

GB Wildlife Disease Surveillance Partnership



Quarterly Report: **SECOND QUARTER 2010 – Volume 12.2**

Date: April – June 2010



The VIDA diagnoses are recorded on the VLA FarmFile database and comply with agreed diagnostic criteria against which regular validations and audits are undertaken.

The investigational expertise and comprehensive diagnostic laboratory facilities of both VLA and SAC are widely acknowledged, and unusual disease problems tend to be referred to either. However recognised conditions where there is either no diagnostic test, or a clinical diagnosis offers sufficient specificity to negate the need for laboratory investigation, are unlikely to be represented. The report may therefore be biased in favour of unusual incidents or those diseases that require laboratory investigation for confirmation.

VLA RLs and SAC Veterinary Services have UKAS Accreditation and comply with ISO 17025 standard.

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HIGHLIGHTS

- Investigations into sea bird mortalities – current, and reviewed
- New disease report – Bovine TB in an English wild boar
- Emerging disease report – avian pox in great tits
- Emerging disease report – *E. coli 2* infection in passerines
- Two emerging viral infections in aquatic animals
- Emerging mortality report – otter predation of common toad

INTRODUCTION

The *GB Wildlife Disease Surveillance Partnership* comprising the Veterinary Laboratories Agency (VLA), Scottish Agricultural College (SAC), Institute of Zoology (IoZ), the Food and Environment Research Agency (FERA) and the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) produces the *GB Wildlife Disease Surveillance Partnership Quarterly Reports*. The details of the individual partners areas of surveillance and research can be found at:- http://www.defra.gov.uk/vla/reports/docs/rep_survrep_gbvsp.pdf

OVERVIEW

Seabird mortality incidents are regular occurrences in the UK and tide-line strings of carcasses are familiar. Sea-bird colony failures are also frequently reported or suspected. The causes for both are not fully understood, and in the case of colony failures, investigation and collection of representative samples is very difficult. Multiple causes are likely and it is dangerous to make assumptions as to cause, as incidents in this Report verify. We also include a review of sea bird mortality investigations.

The importance of investigation of sea bird mortality incidents is that these incidents can give the first indication of change in our marine environment.

NOTIFIABLE DISEASE

Great Britain Avian Influenza Wild Bird Surveillance (AIWBS): April–June 2010

H5N1 Highly Pathogenic Notifiable Avian Influenza (HPNAI) was not detected from any of the 140 wild birds found dead, sampled and tested during the last quarter in Great Britain. No wild birds were sampled as part of wildfowl trapping activities (Table 1). The last detection of H5N1 HPNAI in wild birds in GB was during January-February 2008, from ten Mute swans (*Cygnus olor*) and one Canada goose (*Branta canadensis*) in South Dorset (Defra, 2008).

Current AIWBS activities in Great Britain focus on the patrolling of designated reserves by skilled wild bird ecologists and wardens. Members of the public are also asked to remain vigilant for 'mass mortality' incidents of 10 or more birds and report these to the Defra Helpline (08459 33 55 77). Further information is available at:

<http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/ai/wildbirds/index.htm#surveillance>

Table 1: Number of wild birds tested and results in GB - 2nd Quarter

Surveillance activity	Number of birds tested*	Positive AI virus result and species of bird	Comments
Legally trapped (ringing)	0 (12)	n/a	Seasonal targeted surveillance during winter and spring.
Found dead	140 (113)	nil	Scanning surveillance, all-year-round.

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Figures for April to June 2009 are shown in brackets.

International H5N1 HPNAI Events (April-June 2010)

VLA, in collaboration with Defra, monitors the international situation and distribution of Avian Influenza detections. As a result, Defra currently considers there is an ongoing, low risk of introduction of notifiable avian influenza to the UK via a number of routes, including wild birds. The importance for all poultry keepers to maintain robust biosecurity measures, vigilance for clinical signs of disease and to promptly report suspect cases of avian notifiable disease remains undiminished.

There were no further reports from EU Member States (MS) during the period April to June 2010 of H5N1 HPNAI detections in poultry or wild birds (ADNS, 2010) following the events in Romania (backyard poultry) and Bulgaria (Common Buzzard, *Buteo buteo*, found dead) involving clade 2.3.2 viruses during March/April 2010 (see http://www.defra.gov.uk/vla/reports/docs/rep_survrep_qtlyw0110.pdf). The

outbreaks in Romania were the first in an EU MS since October 2008, when the virus was detected in commercial ducks in Germany (OIE, 2008; Irvine and others, 2008; Anon, 2008). Prior to the wild bird incident in Bulgaria, H5N1 HPNAI was last reported in wild birds in the EU during March 2009, from a Mallard duck (*Anas platyrhynchos*), one of 39 wild birds shot and sampled during January 2009 at Lake Starnberg, Germany (summary at: http://www.defra.gov.uk/vla/reports/docs/rep_survrep_qtlya0109.pdf).

Poultry outbreaks continued to be reported from south east Asia and other countries where infection is considered to be endemic, including Indonesia, Vietnam, Cambodia, Laos, Egypt and Bangladesh (UNFAO, 2010a, b; OIE, 2010a). Israel also reported an outbreak affecting two emus (*Dromaius novaehollandiae*) in a zoological collection of 117 captive birds. All birds were culled (SANCO, 2010; OIE, 2010b). Elsewhere, H5N1 HPNAI detections in wild birds were also reported. During April 2010, routine AI wild bird surveillance in Hong Kong resulted in H5N1 HPNAI detection from a barn swallow (*Hirundo rustica*), a migrant species that generally visits Hong Kong in the spring/summer (OIE, 2010c). During May 2010, twenty-six wild birds identified as Whooper swans (*Cygnus cygnus*) and greylag geese (*Anser anser*) were reported as infected with H5N1 HPNAI at Ganga lake, Sukhbaatar region, eastern Mongolia (OIE, 2010d). Subsequently, during June 2010, Russia reported the detection of H5N1 HPNAI from a large wild bird die-off at Ubsu-Nur Lake, Respublika Tyva (OIE, 2010e) involving Great Crested Grebe (*Podiceps cristatus*), Goosander (*Mergus merganser*), Grey Heron (*Ardea cinerea*), Gadwall (*Anas strepera*) and Eurasian Spoonbill (*Platalea leucorodia*). Multiple wild bird incidents were reported in Central Asia during May to August 2009, including at Ubsu-Nur lake and the bordering north-western Mongolia (see summaries in GB Surveillance Reports, April-September 2009: http://www.defra.gov.uk/vla/reports/rep_surv_wildlife.htm) involving closely related H5N1 HPNAI clade 2.3.2 viruses (Sharskov and others, 2010).

