

WILDLIFE DISEASES IN THE UK

REPORTED IN THE YEAR 2008

REPORT TO
THE DEPARTMENT OF ENVIRONMENT, FOOD AND RURAL AFFAIRS
(Defra)
AND THE
OFFICE INTERNATIONAL DES ÉPIZOOTIES (OIE)

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WILDLIFE DISEASES IN THE UK 2008

Report to Defra and to the OIE 2008

INTRODUCTION

1. The Wildlife Diseases Report for 2008, to Defra, and ultimately to the OIE is compiled as part of the Defra/VLA Diseases of Wildlife Surveillance scheme (ED1600: VLADoWs). The format has been changed significantly from previous years and now utilises Excel tables compatible with the OIE WAHIS system. A Word report accompanies the Excel Report.
2. This Report is a summary of diseases in free-living animals and wildlife investigated by government and non-government agencies, and independent workers, for the year 2008. Data for 2007 is included for diseases where there is a longer diagnostic process or where the dataset for 2008 is not complete. Data for 2007 is also included if it was not reported previously. The absence of a particular condition does not necessarily mean that it was not present.
3. The majority of incidents refer to infectious diseases, however non-infectious incidents that were considered worthy of note have been added. *Conditions not recorded in previous UK OIE Reports, or considered unusual, have been annotated by the letter 'N'.*
4. Further to the key aims of both Defra and the VLA with respect to wildlife, Defra, since 1998, has supported the VLA: Diseases of Wildlife Surveillance scheme (VLADoWs). The principal objectives of which are to investigate unusual wildlife mortality and to provide wildlife disease surveillance. Data from several Project investigations in 2008 are presented in the lists and the tables of this Report, including West Nile Virus and diagnostic data from Avian Influenza surveillance in wild birds.
5. In addition to informing the OIE and Defra, it is intended that these Reports, by updating the list of recorded diseases and by providing further information on UK wildlife disease, will also serve to inform other workers in the field. The Reports have been made available on the internet (web address on page) and are now being used and referred to by ecologists, biologists and veterinarians.
6. To make the data more accessible, explanatory notes on disease designations and specific incidents have been added as end notes in the Excel file. These notes are selective and not intended to be comprehensive. They have been compiled with the general reader in mind.
7. In this first year using the new reporting format, collaborators experienced some difficulties with the system and in some cases chose not to provide information, or chose not to use the system or to record only selected data. It is hoped that familiarity with the reporting set-up will allow more comprehensive coverage in subsequent OIE Reports from the UK.

Compiled by: - VLA Wildlife Group January 2009

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Notes

The OIE Wildlife Disease Report 2008

The role of wildlife diseases and their potential importance for man, domestic animals, wildlife and the environment is being increasingly recognised world-wide. Regular surveillance is important for proof of national disease-freedom status as well as for detecting the emergence of significant diseases.

Wild animals function as components of ecosystems however they may also, unfortunately, be reservoirs of OIE reportable diseases, as well as other important diseases of domestic animals and humans. Consequently surveillance for known diseases of economic or public health importance amongst wildlife is beneficial to the national interest.

Since 1993, a Working Group on Wildlife Diseases of the OIE in Paris has collected information on wildlife diseases, distributing a questionnaire to all country CVOs (Chief Veterinary Officers). The UK has for several years produced an official response to this questionnaire in the form of the annual OIE report.

Disease designations – ‘OIE listed diseases affecting wild animals’ and ‘Non-listed wildlife diseases’

The disease lists have been updated and the previous ‘Reportable disease’ list incorporated the two earlier categories, ‘List A diseases’ and ‘List B diseases’

Of the diseases previously in the OIE Reportable Diseases category 12 have been recorded in UK wildlife. They are-

anaplasmosis (*Anaplasma phagocytophila* infection),
avian chlamydophilosis (*Chlamydophila* sp. infection)
avian cholera (*Pasteurella multocida* infection)
avian influenza
avian tuberculosis (*Mycobacterium avium* infection)
duck plague (or duck virus enteritis/DVE)
leptospirosis
malignant catarrhal fever
myxomatosis
paratuberculosis (*Mycobacterium avium paratuberculosis* infection/Johnes disease)
rabbit haemorrhagic disease/RHD
bovine tuberculosis (*Mycobacterium bovis* infection)

Most of these diseases in UK wildlife are endemic, in that they are considered to exist in wild populations from year to year, and incidents are reported in most years. It should be noted that for several of these conditions, the form of the disease that we have in the UK in wildlife species, is not as severe as that found in other countries in the world. For example, anaplasmosis in UK wildlife is frequently a very mild condition that causes little disease in the species that are affected.

