Safeguarding public and animal health

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Highlights

- Salmonellosis in hedgehogs
- Mute swan mass mortality on River Wear
- Leprosy-like disease in red squirrels
- Corkscrew seals/ seal predation

VIDA diagnoses are recorded on the APHA FarmFile database and SAC Consultancy: Veterinary Services LIMS 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 APHA and SAC CVS are widely acknowledged, and unusual disease problems tend to be referred to either. However recognised conditions where there is either no diagnostic test, or for which 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.

APHA VICs have UKAS Accreditation and comply with ISO 17025 standard. SAC CVS have UKAS accreditation at their central diagnostic laboratory and at the Aberdeen, Edinburgh, Perth, Ayr, Dumfries, Inverness, St Boswells and Thurso Disease Surveillance Centres which comply with ISO 17025 standard.

From September 2014 APHA contracted the services of partner Post Mortem providers. During January to March 2015, these services were provided by the Royal Veterinary College, the University of Bristol and SACCVS. These providers contribute to the VIDA diagnoses recorded on the APHA FarmFile database and comply with agreed diagnostic criteria. To achieve a VIDA diagnosis, all testing must be carried out by a laboratory with ISO 17025 accreditation.
OVERVIEW

The GB Wildlife Disease Surveillance Partnership comprising the Animal and Plant Health Agency (APHA), Scottish Agricultural College Consulting (SAC Consulting), Institute of Zoology (IoZ), the Centre for Environment, Fisheries and Aquaculture (CEFAS), the Wildfowl and Wetlands Trust (WWT), Natural England (NE), the Forestry Commission England (FCE) and the Garden Wildlife Health (GWH) project produces the GB Wildlife Disease Surveillance Partnership Quarterly Reports. The details of the individual partners’ areas of surveillance and research can be found at:-


ISSUES AND TRENDS - NOTIFIABLE DISEASES

Avian Influenza Virus

GBWDSP Q-ETR: May 2015
Great Britain Al Wild Bird Surveillance (AIWBS): January – March 2015

H5N1 Highly Pathogenic Notifiable Avian Influenza (HPNAI) was not detected from any of the 140 found dead wild birds tested in Great Britain (GB) during the quarter. Evidence of other influenza A virus infections was also not detected (Table 1). This included investigation of wild bird mass mortalities (eg. Mute swans, Cygnus olor, with suspected lead toxicity and incidents involving feral pigeons where pigeon paramyxovirus (PPMV-1) infection was confirmed). The last detection of H5N1 HPNAI in wild birds in GB was during January-February 2008, from ten Mute swans and one Canada goose (Branta canadensis) in South Dorset (Defra, 2008).

Table 1: Number of wild birds tested and results in GB – 1st Quarter

<table>
<thead>
<tr>
<th>Surveillance activity</th>
<th>Number of birds tested*</th>
<th>Positive Al virus result and species of bird</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Found dead</td>
<td>140 (118)</td>
<td>Nil</td>
<td>Scanning surveillance All-year-round</td>
</tr>
</tbody>
</table>

*Number of birds tested: figures for January – March 2014 are shown in brackets.

During October 2010 Defra revised AIWBS approaches in GB following changes to European Commission guidelines. The main emphasis is on AIWBS in found dead wild birds, including mass mortality incidents, and patrols of designated reserves by skilled wild bird ecologists and wardens. These Warden Patrols continue all-year-round, but are also seasonally targeted in the winter and spring periods (October to March) each year.

Members of the public are also asked to remain vigilant for mass mortality incidents and report these to the Defra Helpline: 03459 33 55 77 or 08459 33 55 77. The criteria for a mass mortality incident are five or more wild birds of any species at any location (irrespective of county) in England, Scotland and Wales. Further information is available at:


During the period 01 January to 31 March 2015 (Q1-2015), a total of 344 Warden Patrols were performed at sites across GB. This compares with a total of 301 Warden Patrols performed during the same period in 2014 (Q1-2014) in GB. During Q1-2015, the Warden Patrols were mainly performed by two organisations; Natural England (n=164) and the Wildfowl and Wetlands Trust (WWT; n=133). Warden Patrols were also carried out by seven other voluntary organisations. In total during Q1-2015, 47 wild birds found dead were tested, with no evidence of influenza A virus infection detected (Table 1).
This compares with a total of 25 wild birds found dead and tested during Q1-2014, all with negative AI results.

