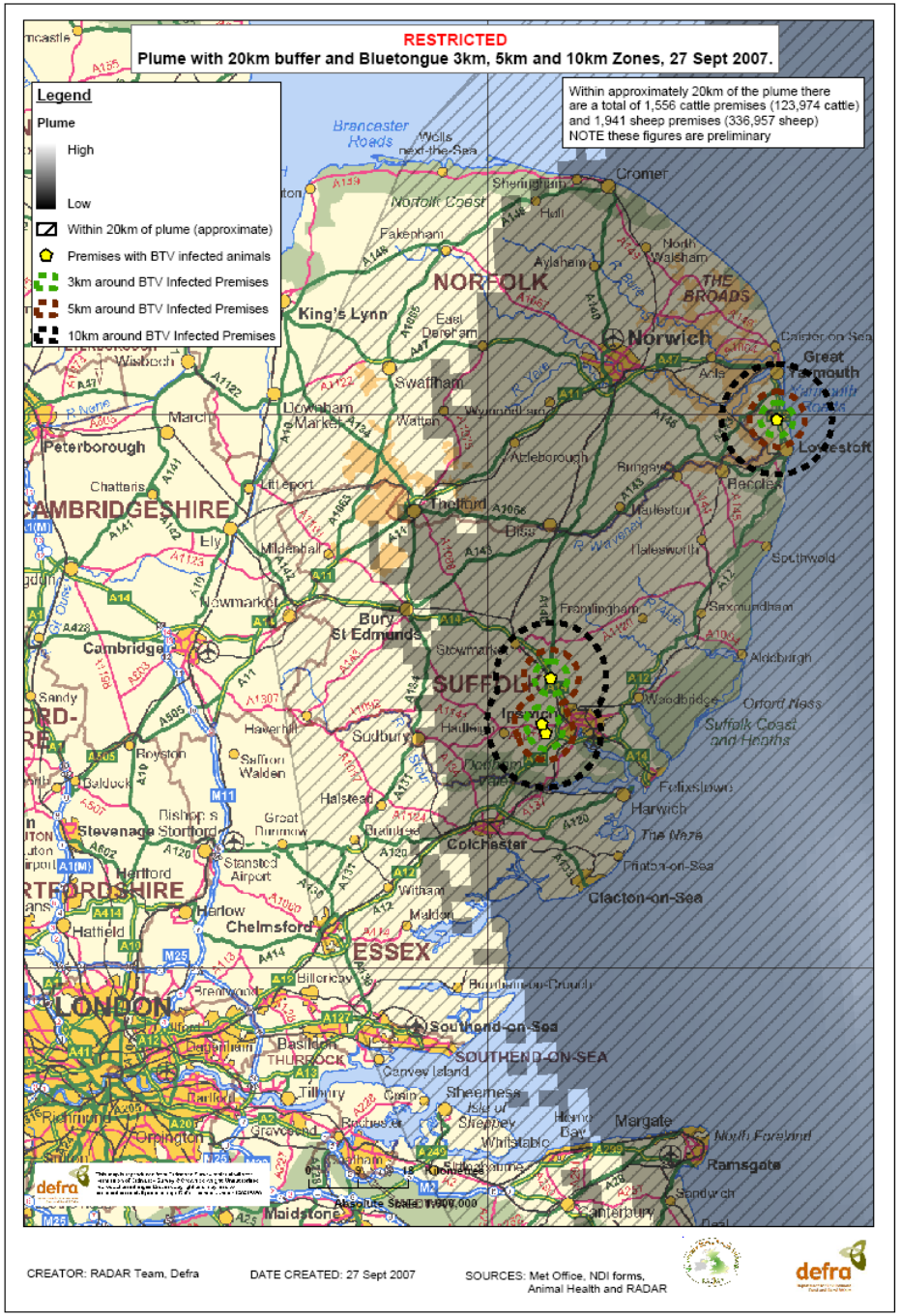
Robinson Projection

Bluetongue 2007

- BTV 8 confirmed 22 September 2007
- Native born Highland cow, near Ipswich.
- Initially - suspect case of FMD
- Animal Health veterinary staff ruled out FMD, but recognised possibility of BTV infection.
- To 19 October 2007
  - **153 suspect reports**
  - **17 confirmed report cases in cattle**
  - **8 confirmed report cases in sheep**
  - **22 surveillance cases (all cattle)**

BT 2007:
Wind plume on 4/5 August
+
Location of Ipswich & Lowestoft active surveillance areas