These events demonstrate that the epizootiology of H5N1 HPNAI remains dynamic and a persistent threat to poultry and wild bird populations globally. In remote areas of central Asia, seasonal patterns of wild bird detections in putative sentinel species recur in the absence of poultry populations. However, virus evolution continues, as demonstrated by the expansion in geographic and wild bird and poultry host ranges of clade 2.3.2 viruses, akin to previous events involving clade 2.2 viruses from 2005/6 onwards. It remains to be seen if the apparent westward spread of this novel genotype continues, specifically within the EU and therefore, whilst recent events would imply that the risk of incursion and threat of AI to UK poultry is unchanged, vigilance within existing surveillance frameworks should be maintained.

International H5N1 HPNAI Events

Richard Irvine & Ian Brown, Avian Virology, VLA

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Warble fly in imported deer

Warble fly grubs found in a consignment of imported reindeer from Sweden, with suspected warble fly, were identified as *Hypoderma tarangi*. Identification was confirmed by the Natural History Museum.

FERA

ZOONOTIC DISEASE

Passive surveillance for lyssaviruses in UK bats

Over 340 bat carcasses were submitted to the VLA in the first half of 2010 for lyssavirus screening. These contained five Daubenton's (*M. daubentonii*) and four Serotines (*Eptesicus serotinus*). All samples were negative.

Active surveillance for bat lyssavirus in UK bats

Active surveillance for European Bat Lyssavirus type 2 in Daubenton's bats will continue this year with minimally invasive sampling, in selected sites, for serology and detection of virus in saliva through PCR and virus culture.

Rabies surveillance in terrestrial wildlife

Two wild foxes (*Vulpes vulpes*) were tested for rabies this quarter, due to clinical suspicion of rabies. One was shot by a farmer in Carmarthen after displaying abnormal behaviour and hypersalivation. The second was caught in an urban area of South East London following an attack on two young children attributed to a fox; an incident widely reported in the press. Both were negative for rabies.

[Dan Horton, Rabies and Wildlife Zoonoses Group, VLA Weybridge](#)

Salmonellosis in Wildlife: -

April–June 2010

There were two isolates of salmonella from wild terrestrial mammals from VLADoWS this quarter from England and Wales. Both were hedgehogs (*Erinaceus europaeus*) from wildlife hospital/rehabilitation centres. *Salmonella* Enteritidis phage type 11 was isolated from one. *Salmonella enteritidis* phage type 11 is common and widespread in hedgehogs in England. (Keymer and others, 1991). Robinson & Routh (1999) suggest that *S. enteritidis* phage type 11 appears to be endemic in hedgehogs. *S. enteritidis* phage type 20 was isolated from an abscess of the other, which was an adult.

An isolate of a garden bird associated salmonella, *S. Typhimurium* DT56 variant, came from an environmental "boot swab" collected on a broiler unit. There were no reports of *S. Typhimurium* DT40 or 56 from farmed, domestic or zoo species during April –June 2010.

[Alex Barlow, VLA Langford](#)

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.

References

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Cetaceans

No *Salmonella* sp. was isolated from any of four harbour porpoises (*Phocoena phocoena*) from England and Wales examined as part of the Cetaceans Strandings Investigation Programme (CSIP) this quarter.
[Rob Deaville \(IoZ\), CSIP, and James Barnett, VLA Truro](#)

Other wild mammals

No *Salmonella* sp. was isolated from three terrestrial wild mammals examined at the IoZ this quarter (one hedgehog [*Erinaceus europaeus*], one fox [*Vulpes vulpes*] and one pipistrelle bat [*Pipistrellus pipistrellus*]).

Wild birds

All of 45 garden birds submitted to the Garden Bird Health *initiative* (GBHi) this quarter were negative for *Salmonella* sp..
[Katie Colvile, IoZ](#)

West Nile Virus (WNV) bird surveillance:

From April 1st to June 30th brain and kidney tissues from 76 wild birds comprising 30 species of small passerines, corvids, raptors, columbiformes, water and sea birds have been tested for WNV by virus isolation through 2 X 7 day passages in Vero cells and by RT-PCR. All with negative results.

Four sera from horses showing neurological signs were tested for WNV. All with negative results.

Sera from nine young Common (Eurasian) Cranes (*Grus grus*), were tested by competition ELISA for WNV as part of health checks for the **Wildlife and Wetlands Trust Great Crane Project** and prior to their release onto the Somerset levels. All with negative results.

[Dan Horton, Rabies and Wildlife Zoonoses Group, VLA Weybridge](#)

Isolation of *Mycobacterium bovis* from a feral wild boar (*Sus scrofa*) in the UK

The Food and Environment Research Agency (FERA) has been studying a wild boar population in Herefordshire, for over 10 years. In January 2010, postmortem examination at the VLA (under the VLADoW Scheme) of a study animal from this population yielded acid-fast bacilli typical of *Mycobacterium* species and colonies typical of *M bovis* were isolated on culture and were later identified as spoligotype 17. This is the first record of *M. bovis* infection in a free-living wild boar in the UK, although the disease is commonly recorded in wild boar in continental Europe, particularly Spain. Defra's risk assessment of the potential impact of wild boar in England estimates the current threat to domestic livestock and public health from *M bovis* infection in wild boar to be low.

The findings are reported in a letter Foyle, Delahay and Massei, 2010, *Veterinary Record* 166, 663-664.
doi: 10.1136/vr.c2681

FERA

Viral zoonoses in urban rodents

Over 60 mice and rats have now been collected as part of a project carrying out surveillance for rodent borne zoonoses in urban rodents in the north west of England. Validation of tests for Ljungan and Hanta viruses is underway, and results are pending. A workshop will be held on Hanta viruses at the end of next month with invited global experts to talk on different approaches to surveillance.