Swine fever and foot and mouth disease have occurred transiently in the UK in the present century, however neither were recorded in wildlife species.

The status of diseases on the OIE Lists may vary. For example, diseases may be re-assessed should they change in nature and become more pathogenic (i.e. produce disease of greater severity), or infect new host species. Designations within countries may also vary.

OIE The Wildlife Disease Report 2008

Avian Influenza in wild birds summary 2008

The most significant AIWBS (Avian Influenza in wild birds) event of 2008 in Great Britain occurred at the turn of the New Year with the detection of H5N1 HPAI from three Mute swan (*Cygnus olor*) carcasses that had been collected from the South Dorset coast and were tested as part of the routine surveillance activities for 'found dead' wild birds. In total, ten Mute swans and one Canada goose (*Branta canadensis*) carcasses were positive for H5N1 HPAI, all having been found within the Fleet and wetland reserves along the adjacent South Dorset (Southern England) coast during January and February with no evidence of spread to the domestic poultry population. Defra published an epidemiology report summarising the incident (Defra, 2008), and phylogenetic analyses indicated closest relationships to a cluster of isolates recovered in mid to late 2007 from wild and domestic birds in the Czech Republic, Romania and Poland. Overall in Great Britain during 2008, a total of 4,350 wild birds were sampled and tested for the presence of AI virus (AIV) infection, with thirty-five wild birds positive for AIVs, H5N1 HPAI, H5 LPAI or influenza A virus infection. A further 100 wild bird environmental faecal samples were tested during the H5N1 HPAI wild bird incident in South Dorset.

Reference -

Defra, (2008). Highly pathogenic avian influenza – H5N1 in swans in Dorset. Epidemiology Report1A Page Street, London, SW1P 4PQ, United Kingdom. Version 2, Released 12 February 2008.
<http://archive.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/ai/documents/epireport-080212.pdf>

Avian tuberculosis – This bacterial disease in wild birds is not uncommon in the UK and has been recorded for many years, and in many species. Water birds primarily are infected and in some localities the bacterium may survive in the environment and be a source of infection to birds feeding there. The disease is usually fatal.

Bovine tuberculosis – There were 30 cases of bovine tuberculosis in deer identified during routine screening of suspect carcasses/ samples submitted by stalkers and others. These originated mainly in the West of England. 18 were *M. bovis* spoligotype (sp). 11 from Red deer (*Cervus elaphus*). Fallow deer (*Dama dama*) yielded three cases each of *M. bovis* sp.9 and 11 and further case of *M. bovis* (without spoligotype). There were three single isolates of *M. bovis* from Roe deer (*Capreolus capreolus*) sp.9, 17 and 21. Single incidents of *M. bovis* sp. 10 and 17 were recorded in Muntjac (*Muntiacus reevesi*). Also *M. kansasii* was isolated from a fallow deer and *M. microti* sp.34 from a Field vole (*Microtus agrestis*) from Cumbria.

Bluetongue (BTV-8):- England

Red deer (*Cervus elaphus*), roe deer (*Capreolus capreolus*), fallow deer (*Dama dama*) and muntjac (*Muntiacus reevesi*) with possibly low numbers of sika (*Cervus Nippon*) and Chinese water deer (*Hydropotes inermis*) were present within the bluetongue control area. However no suspect clinical disease has been reported in any deer in England and no serosurveillance has been carried out. The recent experience with BTV-8 in Europe suggests that "spillover" into deer occurs only when there are high infection levels in farmed ruminants. Also at present wild ruminants do not seem to be an important reservoir for BTV-8.