(around the first four infected premises detected)



29 October 2007

IP in Cambridgeshire results in mergers of CZs

2 November

New Regulation 1266/2007 – zones to be redesignated as PZ and SZ

Vaccination

- Tender for vaccine bank
- 20 million doses purchased by Defra
- Farmers to purchase to use
- Good uptake
- Last case in GB 2008
- Became disease free in Jul 2011

Newcastle Disease in Scotland, UK
October 2005

CREATOR: NDCC, Defra

DATE CREATED: 2006-10-13

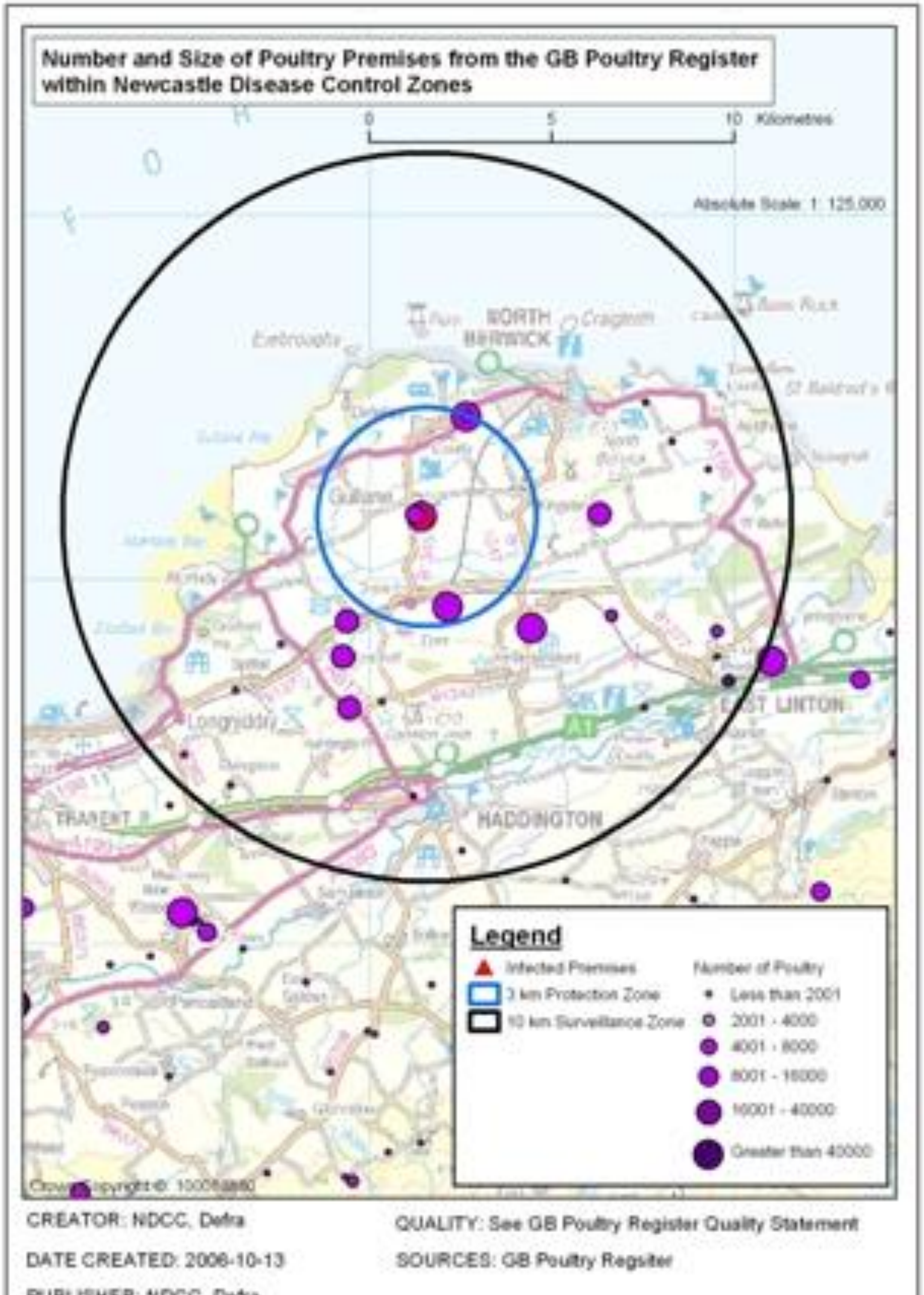
PUBLISHER: NDCC, Defra

QUALITY: N/A

SOURCES: Disease Investigation Report

Timeline

- Sick partridges early September
- Lab investigation found PMV 11 October; restrictions and on-farm investigation
- ND confirmed 13 October; PZ & SZ established
- Poultry slaughtered by 15 October
  - 11,964 partridge
  - 138 quail
  - 405 laying hens
- Carcases incinerated 16 October
- Preliminary C&D 18 October