[Dan Horton, Rabies and Wildlife Zoonoses Group, VLA Weybridge](#)

EMERGING AND ENDEMIC DISEASES

Ongoing activity in relation to infections of carnivores:-

- An MRes project is being undertaken on the interaction between infections of badgers by helminths and coccidia, that may in turn identify patterns of co-infection with TB, although this is of secondary importance at this early stage.
- An MRes Project is being undertaken on the prevalence of *Angiostrongylus* in foxes, as a continuation of earlier work on this parasite that presents a risk to kept animals.
- *Trichinella* surveillance in foxes and the development of genetic tools for diagnosis of *Echinococcus* in foxes are progressing to schedule. We are extending our network of sample collection into areas that have not previously been strongly represented.

[Fera](#)

SUBMISSIONS: Wild bird submissions this quarter to VLA DoWS –

Month	Number of ED1600 wild bird submissions	Number of ED1600 birds submitted	Number of wild birds examined	Wild birds examined for West Nile Virus
April	8	19	14)
May	8	19	19	} 76
June	6	27	27)

Wild bird reports from Scotland

Carbofuran poisoning was the cause of death of a buzzard (*Buteo buteo*) submitted for necropsy.

Necrotic stomatitis and glossitis associated with hairworms (*Eucoleus species*) was seen in a thin buzzard (*Buteo buteo*) found in a country park

An immature jackdaw (*Corvus monedula*) was found alive and showing nervous signs such as torticollis and circling. Severe trauma to the head was found, possibly inflicted by other birds. Necropsy revealed several plaques and nodules in the lungs, although the airsacs appeared unaffected. Fungal cultures were unrewarding, but histopathology demonstrated pulmonary granulomata associated with branching septate fungal hyphae. It was concluded that the bird had been unwell due to the mycotic pneumonia and had then been attacked by other birds.

[Tom Pennycott, SAC Consulting Veterinary Services](#)

Trichomonosis

Trichomonosis was suspected or confirmed in nine of 45 garden birds (20%) examined for the GBHi this quarter: four greenfinches (*Carduelis chloris*) (from three sites), two chaffinches (*Fringilla coelebs*) (from one site), one bullfinch (*Pyrrhula pyrrhula*), one collared dove (*Streptopelia decaocto*) and one feral pigeon (*Columba livia*). Although late summer/ autumn remains the peak season for passerine trichomonosis in GB, it is normal for a smaller number of cases to be diagnosed during the rest of the year.

[Katie Colvile, GBHi, IoZ](#)

Trichomonosis -continued

Trichomonosis was most often seen in finches such as greenfinches (*Carduelis chloris*), siskins (*Carduelis spinus*) and chaffinches (*Fringilla coelebs*) in Scotland

[Tom Pennycott, SAC Consulting Veterinary Services](#)

Avian pox

Three great tits (*Parus major*) submitted to the GBHi this quarter, from two sites in the southeast of England, had lesions consistent with avian pox infection (pending histopathological confirmation). Two of these birds also had a *Staphylococcus aureus* septicaemia, highlighting the apparent susceptibility of pox-affected birds to secondary infections. Avian poxvirus infection was first diagnosed by the GBHi in great tits in 2007, and appears to be an emerging infectious disease in Paridae.

Escherichia coli 2 infection

Escherichia coli 2 infections of a typical serotype O86 API profile were isolated from five garden birds submitted to the GBHi this quarter; this bacterium has been associated with mortality incidents in siskins and other finches, particularly in Scotland (Pennycott et al., 2002). An incident of *E. coli* 2 mortality was diagnosed in siskins at a site in Northumberland in May 2010: *E. coli* 2 (API profile 4144102) was isolated from three birds submitted from the site, two of which had pathological findings indicative of enteritis. *E. coli* 2 (API profile 4144102) was also isolated from an emaciated blackbird, with concurrent pasteurellosis that appeared to be secondary to cat predation; *E. coli* 2 infection might have weakened the bird and predisposed it to predation or may have been incidental in this case. Finally, *E. coli* 2 (API profile 4144102) was also isolated from a nestling great tit, which was one of three from the same brood examined in May 2010; the significance of infection in this case was unclear (the other nestlings were negative for infection). Serological examination of these isolates to confirm whether they are *E. coli* O86-like is pending. A recent publication by Oaks et al. (2010) concluded that the *E. coli* O86 isolates from Scotland, and other *Escherichia* sp. isolates from captive and wild birds in other countries, are in fact *E. albertii* on the basis of biochemical and genetic methods; change in our accepted nomenclature for these infections in GB may be required in the future.

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[Katie Colville and Becki Lawson, GBHi, IoZ](#)

Suspect Corvid Respiratory Disease:-

Two carrion crows (*Corvus corone*) in good body condition were submitted under VLADoWS from a die-off of tens of adult crows over a 2-3 day period. Both had severe fibrinous air-sacculitis and pneumonia, and one had caseous material in the infraorbital sinus. *Pasteurella multocida* was isolated from the infraorbital sinus, lung and air sac, no fungi were grown and only *Mycoplasma gallopavonis* was detected mycoplasma results are awaited. The birds tested negative for avian influenza. Crows had been seen flying in and out of a barn containing healthy sheep and calves, but otherwise there was no known livestock contact. This is one of several recent suspected CRD incidents, and like some of the previous ones, *P. multocida* has been isolated providing evidence for a role for this bacterium in the aetiology of the disease. The *P. multocida* isolated is being typed to assess its relationship with isolates from livestock. [Susanna Williamson, VLA Bury St Edmunds](#)

Low rainfall associated with lead poisoning in Mute Swans:-

Low rainfall in the first half of 2010 resulted in a lower than usual water level in a lake in Central England. It is suspected that the low water level in the lake may have enabled swans to have access to fishing tackle which had accumulated at the bottom of the lake. Five Mute Swans (*Cygnus olor*) had been present on the lake for several weeks and four were found dead over a period of 2 weeks. One live swan had signs of lead poisoning which was confirmed following laboratory tests. Fishing line, lead sinkers and fishing hooks were recovered from its gizzard and it made a recovery following treatment. Raised kidney lead levels were found in the kidneys of three swans at post-mortem and one swan had the remains of a fishing float embedded in its gizzard.

