



HIGHLIGHTS

- EBLV-2 isolated from a Daubenton's bat
- Chlamydiosis in garden birds in Scotland
- Mass mortalities in young swans due to parasitism
- *Brucella pinnipedialis* isolated from a juvenile grey seal
- Red squirrel disease

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The **VLA Diseases of Wildlife Scheme (VLADoWs)** has provided wildlife disease investigation and surveillance in England and Wales since 1998.

Go to www.vla.gov.uk and for reports, go to the VLADoWs Wildlife home page at: - http://www.defra.gov.uk/vla/science/sci_wildlife.htm

OVERVIEW

The 8th conference of the European Wildlife Disease Association (EWDA) recently took place in Croatia. Several presentations on wildlife related emerging diseases and zoonoses (WiREDZ) were given. Paul Duff was elected Chairperson. He is the first UK Chairperson of the EWDA.

Evidence of cycling West Nile Virus infection in wild birds in several areas of Europe was presented. Bovine tuberculosis in wild ruminants continues to emerge in Spain (including in the Donana National park), and in Northern France. A recent report described the first case of the disease in a Spanish badger (*Meles meles*); Vet. Record 2008, 163, 159-160.

Ljungan virus is possibly not familiar to many scientists but may be worth keeping an eye on. This virus infects wild rodents in parts of Europe and currently investigations to assess its zoonotic potential are being undertaken.

NOTIFIABLE DISEASE

Great Britain AI Wild Bird Surveillance (AIWBS) results: July – September 2008

H5N1 Highly Pathogenic Avian Influenza (HPAI) was not detected in any of the 848 wild birds sampled and tested during the last quarter in Great Britain. Evidence of infection with other avian influenza viruses was detected in fifteen birds. An H3N8 virus was isolated from a Mute swan (*Cygnus olor*) that had been found dead. LPAI H5 virus infection was confirmed in three wild birds that were legally trapped and sampled. Also evidence of influenza A virus infection was detected from one wild bird that had been found dead and ten legally trapped wild birds (Table 1).

Surveillance activity	Number of birds examined	Positive AI virus result and species of bird	Comments
Legally trapped (ringing) [†]	590	LPAI H5; Mute swan x1; Teal (<i>Anas crecca</i>) x2	Seasonal targeted surveillance.
Legally shot	Nil	Nil	Surveillance activity ceased.
Found dead*	258	H3N8; Mute swan	Scanning surveillance, all-year-round.

[†] Of the Legally trapped birds tested, a further ten birds (eight Mallard, *Anas platyrhynchos*) and two Teal tested positive for influenza A virus infection (by matrix [M] gene RRT-PCR) but H5 RRT-PCR and virus isolation in embryonated fowls' eggs were negative.

* Of the Found dead birds tested, one further bird (Herring gull, *Larus argentatus*) tested positive for influenza A virus infection (by M gene RRT-PCR) but H5 RRT-PCR and virus isolation in embryonated fowls' eggs were negative.

Table 1: Number of wild birds tested and results (July - September 2008).

As a result of increased scientific knowledge and practical experience in handling wild bird H5N1 HPAI incidents, Defra confirmed changes to AIWBS activities in Great Britain for the 2008-09 survey period. Activities are focused on the patrolling of designated reserves by skilled wild bird ecologists and wardens. This is active all year round and provides enhanced screening and assessment of dead wild birds suitable for testing. Members of the public no longer need to report the finding of small numbers of dead wild birds, but are asked to remain vigilant for 'mass mortality' incidents involving 10 or more birds. These should be reported to the Defra Helpline (**08459 33 55 77**), from 8.00am to 6.00pm Monday to Friday. There are separate arrangements for mass mortality events in Scotland, where findings of five or more dead birds are to be reported, and for Northern Ireland. Further information is available at <http://www.defra.gov.uk/animalh/diseases/notifiable/disease/ai/wildbirds/survey.htm>