Number and Size of Poultry Premises from the GB Poultry Register within Newcastle Disease Control Zones
0
5
10 Kilometres
Absolute Scale 1: 125,000
NORTH BERWICK
EAST LINTON
HADDINGTON
Legend
Infected Premises
3 km Protection Zone
10 km Surveillance Zone
Number of Poultry
Less than 2001
2001 - 4000
4001 - 8000
8001 - 16000
16001 - 40000
Greater than 40000
CREATOR: NDCC, Defra
DATE CREATED: 2006-10-13
PUBLISHER: NDCC, Defra
QUALITY: See GB Poultry Register Quality Statement
SOURCES: GB Poultry Regsiter









Scott Colome © 2005


Captive birds

- IUCN Red List of Endangered Species
- Bred for conservation and pleasure – not commercial
- No signs of ND
- 126 isolated from 17 October; vaccinated
- Moved to two enclosed buildings – bird, vermin proof, hygiene barrier, restricted access
- Official veterinary supervision - daily
- Seronegative
- Virology at end of isolation -60 days
- OIE - Compartmentalisation

Department
for Environment
Food & Rural Affairs

Contingency Plan for Exotic Notifiable Diseases of Animals in England

March 2016

Including Foot and Mouth Disease, Avian Influenza, Newcastle Disease and all other exotic notifiable diseases of animals.

Presented to Parliament pursuant to Section 14A of the Animal Health Act 1981 (as amended by Section 18 of the Animal Health Act 2002)

Equine Diseases

UK Equine Issues

- Over 1m ridden horses
- 4m Riders
- £7Bn value
- Very varied population
  - Racehorses
  - Children's ponies
  - Donkeys

Notifiable Equine Diseases

- African horse sickness (AHS)
- Dourine (causative agent *Trypanosoma equiperdum)*
- Equine Infectious Anaemia (EIA)
- Equine encephalomyelitis (EE) (of all types, including Venezuelan equine encephalitis, Eastern equine encephalitis, Western equine encephalitis, Japanese encephalitis, West Nile Virus)
- Glanders or Farcy (causative agent *Burkholderia (formerly Pseudomonas) mallei)*
- Vesicular Stomatitis

African Horse Sickness
Impact on the UK Horse Industry

- African horse sickness (AHS) is a highly fatal and infectious disease and as many as 90% of horses die within one week of infection.
- It is endemic in sub-Saharan Africa and has spread to Europe twice in the 20th century;
- AHS is spread principally by midges (*Culicoides)* of the same species that transmit bluetongue virus in cattle.
- Widespread outbreak could be devastating.

AHS Disease control

- Council Directive 92/35 provides for compulsory notification, and the setting up of a protection zone of least 100 kilometres radius around and infected premises. This, together with a surveillance zone of at least a further 50 kilometres, would have to remain in force for at least 12 months.

Base 800565 (800425) 6-88

West Nile Virus

- West Nile Virus (WNV) is an infection of birds
- Spread by the bite of infected mosquitoes.
- It can infect mammals and can cause disease in horses and people.
- Present in the EU (eg Spain, Italy) but not reported in UK yet.
- Spread rapidly across USA from 1999

EIA/EVA

- Equine Infectious Anaemia (Swamp Fever)
  - Lentivirus
  - Biting flies and iatrogenic
  - No treatment; cull
  - Oct 2012 Devon (ex Belgium)
- Equine Viral Arteritis
  - Persistent infection stallions
  - Vaccine available
  - Oct 2012 Stallion Gloucester

Rabies

Rabies 1992 to 2015

Rabies and Pet Movements

- UK traditionally protected itself with quarantine
- Newer schemes allows for movement under vaccination from lower risk countries
- Potential disease risks associated with pet movements (rabies and *Echinococcus multilocularis* in particular) can be serious
- Government priority has to be to protect public and animal health
- EU/UK policy and controls to be based on evidence – disease prevalence perhaps most important

Scenarios and issues

- Animals in quarantine
- Tracings of animals which were in contact
- Illegal landings/smuggling
- Human health risk