This scenario may be relevant for other lakes which have been heavily fished in the past and may have an accumulation of fishing tackle and lead weights in the silt at the bottom of the lake.

[Paul Holmes, VLA DoWS, VLA Shrewsbury](#)

Sea bird mortality: sea bird colony failures

This quarter two seabird mortality incidents were investigated by VLADoWs, and these are reported below. This is followed by a summary of VLADoWS seabird incident investigations since 1998.

1. Roseate tern mortality at the principle English breeding colony

Roseate terns (*Sterna dougallii*) are largely confined to one small island off the North East coast of England where approximately 90 pairs comprise 90% of the English breeding population, making this one of England's rarest breeding sea birds. There are no mammalian predators on the island and sand eel prey this year has been plentiful. In total six dead adult roseate terns were found of which three were submitted and examined.

Postmortem examination on all birds revealed that they had died as a result of subtle traumatic injuries. The precise nature of the trauma was not found however the very fine puncture wounds to the lungs and head area were consistent in each bird. Avian predators will potentially include gulls and Oystercatchers (*Haematopus ostralegus*). The injuries may however be associated with fine stab wounds inflicted by the beaks of other terns, including Roseates. The reasons for possible intraspecific aggression and why the dead birds were susceptible to attack are not known.

2. Gull chick mortality. At what was once one of the largest Herring Gull (*Larus argentatus*) and Lesser Black-Backed gull (*Larus fuscus*) breeding colonies in England, in recent years, the reserve wardens have recognised a significant annual mortality among the chicks. This year approximately five fledged chicks a day have been found dead among the 3000 birds present. Eleven birds were submitted and starvation diagnosed in two. From the remaining birds that were suitable for examination there was evidence of predation. In some birds mammalian predation was suspected and a range of mammalian predators including foxes and badgers are known to regularly hunt over the colony. In the majority of birds however it was considered that predation by other birds was responsible. The principle reason for the colony decline is generally considered to be the closure of a large waste tip near the colony area, which was a source of food for the gulls. It may be that the birds can still find food in the area, which is why they return to breed, but there is not sufficient food to maintain the colony at its present size. The general scarcity of food may be resulting in increased aggression between the birds and the attacks on the chicks.

Sea bird mortality incidents. A review of some VLA Diseases of Wildlife Scheme (VLADoWS) investigations:-**Overview**

VLA examines submissions of sea birds each year under scanning surveillance (to assess cause of death) and targeted surveillance (for evidence of AIV and WNV infections). Results are reported to Defra, in the Wildlife Quarterly Reports (WQR) and the annual 'Diseases of Wildlife in the UK' (OIE) Reports.

VLA will accept submissions of unusual, or mass, mortality in sea birds at any VLA Regional Laboratory. We are particularly keen to investigate colony failure incidents, with biologists, however material from

these is infrequently submitted to VLADoWs . Investigations into seabird mortality incidents over several years can be categorised to some extent, as below -

1. Sea bird colony failures. The results may reflect changes in marine ecology and possibly climate. It is essential that carcasses are examined but few are received.
2. Sea bird wrecks, tide line wrecks. These should be investigated by post mortem examination as causes of death vary considerably. They occur on an almost annual basis.
3. Avian botulism. Annual occurrence. Marine outbreaks less common than fresh water incidents. Some incidents have significant mortalities. Public concern particularly associated with this disease. Considered to have very low or negligible zoonotic potential in the UK.
5. Pollution and anthropogenic toxicities – Human produced pollution. For examples oil, PTFE, and plastic waste pollution. VLADoWS have on several occasions found pieces of plastic in the gizzards of fulmar (*Fulmarus glacialis*).
4. Starvation. Often multifactorial in cause Diagnosed in all species but particularly in auks and terns. May be normal and sporadic, or may reflect changes in marine ecology.
6. 'Natural toxicities' – botulism and algal blooms. May be mediated by human activities.
7. Recognised undiagnosed disease – e.g. fulmar mortalities seen in East Anglia and at the same time in other Northern European coasts. Puffinosis in shearwaters.
8. New disease syndromes – e.g. Eider duck mortalities. All new syndromes need to be investigated and assessed.
9. One-off unusual incidents – Usually relate to human activity. These can cause public concern, for example, starling mortality linked to a grounded ship with carcasses washed-up on Blackpool promenade.

A selection of investigations are summarised below -

1. Deaths in Kittiwakes (*Rissa tridactyla*) in North East England

1996-1998 wrecks of dead Kittiwakes found on tide-line over this period with declines in local Tyneside kittiwake breeding colonies. Striking gross pathology. Suspected algal toxicosis in North Sea circumstantially linked to dumping of pelleted human sewage. Deaths stopped with new EU sewage treatments. The syndrome has not recurred since 1998.

Threats Algal blooms in the North Sea causing sea bird deaths previously reported and may recur. Incident attracted public concern and press interest including TV coverage, very difficult to establish diagnosis

Refs; WQR 1, 2, VLA reports to the Environment Agency. Environment Agency Report. Coulson et al, *Waterbirds*.

2. Botulism in waterbirds

Generally considered that 1999 was a 'bad year' for avian botulism with several submissions to VLADoWs. Laboratory confirmation is difficult.

Threats identified and comment

- a) Public concerned at plight and numbers of birds affected; birds often survive for 2-3 days.
- b) Occasional mass mortality; conservation/biodiversity impact on certain species.
- c) The potential zoonotic threat is considered to be minimal in the UK
- d) If carcasses are not removed they can extend the outbreak as a source of botulinum toxin.

Reference WQR Volume 1, No.1 August 1999.

3. Botulism in Herring Gulls 2000, Wales

Description; 25 Herring Gulls nesting on a factory roof died in Newport, Gwent over 10 days.

Results of investigation – Botulism suspected

Threats identified and comment as above. **VLA ref WQR** 2,1 August 2000.

4. Targeted surveillance for West Nile Virus (WNV)

VLA Surveillance for West Nile virus (WNV) commenced in 2001 and gulls and waders from mass mortality incidents (usually botulism was suspected) were examined for West Nile virus.