Foot and Mouth Disease (FMD) :- England

Red deer (*Cervus elaphus*), Fallow deer (*Dama dama*) and Roe deer (*Capreolus capreolus*) were present in FMD infected areas of Devon and Cumbria in 2001. During the 2007 outbreak, free-living roe and muntjac (*Muntiacus reevesi*) were ubiquitous but in low numbers in the FMD Protection and Surveillance zones. Red deer were present in fenced parks. Cattle/deer interactions occur with red and fallow deer but not directly with roe and muntjac.

There was no evidence of FMD in any deer species during these two outbreaks of FMD in domesticated livestock no suggestion of deer being involved with recrudescence of disease in farmed stock.

OIE Non listed wildlife disease list

This is the second of the OIE lists. In effect it is a general list and includes any disease that is infectious in nature (caused by virus, bacterial, fungal or parasitic infection) that can infect wild mammals, birds, reptiles or amphibians. Several of these conditions may affect more than one species, and many may also infect man and domesticated stock. It is difficult to summarise their

significance, as this may vary from country to country; some may occur sporadically; some may infect animals but cause little recognisable clinical disease, while others (for example salmonellosis) have the potential to infect many species and cause severe disease. Over 30 examples of Wildlife Disease List conditions are presented in the questionnaire but this is by no means exhaustive. New conditions are reported regularly in UK wildlife and these require additional work to assess their potential risks to man, domestic stock, the environment and the species affected.

2008 wildlife disease incidents of note

Isolation of European bat lyssavirus type 2 (EBLV-2) in 2 Daubenton's bats

On the 7th May European bat lyssavirus type 2 was detected in the brain of a bat submitted under the passive surveillance scheme to detect lyssaviruses in British bats. This scheme has been operating since 1987. Genomic sequence derived from the virus nucleoprotein revealed that this virus was 100% identical to an earlier isolation of EBLV-2 from a bat in Staines, Surrey. The bat was originally found injured, following a cat attack, by a member of the public in August 2007, in Bushy Park, Surrey. It was passed to a number of experienced bat handlers for rehabilitation, but required the amputation of one wing by a vet shortly after entering captivity. Over the winter months it appeared healthy but towards the end of April it became aggressive. It became progressively weaker and underwent euthanasia on May 2nd and sent to VLA-Weybridge on the 6th. This could be the longest documented incubation period (>8 months) for EBLV-2. This case is the 7th isolation of EBLV-2 from English Daubenton's bats since 1996 and once again emphasises the need for ongoing surveillance of UK bats and the need for bat handlers to obtain anti-rabies vaccination.

In September 2008 a dead juvenile (<1 year-old) male Daubenton's bat was found in Shropshire. This was in an area in which EBLV-2 had been previously isolated from a Daubenton's bat (Harris and others, 2007). Differential RT-PCR TaqMan assay confirmed the presence of EBLV-2 in this second bat. Also sequencing of a 405 base-pair fragment of the nucleoprotein gene proved 100 per cent identity to the previous EBLV-2 isolate. This case re-affirms the necessity for continued EBLV-2 surveillance in the UK, especially in places with a known prevalence of EBLV-2 in the Daubenton's bat population.

Reference: -

Harris, S., Mansfield, K., Marston, D., Johnson, N., Pajamo, K., O'Brien, N., Black, C., McElhinney, L.M. and A.R. Fooks. (2007). Isolation of a European bat lyssavirus type-2 from a Daubenton's bat (*Myotis daubentonii*) in Shropshire, UK. *The Veterinary Record* **161**(11); 384-386.

VLA Rabies and Wildlife Zoonoses Group, VLA Weybridge

Salmonellosis in Wildlife,

VLA Diseases of Wildlife Scheme data indicates that garden bird submissions and cases of garden bird salmonellosis both declined relative to recent years. Anecdotal information suggested that other surveillance schemes may also have seen fewer cases of the disease. It will be of interest to know whether there is a real decline in prevalence and what factors may influence this. *Salmonella* Typhimurium was isolated from a Black-headed gull (*Larus ridibundus*) and a Mute swan (*Cygnus olor*).