Avian Virology, VLA Luddington

International H5N1 HPAI Events Summary: July - September 2008

H5N1 HPAI was not reported by any European Union (EU) Member State during the period July to September 2008, in either wild birds or poultry. However, on 10 October 2008, the detection of H5N1 HPAI was reported in domestic ducks on a single holding in Makersdorf, Saxony, close to the Polish border (OIE, 2008a). This was a result of routine targeted virological surveillance sampling, rather than clinical presentation of disease. Concurrently, Eurasian H5 LPAI virus infections were detected in waterfowl in Leipzig zoo, Saxony and in a small mixed poultry holding near Leipzig (PROMED, 2008a). Current programmes of AI surveillance in EU wild bird populations have not resulted in the detection of H5N1 HPAI, but low-level maintenance in discrete local populations of wild birds cannot be discounted. Preliminary phylogenetic analysis of H5N1 HPAI virus isolates from this most recent poultry outbreak in Germany indicates a high similarity to viruses detected in wild birds in the EU during early 2006 (and specifically an isolate obtained from a Tufted duck (*Aythya fuligula*) in Germany in 2006). Thus are distinguishable from those H5N1 HPAI viruses associated with cases detected in both wild birds and poultry in Europe since June 2007. However, subject to confirmation this would indicate that the virus has been maintained largely unchanged over a period of approximately 30 months, raising questions as to the mechanisms by which this might have occurred. Defra have updated their Veterinary Risk Assessment in light of these developments (Defra, 2008).

Reports of H5N1 HPAI have continued across three continents, including the Eastern hemisphere and Asia where disease is considered endemic, mainly affecting domestic poultry (UNFAO, 2008a; 2008b). Under reporting of disease remains a significant concern. In addition, on 7 July 2008, Egypt officially informed the OIE that H5N1 HPAI was endemic in the country (OIE, 2008b). Since 17 February 2006, Egypt has reported 1,086 outbreaks to the OIE. The majority have occurred in the Nile Delta region, and approximately ten million poultry have either died or been destroyed. West Africa, Nigeria, Togo and Benin have also reported further H5N1 HPAI outbreaks in poultry (OIE, 2008c; PROMED, 2008b).

Avian Virology, VLA

References

Defra, (2008). Highly Pathogenic Avian Influenza – H5N1: recent developments in the EU and the likelihood of the introduction into Great Britain by wild birds (Authors: Sabirovic, M., Clarke, G.). Defra, Food and Farming Group, Veterinary Science Team, Nobel House, 17 Smith Square, SW1P 3JR, London, United Kingdom. Released, 29 October 2008.

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UNFAO, (2008a). FAO/AIDNews, Avian Influenza Disease Emergency Situation Update 55, 25 July 2008. <http://www.fao.org/docs/eims/upload//246457/aj097e00.pdf>

UNFAO, (2008b). FAO-GLEWS: H5N1 HPAI Global Overview (July 2008). <http://www.fao.org/docs/eims/upload//249407/aj099e00.pdf>

European bat lyssavirus type-2 (EBLV-2) isolated from a Daubenton's bat (*Myotis daubentonii*) in England

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. *Veterinary Record* **161**(11); 384-386.

VLA Rabies and Wildlife Zoonoses Group, VLA Weybridge

ZOONOTIC DISEASE

Salmonellosis in Wildlife: - July–September 2008

Salmonella was only isolated from two wild birds this quarter. There were no isolates from other wildlife. Screening is targeted and there were 18 cultures from 13 wild bird submissions and two cultures from two wild mammal (red squirrel and hedgehog) submissions this quarter.

Salmonella Typhimurium DT104 was isolated from a faecal sample of a swallow (*Hirundo rustica*). This sample was collected from the ground on a farm that had an ongoing outbreak of salmonellosis in calves. Therefore it may have been contaminated before collection. However DT104 has been found in

faecal samples gathered directly from the nests of swallows away from cattle during VLA research studies on cattle farms. Also insectivorous birds have been shown, in recently published Danish studies, to be more likely to carry *Salmonella* than birds with other feed preferences (Skov and others, 2008).

13 immature and young Herring gulls (*Larus argentatus*) that were found dead on coastal bird reserve were submitted. All those examined had not recently fed and there were no fat deposits in these carcasses. Thus starvation was indicated as the ultimate cause of death. Three birds were screened for salmonella and *Salmonella* Agama was isolated only from one. Thus this was an incidental finding. Outbreaks of *S. Agama* are reported in cattle in Wales, SW England and the Midlands. Often these are linked to infection in badgers and these areas have a high badger density. *S. Agama* may spread from badgers to other animals by contamination of feedingstuffs and watercourses.