VLA DoWS reference - WQR Volume 2, No. 4 September 2001.

By 2003 seabirds examined for West Nile virus included two species of waders, one species of Auk, Shag, Cormorant, Little Egret, Puffin, Razorbill, Little Auk, Gannet, Pink Footed goose, Whooper swan,

Pochard, Eider, Goosander, Common Scoter, Smew and three species of gulls. All birds tested negative for WNV.

5. Outbreak of nervous disease in Cormorants (*Phalacrocorax carbo*), Yorks

Description Investigation on behalf of English Nature. In the present case a diagnosis was not reached although avian botulism was suspected.

Threats identified and comment

Cormorants are susceptible to Newcastle Disease a notifiable disease in birds, and this had to be excluded. In this incident investigations for Newcastle disease and WNV gave negative results.

References; VLA WQR 5.1, WQR 5.3.

6. Suspected PTFE (Polytetrafluorethylene) toxicity in waders

Description 2004 four Redshank (*Tringa totanus*) and two Turnstone (*Arenaria interpres*) were examined as part of 61 birds found dead roosting on a Tyne factory producing PTFE products.

Threats identified and comment

Toxicity reported before in birds.

Reference VLA aided a University of Bristol investigation

7. Fulmar tide line wreck on the North Sea 2004

Description At least 200 Fulmars washed up in Norfolk, March 2004.

Threats identified and comment This was an undiagnosed mass mortality; probable complex multifactorial causes reflecting long-term disruption to food supply.

Refs *British birds* May 2005 and 2004 WQRs.

8. Seabird colony failures

8a) VLA Little Tern (*Sterna albifrons*) chick from Tyne. Starvation was diagnosed. From a Tyneside colony where no young were reared in 2004.

8b) Arctic Tern mortality in Tynemouth. 11 juveniles submitted to VLADoWS; evidence of starvation in all birds.

VLA Ref WQR 6.2, 2004 was considered to be particularly bad for seabird colony production. Articles discuss possible factors including changes in plankton distribution producing lack of Sand Eels (*Ammodytes marinus*) needed for breeding condition, incubation, and to feed chicks..

There was an appeal for carcasses from failing seabird colonies; however few were received.

VLA Ref – WQR 6.2 and 7.2 including short literature reviews We understood that seabird colony failures in 2005 were not as widespread or as severe as those in 2004.

9. Avian Influenza virus (AIV) in sea birds - targeted surveillance

VLA commenced AIV surveillance in wild birds including seabirds in 2005. Most common breeding gulls, all breeding auks, many waders, sea ducks, pelicaniform species have now been examined for WNV and AIV. By the end of 2006, 8259 birds from England and Wales, 1116 birds from Scotland examined for AIV, including seabird species. HPAIV diagnosed in mute swans in a coastal fresh water reserve in Dorset, 2008.

Threats AIV may occur in sea birds.

10. Swan and goose deaths coastal lake in Lancashire (Southport)

25 Mute swans and one Canada goose (*Branta canadensis*) died, due to necrotic enteritis. This condition caused by people feeding significant quantities of grain to the birds.

Threats Deaths due to human activity, advice given. Public concern due to AIV. **VLA Ref - WQR 8.4**

11. WQR 8.4 Oiled seabirds associated with the beaching of the MSC Napoli

Five tonnes of oil escaped and more than 1,000 seabirds were washed up around Lyme Bay. RSPCA received 997 Guillemots, 50 Razorbills, 4 Shags, 4 Great Northern Divers and 1 Gannet; necropsy by RSPCA and VLADoWS confirmed oil pollution.

Ref WQR 8.4 Threat - marine oil pollution incidents highlight the effects of pollution graphically.

12 Auk tide-line wrecks East Anglia 2007

Four submissions totalling 40 seabirds primarily Guillemots washed up at Yarmouth, 2007.

Findings were consistent with starvation.

Shoreline wrecks of dead seabirds are examined frequently by the VLA and starvation is a frequent but not universal finding. **Threat** We believe that starvation is probably multifactorial in origin and may possibly reflect changing sea ecology **VLA Ref - WQR 9.3**

This seabird wreck was probably linked to deaths of thousands of dead Auks around the coasts of Denmark, southern Norway and Sweden at the same time (reference Unwin. B. Daily Telegraph, 07/12/07). Starvation was also diagnosed in these cases.

13. Puffin (*Fratercula arctica*) mass mortality / by-catch trauma

Nine birds examined by VLADoWS, all in good condition with evidence of traumatic injury, some with evidence of drowning. Local contacts consider that fisherman drown Puffins in their fishing nets.

Threat Fishing industry - wildlife interface concern. Conservation interest, puffins are local breed birds in England.

14. WQR 9.4 Mass mortality of Starlings – coastal Lancashire

70 dead Starlings (*Sturnus vulgaris*) were submitted to VLADoWS; part of a mortality incident where birds used the grounded *Riverdance* ferry, Blackpool, as a roost

Threat – public concern when dead birds found on the promenade at Blackpool.

15. WQR 10.1 Mute swan mortality in coastal North Wales

8 Mute swans found dead on coast. Necropsy revealed that all had been shot.

Threat – public concern about possibly AIV infection. Illegal killing of wild birds.

16. WQR 10.2 Lesser Black-backed gull (*Larus fuscus*) mortality due to eating livestock food

Impaction due to ingested sheep sugar beet. At least twelve bodies found but it is suspected that many other birds died.

Threat – Farm practice/wildlife interface. Biodiversity – This species significantly declining as a breeding bird in this area of Northern England.

JPDuff, 2010, VLADoWS and GB Wildlife Disease Surveillance Partnership

Wild Mammal submissions to VLADoWS; April – June 2010

Month	Number of ED1600 wild mammal submissions	Number of ED1600 mammals submitted	Number of wild mammals examined
April	29	44	44
May	19	27	27
June	21	42	42

Wild amphibian submissions

Six common frogs (*Rana temporaria*) from five sites of mortality were submitted for post mortem examination at the IoZ this quarter.