Overall during the Warden Patrol season from 01 October 2014 to 31 March 2015 there were 738 patrols (621 patrols during the 2013/14 season) carried out by nine organisations, of which 373 (286) patrols were carried out by Natural England and 271 (268) by the WWT. This was 117 more patrols than were reported in the same period during the 2013/14 Warden Patrol season, principally due to increased vigilance and activity during the H5N8 HPAI outbreak that occurred in England during November/December 2014 (Defra 2015a). Overall, 90 (49) wild birds found dead were tested, all with negative AI results. During the same period of 2013/14 a total of 49 wild birds were found dead and tested, with negative AI results recorded for 48/49 birds, and influenza A virus infection was detected from one Whooper swan (Cygnus cygnus). During the 2014/15 Warden Patrol season birds were most commonly found in the East, South East, North West and South West of England, and Whooper swan was the most common target species tested.

i) **Horizon-scanning**

ii) APHA, in collaboration with Defra, monitors the international situation and distribution of avian influenza detections: [http://www.defra.gov.uk/animal-diseases/monitoring/poa/](http://www.defra.gov.uk/animal-diseases/monitoring/poa/). 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 (Defra, 2015b). During February 2015 an outbreak of H7N7 LPAI was confirmed in a broiler breeder flock in Hampshire, England. Results of genetic analyses of the causative virus indicated that it was of avian origin, closely related to contemporary European H7 strains and suggested a recent introduction of the virus from a wild bird source (Defra 2015c).

iii) All poultry keepers are advised to maintain robust biosecurity measures, vigilance for clinical signs of disease and to promptly report suspect cases of notifiable avian disease to a local APHA office. Further information regarding avian influenza in poultry and wild birds is available:

- Members of the public are also asked to remain vigilant for any wild bird mass mortality incidents and report these to the Defra Helpline: 03459 33 55 77.

- APHA office contact details and further information about avian influenza, and when and how to register your poultry flock are available on the APHA website: [https://www.gov.uk/government/organisations/animal-and-plant-health-agency](https://www.gov.uk/government/organisations/animal-and-plant-health-agency).

- APHA, in collaboration with Defra, also monitors the international situation and distribution of avian influenza detections and further information can be found online at: [https://www.gov.uk/government/collections/animal-diseases-international-monitoring#preliminary-outbreak-assessments](https://www.gov.uk/government/collections/animal-diseases-international-monitoring#preliminary-outbreak-assessments).


**References**


Wildfowl and Wetlands Trust's (WWT) role in GB Avian Influenza Wild Bird Surveillance (AIWBS): January – March 2015

The second half of the winter’s AI wild bird surveillance continued with WWT conducting at least weekly patrols of its eight well established GB wetland reserves and ad hoc patrolling of the new WWT-managed wetland, Steart Marshes in Somerset. Forty-five dead birds from 16 species were reported from seven reserves: whooper swan Cygnus cygnus (16), mute swan Cygnus olor (5), Bewick’s swan Cygnus bewickii (2), Canada goose Branta canadensis (1), greylag goose Anser anser (1), pink-footed goose Branta brachyrhynchos (1), mallard Anas platyrhynchos (3), European wigeon Anas penelope (2), European green-winged teal Anas crecca (1), tufted duck Aythya fuligula (1), common pochard Aythya ferina (1), coot Fulica atra (5), moorhen Gallinula chloropus (1), black-headed gull Chroicocephalus ridibundus (3), herring gull Larus argentatus (1) and snipe Gallinago gallinago (1). Cloacal and buccal swabs from all birds were submitted to APHA Weybridge for virological examination. No AIVs were found.

Zoonotic Diseases

Salmonellosis in wildlife

APHA Diseases of Wildlife Scheme (DoWS); January – March 2015

There is no routine monitoring of Salmonella in wild birds or wild mammals by the DoWS. Therefore all isolates are usually from clinical cases, although Salmonella may often not be the primary cause of disease.

An antibiotic sensitive Salmonella Bovismorbificans Copenhagen was isolated from an abscess swab from a four week-old grey seal (Halichoerus grypus). This seal was at a wildlife hospital. The last edition of “Salmonella in livestock production in Great Britain, 2013” indicated that most isolates of this bacterium (15 isolates on 11 premises) were in farmed ducks. S. Bovismorbificans appeared in ducks for the first time in 2012 and increased in 2013. This serovar has also been increasingly found in pigs, as indicated by results from the 2013 abattoir survey. However only two incidents were record from pig farms in GB during 2013. In Germany in 2005 S. Bovismorbificans was a significant cause of food poisoning usually associated with eating raw pork.