Quality statement regarding this data: - UK data and the output of ad-hoc data retrieval from VLA FarmFile database. These figures are provisional. Research project and game bird isolates were excluded. All are from England or Wales.

VLA Weybridge

Reference:

Skov, M.N., Madsen, J.J., Rahbek, C., Lodal, J., Jespersen, J.B., Jørgensen, J.C., Dietz, H.H., Chriél, M. and Baggesen, D.L. (2008). Transmission of *Salmonella* between wildlife and meat-production animals in Denmark *Journal of Applied Microbiology*, **105**. p1558-1568.

West Nile Virus (WNV) surveillance

225 wild bird brain and kidney samples, collected from 01/04/08 – 30/09/08, were selected for WNV testing. This has been completed for 170 samples and this year's testing (250 in total) should be completed by the end of November 2008. All samples so far have been negative for WNV by RT-PCR and by virus isolation test in Vero cells.

This year four UK horses with neurological disease have been screened for WNV. They were all seronegative. Also one Italian horse, from Veneto region of NE Italy, with neurological signs was found to be seropositive (1/40). A week later WNV infection was detected in horses and wild birds within the Ferrara region of NE Italy, which is only two departments south of Veneto.

Rabies and Wildlife Zoonoses Group, VLA Weybridge

Chlamydiosis in garden birds

Chlamydial infections have frequently been reported in wild birds such as feral pigeons (*Columba livia*) collared doves (*Streptopelia decaocto*) and fulmars (*Fulmarus glacialis*). Previous reports of chlamydiosis as a cause of mortality in garden birds are restricted to a letter in the *Veterinary Record* in 1989 (Simpson and Bevan 1989, *Veterinary Record* 125, 537). In that case Chlamydiosis was confirmed to be the cause of death of two robins (*Erithacus rubecula*) found dead in a garden in the Southwest of England.

In August 2008 an immature chaffinch (*Fringilla coelebs*) was submitted to SAC Veterinary Services from a garden in Argyll in which multiple deaths of garden birds had occurred, including finches and robins. Post mortem examination revealed slight thickening of the oesophagus, suggestive of mild trichomonosis, but the major lesion was a large white plaque on one abdominal airsac. No significant bacteria or fungi were isolated, but histopathological examination at VLA Lasswade found evidence of a fibrino-necrotising airsacculitis with numerous intra-lesional rod-shaped bacteria.

Further sick birds were seen but no carcasses were found. Then approximately ten days after the first bird died, an adult robin was submitted for post-mortem examination. Like the chaffinch, this bird was thin. The liver was enlarged, with a pale irregular focus of necrosis. The spleen was enlarged, and a purulent airsacculitis was present. No significant bacteria or fungi were isolated and no significant organisms were detected using a MZN stain. Histopathological examination at VLA Lasswade found hepatitis with acute focal necrosis, chronic fibrinous airsacculitis, and chronic splenitis with superimposed acute fibrinous splenitis. *Chlamydophila* was detected by PCR in pooled tissues from this bird.

Immunohistochemical labelling for *Chlamydophila (abortus)* was subsequently carried out on fixed tissues from both birds. This gave a positive result confirming the association between *Chlamydophila species* and the gross and histopathological lesions observed in both birds. This incident highlights the need to inform members of the public about the potential zoonotic risks from handling wild bird carcasses and the importance of carrying out post mortem examinations on wild birds in a safety cabinet.

SAC

EMERGING AND ENDEMIC DISEASES

Summary of wild bird submissions to VLA DoWS is given below

Month	Number of ED1600 wild bird submissions	Number of ED1600 birds submitted	Number of wild birds examined	Wild birds examined for West Nile Virus
July	19	20	20	
August	15	45	45	
September	20	41	31	170 total for the year

Endoparasitism in Mute Swan (*Cygnus olor*) cygnets

A significant number of deaths in cygnets were reported from around the country. On a wetland reserve in Leicestershire 100 were reported to have died out of an estimated population of 1000 over a two-month period. Overpopulation was indicated as a predisposing factor. A group of seven died in a suburban pond in West Bromwich, The Midlands and a further bird was received from the Lancaster canal, Lancashire.