One carcass was submitted from a site of mass amphibian mortality next to a loch in Galloway, southwest Scotland, in April. Only the head, thorax and skin of the forelimbs and a hindlimb remained: the skin appeared to have been 'degloved' from the head and thorax, and the skin of all the limbs was also completely inverted. Only a small amount of viscera remained, which appeared normal. A degloved (presumed) common frog hindlimb was also submitted from the same site. The findings were consistent with an incident of otter predation (Duff and Hewitt, 1999), and, on further questioning, the submitters had observed otter spraint in the vicinity of the mortalities. To the best of the author's knowledge, such findings have only previously been observed in toads (Duff and Hewitt, 1999), however, common frogs have been found to form the majority of otters' amphibian prey in Scotland (Weber, 1990), and it is possible that these frogs were consumed by otters in the same manner as they would normally predate toads (i.e. possibly as a learnt behaviour).

Two carcasses were submitted from separate sites of mass common frog mortality in Derbyshire and Hertfordshire. These had generalised dermal and visceral congestion, and dermal ulceration. They were negative for the 'chytrid fungus' *Batrachochytrium dendrobatidis* (Bd) on PCR. It is possible that these mortality incidents were due to ranavirus infection, and further tests are pending. Three other common frog carcasses, from two separate sites, had wounds, haemorrhage and fractures consistent with predation.

References

Duff, P., and Hewitt, S. 1999. Predation as a suspected cause of common toad (*Bufo bufo*) mortality incidents in Scotland. *The Veterinary Record* 144 (1): 27.

Weber, J-M. 1990. Seasonal exploitation of amphibians by otters (*Lutra lutra*) in north-east Scotland. *Journal of Zoology* 220 (4) 641-651.

[Katie Colvile, IoZ](#)

Aquatic animal diseases**Cockle mortality**

There has been research into cockle mortality in the Burry Inlet and elsewhere in the last few years. Disease and environmental factors have been implicated. Recently, parasitologists at Cefas have identified for the first time a protistan parasite infection in cockles which may play a part in the ongoing mortality. The original host for the parasite is a non-native introduced species of clam.

Crayfish plague

During the first 6 months of the year there has been one confirmed outbreak of crayfish plague in native white clawed crayfish and samples from a second mortality incident are currently being analysed. Preliminary results from research into the prevalence of the plague carrier status of signal crayfish indicates that <50% of populations tested (30) were positive and prevalence was generally less than 30%.

Isolation of B1 virus from shore crabs

Researchers at Cefas have recently identified B1 virus from shore crabs. The virus was first identified by a laboratory in France in the 1980's and from this original description, B1 virus has been shown to be morphologically identical to white spot syndrome virus (WSSV), perhaps the most significant pathogen of farmed shrimp globally. The similarity between B1 and WSSV and the epidemiological link between the anecdotal feeding of crabs to shrimp in the late 1980's, which may have led to the emergence of WSSV in shrimp can now be formally investigated using modern approaches to viral phylogenetics. It may be envisaged that B1 could be classified as a second virus (to WSSV-1) in the Nimaviridae family. Work is underway to fully characterise the virus and to check cross-reactivity with diagnostic tests currently being employed for the detection of WSSV in crustacean samples.

Ranavirus infections

A Defra funded research project at Cefas investigated the susceptibility of different fresh-water fish species to amphibian ranavirus. Initial results indicate that chub (*Leuciscus cephalus*) may be susceptible (intra-peritoneal challenge) and this will be explored further in bath challenges. Native amphibian species, including common frog and common toad, were demonstrated to be susceptible to at least two exotic ranaviruses isolated from amphibians (imported for the aquatic animal pet trade).

[Ed Peeler, Cefas Weymouth](#)

UK Priority and Conservation concern Mammal Species

Bat White-Nose Syndrome Surveillance

Three dead bats were submitted to VLADoWS for *Geomyces destructans* screening. One was a lesser horseshoe bat (*Rhinolophus hipposideros*) from Devon and the other two were autolysed but presumptively identified also as lesser horseshoe bats. One of these was from a different location in Devon and the other Monmouthshire. The suspect lesser horseshoe bats from Devon was too autolysed for EBL screening and thus no fungal cultures were attempted. Fungal culture was carried out from the other two. After a prolonged incubation there was no evidence of *Geomyces destructans* from these bats. Also, there have been no reports of mass mortality of bats during this quarter.

[Alex Barlow, VLA Wildlife Group](#)

Seals - Foreign body gastric perforation in a grey seal (*Halichoerus grypus*):-

A rescued grey seal estimated to be three months of age was received. The pup had been passing feathers in its faeces and later in vomit, and had developed a swollen abdomen before dying. Grey watery fluid was present in the peritoneum and feathers were found outside the pylorus and within a 3mm diameter perforation of the pyloric wall. Hungry weaned seal pups commonly feed by scavenging on dead animals including birds.

A rehabilitated grey seal pup, reported to be six months of age and found dead on the north Cornwall coast 3 weeks post release, had widespread haemorrhages strongly suggestive of trauma. Three post release seal deaths also occurred in 2009 and post mortem examinations of these animals were inconclusive.

Porpoises

A sub-adult female harbour porpoise, with lesions consistent with bycatch, also had unusual circular lesions on the left thorax, possible differentials for which include tooth marks from e.g. a cookie cutter shark or lamprey or impressions made by some man made object (e.g. on the net).

[James Barnett, VLA Truro](#)

Cetaceans

Four harbour porpoises were examined as part of the CSIP this quarter; these are a BAP-listed species. Validated and finalised data covering this period for GB will be produced in the CSIP annual report, and will be published at:

(<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&ProjectID=15331&>

FromSearch=Y&Publisher=1&SearchText=strandings&SortString=ProjectCode&SortOrder=Asc&Paging=10#Description).

[Rob Deaville \(IoZ\), CSIP](#)

Hedgehog

A hedgehog that had been found dead in a Bristol garden in June was examined at the IoZ: there were wounds, fractures and haemorrhage consistent with predation.

[Katie Colvile, IoZ](#)

UK Priority and Conservation concern Bird Species

Red kites (*Milvus milvus*)

This quarter eight red kite carcasses were submitted to the IoZ as part of the SRP. This relatively high rate of submission (four carcasses were submitted in the same period in 2009) likely reflects the increasing population size of red kites as a result of the Natural England reintroduction program. There are now estimated to be over 1,000 red kite breeding pairs in England (Ian Carter, Natural England, personal communication March 2010).