Bird variant Salmonella Typhimurium (Copenhagen) DT40 was isolated from a swab from a three-year-old horse in the West Country. No clinical information was supplied. There were no isolations of bird variant S. Typhimurium DT56 or DT56 from wildlife or domestic species during January – March 2015. Published work indicates that host adapted salmonellae from garden birds may be a source of infection for domesticated species.

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

APHA Wildlife Diseases of Wildlife Scheme

Salmonellosis in passerines; IoZ and SAC Consulting

Passerine salmonellosis has a marked seasonality, occurring principally during the winter months. The number of diagnosed incidents in Great Britain remained low this quarter as has been the case since 2009. In February, a single Brambling (Fringilla montifringilla) was submitted to Thurso DSC (Scotland) after being found dead at a garden feeding station. In March, a single reed bunting (Emberiza schoeniclus) was found dead in a garden in Ceredigion, Wales. Salmonella Typhimurium phage type 56 variant was isolated from multiple tissues collected at post-mortem examination in both cases: this is the
most common phage type of this bacterium isolated from British passerines in the past decade (Lawson and others, 2014). Passerine salmonellosis is an important disease for study, not only as a cause of wild bird mortality but also because the bacterium may pose a threat to public, companion animal and livestock health.

References

Salmonellosis in hedgehogs
Hedgehogs (Erinaceus europaeus) infected with Salmonella can develop salmonellosis or may become carriers of the bacterium without signs of disease. The disease can range from mild gastro-enteritis to a severe condition affecting multiple organs and septicaemia leading to death (Gaffuri, 2012). Salmonella infection was confirmed in a hedgehog examined post mortem this quarter. This was an adult male from Cambridgeshire that died in September 2014. The hedgehog was found sick by a member of the public, admitted to a wildlife rescue centre and died within 48 hours of arrival. Post-mortem examination was conducted in 2015 and showed it was in very thin body condition. No other significant gross abnormalities were detected. Salmonella sp. was cultured from the liver and small intestine and biotyped as Salmonella Enteritidis phage type 11 by Public Health England. The state of tissue preservation did not permit meaningful histological examination to evaluate the clinical significance of the Salmonella infection.

This Salmonella biotype has been frequently isolated from hedgehogs in Britain and other European countries (Nauerby and others, 2000). As with passerine salmonellosis, the strains of Salmonella that affect hedgehogs have the potential to cause ill health in people, typically gastroenteritis. Therefore sensible hygiene precautions are advised as a routine measure when handling these animals.

References

Passive surveillance for lyssaviruses in UK bats
Eight wild bats and 13 zoo bat carcasses were tested at AHVLA in this quarter for lyssaviruses all with negative results.

Rabies surveillance in terrestrial wildlife
Vigilance continues for this notifiable disease in UK wildlife but no samples from terrestrial wildlife were submitted for testing this quarter.
One imported 12 week-old cross-breed puppy showing neurological signs in quarantine was euthanased and tested for rabies with negative results.

WNV surveillance in wild birds SV3045
No wild bird tissue samples were tested during the period 1st January – 31st March 2015. West Nile Virus (WNV) surveillance in dead birds will recommence on 1st April 2015, to coincide with candidate vector activity season.

West Nile virus surveillance in Equids
Between 1st January and 31st March 2015 one equine serum sample was tested by cELISA for WNV as part of differential diagnosis of neurological disease and was found to be negative.

Wildlife Zoonoses and Vector Borne Disease Research Group, APHA Weybridge
NEW and EMERGING DISEASES; CHANGES IN DISEASE PATTERNS AND RISK FACTORS; UNUSUAL DIAGNOSES

Wild bird report from the IoZ

Avian trichomonosis
This quarter, trichomonosis was confirmed in 6 of 41 birds examined post mortem. These comprised two greenfinches (Chloris chloris) and four chaffinches (Fringilla coelebs) from four sites in four counties across England and Scotland. Two of the passerines with Finch trichomonosis that were examined had gross lesions characteristic of the disease (i.e. necrotizing ingluvitis). However, four of the finches examined had minor or absent macroscopic oesophageal lesions yet were culture positive for the Trichomonas sp. parasite. A small number of similar finch cases were reported in 2013 and 2014. Histopathological examination of one of those cases yielded proliferative, erosive and ulcerative oesophagitis with intralesional protozoa (morphology consistent with Trichomonas sp). Trichomonosis should therefore be considered as a differential diagnosis of finch mortality even when no gross oesophageal lesions are visible.