West Nile Virus (WNV) surveillance

Surveillance for WNV by the Diseases of Wildlife Scheme occurs in the months April to October when arthropod (primarily insect) vectors of WNV are active. Phipps and others (2008), published a summary of UK WNV surveillance of wild birds from the VLA, the SAC (Scottish Agricultural College) and the University of Liverpool. A total of 1867 birds of 128 species were examined by the VLA Diseases of Wildlife Scheme and the SAC between 2001 and 2006; and a further 163 birds, of 43 species were examined in a study undertaken at the University of Liverpool. No evidence of WNV infection was found from PCR examinations.

Reference: Phipps and others (2008) *Veterinary Record* (2008) 162, 413-415. Surveillance for West Nile Virus in British birds (2001-2006).

Chronic respiratory disease in corvids – a mortality incident in Yorkshire

A 'Corvid Respiratory Syndrome' at a roost site on a large outdoor breeding sow was investigated in Rooks (*Corvus frugilegus*) and carrion crows (*Corvus corone corone*). A similar syndrome was reported by Pennycott (2002). Fibrinous pericarditis, perihepatitis, air sacculitis, granulomatous pneumonia and necrotic hepatitis were found and *Pasteurella multocida* was cultured from some of the birds. The disease needs to be assessed as a new and emerging disease. Investigations have focused on possible transmission to livestock but the results to date suggest that this is unlikely. The

zoonotic potential of this condition would appear to be small and comparable to the very low risk from other avian strains of *P multocida*.

Mass mortality of starlings – coastal Lancashire

Examination of approximately 70 dead starlings (*Sturnus vulgaris*) revealed that the deaths were due to traumatic injuries. Based on the fragmentary history received (no one saw the birds die), it appears that the birds on a stormy night, were attracted as a flock to the lights on a beached ship, seeking a roosting site. They then probably died as a result of trauma from being blown against parts of the ship. See also UK OIE Report 2007 page 7.

UK chytridiomycosis survey

Chytrid fungal infection (chytridiomycosis) has been detected in two areas of England, coastal Cumbria and Kent. It is not clear yet whether this disease is causing amphibian population declines in this country. A nationwide survey in 2008 aims to establish whether chytrid fungus is localised to these known infected sites or if it is more widespread across the country. Information at -

https://www.zsl.org/conservation/regions/uk-europe/ukchytridiomycosis_842_AR.html

Mass stranding of common dolphins (*Delphinus delphis*) Roseland Peninsula, Cornwall

VLA Truro assisted the Institute of Zoology with the post mortem examination of common dolphins after an estimated 70+ animals got into difficulties in the shallows of a small creek on the Roseland Peninsula. Nine of the 26 animals that died or were euthanased, were submitted for post mortem examination and only minor incidental and strandings-related pathology was observed, consistent with the findings from the remainder of the examinations carried out by IOZ and colleagues. The cause of the stranding remains unclear at the present time and further investigations including toxicology, virology and histopathology are underway.

Water vole (*Arvicola terrestris*) intra-specific aggression

Septicaemic Pasteurellosis was diagnosed in an adult male Water vole (*Arvicola terrestris*), a BAP (Biodiversity Action Plan) priority species. The animal was found dead in the wild and circumstantial evidence suggested that the infection was associated with an intra-specific bite wound. This is one of the few diagnostic investigations in a free-living member of this species in the UK.

Viral Diseases in the Red Squirrel (*Sciurus vulgaris*)

Squirrel poxviral disease (SQP) is still prevalent across northern England, cases being confirmed in areas where disease was not previously recorded and cases appearing in locations where outbreaks occurred last year. During 2008, 26 cases were from the VLADoWS and 1 from the IOZ. Since March, the first case of SQP has been confirmed in Keilder Forest itself, considered to have the largest remaining English red squirrel population. Several cases have appeared around Alnwick in North East Northumberland, an area previously clear of disease. On Merseyside, they have been battling a SQP outbreak since last October, in animals from the Sefton and Formby reserves. This work is undertaken at the University of Liverpool Veterinary School at Leahurst, utilising Polymerase Chain Reaction (PCR) analyses. Additionally in 2008 there were at least 7 SQP cases that have occurred in Scotland this year, bringing the total to 11, all in the Dumfries and Galloway region.