Trauma was diagnosed in two individuals: i) owing to fence entanglement, and ii) following collision with a glider. (53% [n = 17] of cases reported from March 2009 to March 2010 were associated with trauma. There was suspected anticoagulant rodenticide toxicity in one individual. One individual, in poor condition, had a heavy intestinal *Capillaria* sp. infection associated with moderate inflammation of the intestinal mucosa; oral capillariasis was previously reported in a red kite in 2008, but there were no oral lesions in this recent case. Another red kite had a mild radio-tracking harness related injury and aspiration of crop contents. Three carcasses were mummified or too autolysed to reach diagnoses.

Garden birds

Seven birds of BAP-listed or Conservation Concern species were examined for the GBHi this quarter. Three bullfinches (from three sites) were examined: two cases appeared to have suffered trauma, and one case had suspected trichomonosis. Two dunnocks (*Prunella modularis*) (from two sites) were also examined. One dunnock had fractures and haemorrhage consistent with trauma, and the other had fractures, wounds and haemorrhage consistent with physical euthanasia, but also hepatomegaly and possible splenomegaly. This dunnock had been seen ill before being euthanased. Parasitological and microbiological examinations were unremarkable, and tissue samples were archived pending further tests. A green woodpecker (*Picus viridis*) was submitted that had been found dead on a roadside. It was an adult female in normal body condition. There were fractures and haemorrhage consistent with trauma, but also apparent coelomic and pulmonary abscesses. However, the nature of these lesions could not be confirmed owing to the state of decomposition, and no significant pathogens were isolated on culture. A spotted flycatcher (*Muscicapa striata*) was also examined for the GBHi this quarter, which had fractures and haemorrhage consistent with trauma.

[Katie Colvile, GBHi, and Rebecca Vaughan, SRP, IoZ](#)

Trichomonosis

Trichomonosis was diagnosed in two buntings at a garden feeding station in the north of Scotland in April. Both birds, a yellowhammer (*Emberiza citronella*) and a reed bunting (*Emberiza schoeniclus*) are UK Biodiversity Action Plan priority species, adding to the concerns about the effects of this disease on wild birds.

[Tom Pennycott, SAC Consulting Veterinary Services](#)

Parasitism in Chough (*Pyrrhocorax pyrrhocorax*)

Parasitism was considered to be the cause of death of a thin chough found dead on Islay: areas of the koilin layer of the gizzard were black, raised and roughened, and haemorrhages were seen on the underlying gizzard mucosa. Small, thin parasitic worms were visible on the undersurface of the koilin layer. The worms are undergoing further identification, but similar worms were found in the gizzard of a chough from Islay in November 2009.

[Tom Pennycott, SAC Consulting Veterinary Services](#)

UK Priority and Conservation concern Reptile and Amphibian Species

Common toad (*Bufo bufo*)

Approximately 100-150 dead common toads (*Bufo bufo*) were found on a Scottish island. Six carcasses were submitted and all showed similar postmortem lesions. The ventral abdomen of all the toads had been opened, exposing the abdominal viscera. The head, back and forelimbs of the toads appeared to be intact, but the bones and muscles of the legs were missing. The skin of the legs had been turned inside-out, suggesting that the legs had been pulled out of the skin. These findings are consistent with predation, most likely caused by an otter. Similar findings were reported by Duff and Hewitt in 1999. Toad skin and some tissues are toxic and irritant, and some predators have developed the technique of skinning the toad legs before they eat the legs.

[Tom Pennycott, SAC Consulting Veterinary Services](#)

Reference:

Duff JP, Hewitt S. (1999) Predation as a suspected cause of common toad (*Bufo bufo*) mortality incidents in Scotland. *Veterinary Record* **144**(1):27.

Wild bird carcass submissions to projects managed at the loZ this quarter

Month	GBHi	SRP	Total
Apr	7	4	11
May	20	2	22
Jun	18	2	20
Total	45	8	53

Cetacean submissions to the CSIP, from England and Wales, this quarter

Month	Cetacean submissions to the CSIP from England and Wales
Apr	2
May	1
Jun	1
Total	4

Terrestrial mammal submissions to the loZ this quarter

Month	Terrestrial mammal submissions to the loZ
Apr	1*
May	1**
Jun	1***
Total	3

*pipstrelle bat

**fox

***hedgehog

Appendix 1

Diagnosis not reached Analysis April - June (Q2) 2010

The following is a summary of wildlife data analysed by the VLA from diagnostic submissions received by its 15 regional laboratories and 2 surveillance centers situated in England and Wales. The aim of this report is to review data where a diagnosis was not reached despite the sample receiving testing which was deemed adequate to allow the potential of a diagnosis to be reached. This allows monitoring of this class of submission with the aim of providing information on, and the early detection of new or emerging syndromes.

Overview

Data analysis revealed no changes thought to constitute evidence of emergence of new, undiagnosed disease.

During the second quarter of 2010, a *no diagnosis* was reached for only 3 of the 83 wildlife submissions undergoing reasonable testing over the period. These included, 1 black-headed gull, 1 rabbit and 1 red squirrel.

In the 12 month period Q3 2009 to Q2 2010 there was no significant increase in the proportion of submissions from terrestrial mammals for which no diagnosis was reached despite reasonable testing (%DNR) compared with the last 5 years (Q3 2004 to Q2 2009). Nor was there any significant difference compared to the proportion of DNR in the previous year (Q3 2008 to Q2 2009). See Table 1.

Although there was no significant increase in the proportion of submissions from wild birds for which no diagnosis was reached compared with the previous 5 years ($p=0.05$), there was a significant increase compared to the previous year ($p=0.01$). See Table 1. As shown in Figure 1, no diagnosis was reached for a high proportion of submissions in Q3 of 2009, which inflates the average for the most recent 12 month period. Further investigation of this increase revealed no specific increase in DNR in any particular species or group of birds suggestive of an emerging disease problem. As the figure also shows, there is no evidence that this increase continued beyond Q3 2009 however this will be monitored in future quarters.