Examination of the submitted birds indicated that endoparasitism with *Echinuria uncinata* and/or *Amidostomum* species was the cause of disease. Typically birds were thin with muscle wasting and scant body fat. *E. uncinata* is characterised by a nodular granulomatous proliferation of the mucosa of the proventriculus. The nematodes are present within the nodules. This can be sufficiently severe to impede ingestion. The *Amidostomum*-like nematodes are seen under the koilin-layer of the gizzard. *E. uncinata* has an indirect life cycle with larval development occurring in pond invertebrates such as *Daphnia pulex* and *Gammarus*. Waterbirds such as swans, ducks and geese ingest these intermediates grazing on pond weed.

These findings indicate that endoparasitism can cause high mortalities in young swans especially where there is a high population density.

Fowl Cholera in a Mute Swan (*Cygnus olor*) cygnet

One of two cygnets that had died from a brood of five was examined. A further bird was ill. Thick gelatinous material was present in the air sacs, which also had a few scattered small focal creamy lesions. This gelatinous material was also present over the right side of the liver. *Pasteurella multocida* was isolated from systemic sites of this bird and the air sacs, confirming Fowl Cholera. Tissue samples were negative for Avian Influenza by PCR.

VLA Langford

Fulmars (*Fulmarus glacialis*) starvation

Starvation was suggested as the cause of death of three Fulmars (*Fulmarus glacialis*) found on a beach. Ascarid-type worms were recovered from the proventriculus and gizzard of each bird and there was no evidence of recent feeding.

VLA Newcastle

Lesser Black-backed gull (*Larus fuscus*) over-eating

A Lesser Black-backed gull was received from an area where 12 deaths had been reported. Also birds were seen regurgitating food. Examinations showed that the bird had consumed a large amount of pelleted farm animal feed. It was thought that death was due to over-eating of the feedstuff. A similar case was investigated two years ago when Black-headed gulls (*Larus ridibundus*) died following ingestion of sugar beet pulp, which swelled considerably when birds drank. The regurgitation in the present case suggested that the gulls had also have ingested feedstuff which had subsequently swollen causing pressure on the thoracic organs.

VLA Penrith

Presumed botulism in great black-backed gulls

Over 100 great black-backed gulls (*Larus marinus*) died or were euthanased at two adjacent sites in the north of Scotland in July. Some of the affected gulls were seen comatose and sinking on the water, with just their tails showing. Several of the birds appeared to have blue staining of their feathers or beaks. Screening for avian influenza proved negative, and a presumptive diagnosis of botulism was made. The source of the problem may have been abattoir waste that had been stained with blue dye.

SAC

Avian pox in Great tits (*Parus major*)

Two great tit carcasses showing similar skin lesions were examined. These birds had single 1 cm diameter yellow coloured firm lesions, either attached to the head area or the vent area. Sections of these lesions showed cavities containing caseous material. Electron microscopy of these lesions confirmed the presence of poxvirus, giving a diagnosis of avian pox infection. There have been anecdotal reports of great tits and chaffinches being affected by similar lesions in southeast England.

VLA Winchester

Continued losses from trichomonosis in garden birds in Scotland

The emergence of trichomonosis in garden birds in Scotland was described in the Quarterly Report for April to June 2008. Further cases were seen in the second Quarter of 2008/2009, with twelve sites affected in July, eleven sites in August and eight sites in September. A similar number of sites were affected in this period in 2007/2008. The great majority of affected birds were chaffinches or greenfinches (*Carduelis chloris*), but cases were also seen in a siskin (*Carduelis spinus*), goldfinch (*Carduelis carduelis*) and tree sparrow (*Passer montanus*).

SAC

Great bustard (*Otis tarda*) reintroduction; erysipelas

The carcass of a great bustard was submitted for examination. It was one of a group of recently imported birds being reintroduced to Salisbury Plain. This bird had been found dead with no prior signs of ill health. The carcass was congested. Throughout the small intestine there was markedly gelatinous liquid contents. Haemorrhages were seen over the pancreas. *Erysipelothrix rhusiopathiae* was isolated from the liver. Also histopathology showed features suggestive of a peracute septicaemia with gram-positive organisms demonstrated, confirming the diagnosis of erysipelas. No viruses were isolated.