Adenovirus has also been confirmed in the red squirrel this year, with a single case in June, again from Cumbria. These identifications now total 13 in Cumbria since 2006 and 3 from Anglesey in late 2007, the first identified from Wales.

Mute swan mortality in North Wales

Seven Mute swans (*Cygnus olor*) were found dead on the coast of North Wales. The next day an eighth swan was found and they were all received at VLA Shrewsbury for post-mortem examination and avian influenza (AI) screening. All of the birds had been in good bodily condition and had signs of traumatic damage to the skin and associated soft tissue, and some had skeletal damage. No metal fragments were seen in radiographs of the carcasses and it was suspected that the trauma was due to predator attack.

(WIREDs) Wildlife related emerging diseases The acronym WIREDs has been used to reflect the recognition of wildlife as a potential source of many new and emerging diseases. Whether these diseases pose a risk to human and domestic stock health, or reflect significant changes in the environment, requires assessment by investigation and surveillance.

Surveillance of wild deer in England for Chronic Wasting Disease (CWD) 2008

Carried out by the Veterinary Laboratories Agency.

Chronic wasting disease (CWD) is a degenerative disease affecting primarily the nervous system in farmed and wild deer in the USA and Canada. It is a transmissible spongiform encephalopathy (TSE) caused by an unusual prion agent and is related to BSE and Scrapie.

The condition has not been reported in Europe but a small surveillance project was started in 2003. The results reported here are just from 2008 and only Red Deer (*Cervus elaphus*) were examined. This project ends in March 2009.

Statistics for Deer survey 2008 only		
Population	Number of tested animals (UK not NI)	Northern Ireland only
Wild – Healthy Shot	282	0
Wild – Road kill	1	0
Wild – Fallen/culled	0	1
Wild – Clinical sick	0	0
Total	283	1
Farmed – Healthy shot	129	0
Farmed – DIT	0	0
Farmed – Clinical	1	0
Farmed – Fallen /culled	4	1
Farmed – Road kill	0	0
Total	134	1

There was no evidence of prion disease observed in the material examined.

Abbreviations :

Defra	Department of Environment, Food and Rural Affairs
OIE	Office International des Epizooties
VLA	Veterinary Laboratories Agency
VLADoWs	VLA Diseases of Wildlife Surveillance Scheme
SAC	Scottish Agricultural Colleges
SVS	State Veterinary Service
RDS	Rural Development Service
RSPB	Royal Society for the Protection of Birds
BTO	British Trust for Ornithology
RSPCA	Royal Society for the Prevention of Cruelty to Animals
CSL	Central Science Laboratory (Defra)
N	Selected diseases that are new to the UK OIE Report, indicating a new pathogen, new host species or a previously unreported disease
WNV	West Nile Virus, indicates that incident was WNV monitored
AIV	Avian Influenza Virus, indicates that incident was AIV monitored
WQR	VLA Wildlife Quarterly Report
Laboratory tests	
PRNT	Plaque reduction neutralisation test (WNV serological test)
DGGE	Denaturing Gradient gel Electrophoresis
FAT	Fluorescent antibody test
ELISA	Enzyme linked immuno-assay
PCR	Polymerase chain reaction (test)
ZN	Ziehl Nielsen
Rabies MIT	Mouse inoculation test
RTCIT	Rabies tissue culture inoculation test

REFERENCES AND PUBLICATIONS

Further reading on wildlife disease surveillance and research, and causes of disease and mortality in UK wildlife

Defra and VLA wildlife reports and information

Recent OIE Wildlife Disease Reports for 2002 to 2007

http://www.defra.gov.uk/vla/reports/rep_wildlife.htm

VLA Wildlife Disease Quarterly Reports – 3 monthly surveillance updates

http://www.defra.gov.uk/vla/reports/rep_surv_wildlife.htm

Defra's work on the conservation of wildlife and landscape, and on countryside recreation.

<http://www.defra.gov.uk/wildlife-pets/wildlife-management/>

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