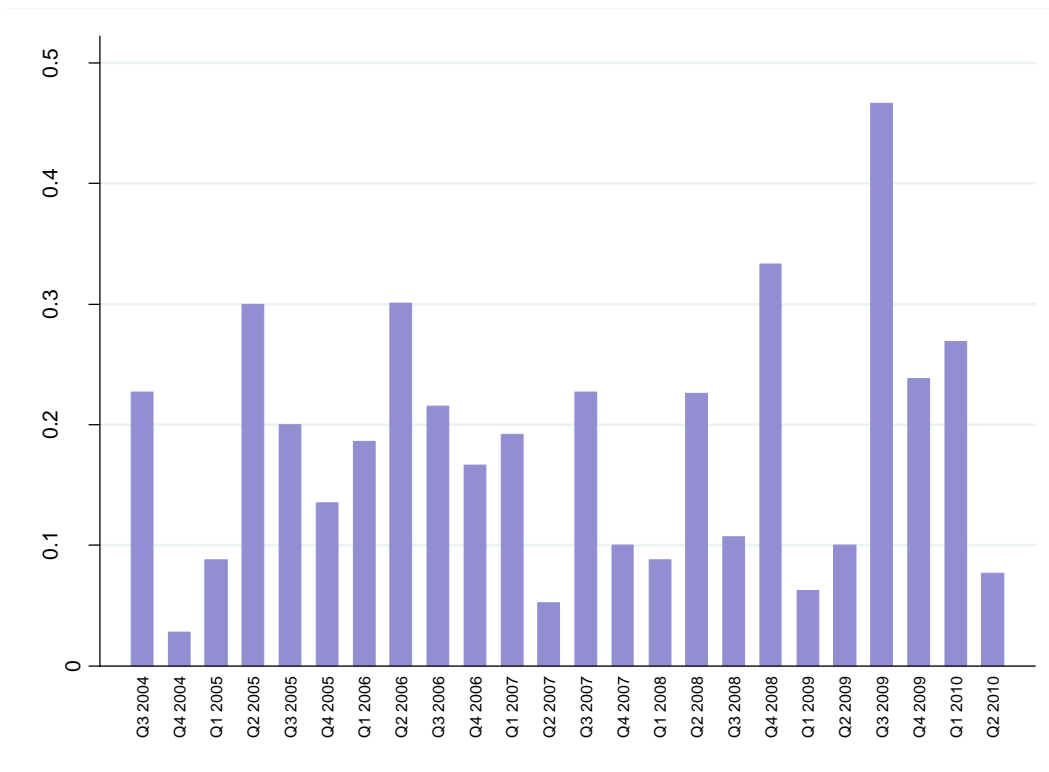
Table 1. Changes in % of undiagnosed submissions for native birds and mammals.

	% of Submissions for which Diagnosis Not Reached (reasonable testing)						
	Latest 12 months Q3 2009-Q2 2010	Prior 5 years (Q3 2004 – Q2 2009)	Z		Previous year (Q3 2008 – Q2 2009)	Z	
Terrestrial mammals	5.6%	7.3%	0.73	▼	4.6%	-0.40	▲
Wild birds	30.0%	21.2%	-1.96	▲	11.7%	-2.63	▲▲

▲▲ or ▼▼ Statistically significant increase or decrease ($z > 1.96$ or $z < -1.96$) (not calculated where $N < 40$)

For other species groups examined no significant increase in the proportion of submissions for which Diagnosis Not Reached over the last 12 months was found. The low numbers of submissions per quarter, and low number of DNRs mean comparisons by quarter is not reliable.

Figure 1. Proportion of submissions of wild birds by reporting quarter for which no diagnosis was reached despite reasonable testing.



Lucy Snow, CERA, VLA Weybridge

Please do not make the following paragraphs available to the public:**EMERGING AND ENDEMIC DISEASES*****B. dendrobatidis***

The IoZ received 164 swabs that had been used to sample free living amphibians at two intensively surveyed sites, one in Wales and another in Sussex, this quarter. These were all negative for Bd on PCR. This is part of a larger (and ongoing) project during which the IoZ will be analysing almost 3000 swabs collected from a total of eight different sites that were identified as 'Bd positive' during a 2008 survey.

One of 16 free-living amphibians received at the IoZ for post mortem examination this quarter was positive for Bd on PCR. This animal was a smooth newt from a known Bd positive site in Hampshire.

[Freya Smith, IoZ](#)

Wildbird Poisonings with bendiocarb:-

Six ravens and five buzzards that were suspected of being poisoned by spiking pheasant carcasses (as baits) with Ficon (a bendiocarb) were examined. The birds had been confiscated on a shooting estate in Herefordshire. Interestingly, the first buzzard examined had normal gizzard contents plus a mass of fat adjacent to the normal contents, the crop contained fat as in the gizzard. The bird had been found dead next to the spiked bait. Other carcasses were in variable state of decomposition, but all four samples submitted for toxicological examination tested positive for bendiocarb.

The assistant gamekeeper pleaded guilty in court and was fined £1000; the person in charge was not prosecuted.

[Guda Van der Burgt, VLA Luddington](#)

Seal mortality incidents, Norfolk coast

Following the finding of a number of common (*Phoca vitulina*) and grey (*Halichoerus grypus*) seals at Blakeney Point, Norfolk with similar lacerations to the skin, an adult female common seal was submitted to VLADoWS at Bury St Edmunds. The seal was in good bodily condition, with evidence of recent feeding and no evidence of organic disease, although autolysis was a confounding factor. No evidence for breath holding or drowning was found, but this is being investigated further through histopathology. There was an absence of haemorrhage in the carcass, but due to the degree of autolysis and the possibility that the animal had been in salt water for some time after death, it was not possible to determine whether the skin lesions occurred ante-, or post-mortem. Again, histological examination of the skin edges is being undertaken. This was part of a larger incident where up to 60 seals with 'slicing' lesions in the skin were washed up on the coast, over a 2-3 week period. The removal of large portions of skin was demarcated by clean-cut edges. Whether this traumatic injury occurred before or after death is not known, nor is the cause of the cutting lesions, or how they may have occurred.

[Cornelia Bidewell VLA Bury St Edmunds](#), [James Barnett, VLA Truro](#)