VLA Winchester

Suspected trichomoniasis in sparrowhawks, a potential new spillover host, North-east England

Granulomatous-type lesions typical of trichomoniasis were found in the oropharynx of two sparrowhawks (*Accipter nisus*). The birds, an adult female and a juvenile, were found close together in a garden and were both in thin body condition suggesting that the lesions may have prevented feeding. It is possible that trichomonosis infection may have come from preying on pigeons but it is usually only the larger females that attack pigeons. There is a distinct possibility that the birds were infected after eating trichomonosis-infected passerines, a normal prey species. Trichomonosis infection in passerine garden

birds is considered to be a new and emerging disease. Consequently, sparrow hawks are therefore a probable new spillover hosts for this disease.

VLA Newcastle

Biodiversity Action Plan Mammal Species

Red squirrel (*Sciurus vulgaris*) disease

During the quarter 3 cases of squirrel pox disease were diagnosed in red squirrels (*Sciurus vulgaris*) from Cumbria and the North of England. One case of adenovirus enteritis was diagnosed.

VLA Weybridge

Brown Hare (*Lepus europaeus*) renal amyloidosis

Renal amyloidosis was diagnosed in a hare found dead. Eleven hares had been found dead in the same area over a twelve-month period, but it is unclear if this hare was representative of the other deaths.

VLA Penrith

Respiratory disease in Grey Seal (*Halichoerus grypus*)

A grey seal (*Halichoerus grypus*) pup was collected from a Northumberland beach in August by a marine mammal rescue charity. Although the animal was in relatively good body condition, it was lethargic and exhibiting hyperpnoea. It died en route to a rehabilitation facility. Differential diagnoses for the respiratory distress included Phocine Distemper Virus (PDV), a morbillivirus that caused high mortality in common seal (*Phoca vitulina vitulina*) populations in Northwest Europe in 1988 and 2002. Grey seals are not as susceptible to PDV, but gross examination indicated PDV as a differential. A widespread sub-pleural, interstitial, mediastinal and pericardial emphysema and pulmonary consolidation were seen. Histopathology revealed a marked acute to sub-acute purulent bronchitis with a purulent bronchopneumonia. A small number of lungworm were present but no convincing evidence of a morbillivirus infection. However, the possibility that purulent inflammation had masked subtle lesions could not be excluded. *Brucella pinnipedialis* was isolated from the lung of the seal. This may be an incidental finding but marine *Brucella* species do have recognised zoonotic potential. They have been isolated by the VLA on a number of occasions particularly from cetaceans and seals in Southwest England.

VLA Newcastle, VLA Truro

Novel *Mycoplasma/Ureaplasma* sp. from Atlantic white-sided dolphin (*Lagenorhynchus acutus*)

An adult male Atlantic white-sided dolphin was received after live stranding on the North Cornwall coast. It was euthanased due to its poor body condition. On post mortem examination, it was evident it had not fed for some time. The presence of worn, broken and missing teeth and the rather small size of the testes suggested it was an old, sexually inactive animal. There was evidence of parasitism in the sinuses, subcutaneous fascia and pelvic cavity. Multifocal coalescing haemorrhages were found in the distal third of the small intestine and a mixed bacterial growth of *Actinobacillus delphinicola*, a *Helicobacter* sp. and a probable *Mycoplasma/Ureaplasma* sp. were isolated from the contents. 16s DNA sequencing has shown that the *Mycoplasma* appears to be a novel marine mammal isolate.

Possible *Brucella* associated meningoencephalitis in Common dolphin (*Delphinus delphus*)

A juvenile male common dolphin was submitted after being found dead on the South Cornwall coast. It was in moderate body condition but the virtual absence of ingesta/digesta indicated that it had not fed for some time. There was evidence of pulmonary and gastric parasitism. The lungs had a markedly asymmetrical appearance (one markedly congested, the other appearing 'over-inflated'), consistent with lying on one side prior to death. This together with the presence of material in the mouth and oesophagus suggested it might have previously live stranded prior to being found dead. A *Brucella* sp. was isolated from the brain stem of the animal. The significance of this is unclear in the absence of histopathology. However *Brucella* associated meningoencephalitis has been reported in dolphin species live stranding on UK coasts.

VLA Truro

The Atlantic white-sided and Common dolphin post-mortem investigations were carried out as part of the collaborative UK Cetacean Strandings Investigation Programme (CSIP).

Diagnosis not reached Analysis – due to limitations of low numbers of submission for most syndromes and the number of different species submitted the analysis of Diagnosis not reached cases will be reserved for the final report of the year.