Figure 1. Histological photomicrograph of the oesophageal mucosa of a chaffinch with trichomonosis and without macroscopic lesions. There are multifocal areas of erosion and ulceration of the surface epithelium. There are large numbers of approximately 7µm wide, oval protozoa (morphology consistent with Trichomonas sp.) admixed with small numbers of bacterial colonies. Star: Oesophageal epithelium; Arrow: Trichomonas sp.; Arrowhead: Bacterial colonies. Haematoxylin and eosin, 40x

Whilst Finch trichomonosis incidents have a seasonal peak in the late summer months, which was particularly marked during the early years of epidemic mortality following the initial emergence of this disease (Lawson and others, 2012), Finch trichomonosis mortality incidents occur year round. In addition, T. gallinae infection was confirmed in a sparrowhawk (Accipiter nisus) from Moray, Scotland, in February. This adult male had no upper alimentary tract lesions and post-mortem examination confirmed it died as a result of trauma. Histology is pending to determine whether it had microscopic lesions associated with the parasite. Finch trichomonosis was first confirmed in Fennoscandia in summer 2008: and epidemiological and ring recovery data support the hypothesis that migrating chaffinches from GB introduced the T. gallinae parasite to this region (Lawson and others, 2011). Finch trichomonosis has subsequently spread further eastward in continental Europe (Ganas and others, 2014). Finch trichomonosis also emerged in the Canadian Maritime provinces in 2007 and caused mortality in regional purple finch (Carpodacus purpureus) and American goldfinch (Carduelis tristis) populations. A recently published study (McBurney and others, 2015) conducted molecular characterisation of T. gallinae isolates collected from Canadian finches, pigeons and doves to further understand the emergence of this disease: in particular, whether there was a direct link with the disease emergence in GB or whether this was an independent event in North America. The predominant subtype in both finches and the rock pigeon (Columbia livia) with trichomonosis from Canada was identical to the UK finch epidemic strain A1. However fine-scale variation (single nucleotide polymorphisms in Fe-hydrogenase gene sequences) was detected amongst these parasite isolates. This finding supports the hypothesis that the emergence of Finch trichomonosis in this Canadian region may be the result of multiple spill-over events, perhaps from sympatric pigeons and doves. Indeed there are no examples of the Finch and pigeon species frequently affected by trichomonosis in GB being ringed in the UK and
subsequently recovered in North America: this suggests that international exchange of these species is negligible and that parasite spread by migration to the Canadian Maritime provinces is unlikely.

References


Avian reovirus infection in a magpie
An adult female magpie (*Pica pica*) was found moribund and subsequently died in a garden in Buckinghamshire in 2013. Post-mortem examination found evidence of severe liver and spleen enlargement and necrosis. A recently published study (Lawson and others, 2015) describes the detailed laboratory investigations which confirmed the presence of an avian reovirus that was believed to be the cause of the liver and spleen lesions.

Two further magpies were observed with similar illness at different times at the same site, April-September 2013. These birds were presumed to have died, but their carcasses could not be recovered for further investigation.

Avian reoviruses can cause a range of disease presentations in poultry, captive and wild bird species. Whilst disease due to avian reoviruses has been reported in wild birds in North America and Europe, this is the first report of an avian reovirus causing disease in wild birds in Great Britain. The prevalence and significance of avian reovirus infections in British wild birds, and the implications for poultry health are currently unknown.

References

Wild bird report from Scotland; January – March 2015
In January, six starlings (*Sturnus vulgaris*) were submitted to Ayr DSC after discovery beside Ardrossan harbour tower. Significant findings on post mortem examination were limited to obvious traumatic injuries and haemorrhage. Severe stormy weather had occurred in the few hours prior to the discovery of the carcasses, and was considered to have been the cause of a likely collision with the tower. Starling multiple mortality incidents have been recorded on multiple occasions, with flocks colliding directly with road traffic, the ground, or buildings; this is thought to be related to flocking behaviour, in some cases adverse weather, and mistakes in navigation or "pilot error" (Duff (2013), Roberts (2014), Barlow and Sparkes (2014)).

In February, an adult male Whooper swan (*Cygnus cygnus*) was submitted to Ayr DSC, the second to be found dead in a country park in Ayrshire. Body condition was good. Post mortem examination found a torsion of a 10cm section of the small intestine. There were no intestinal contents distal to the torsion. No significant bacterial or viral organisms were detected. Histopathology was not carried out.

An adverse human/wildlife interaction resulted in the death of an adult male capercaillie (*Tetrao urogallus*), a red-list species, near Elgin in late autumn 2014. The carcase was submitted to Inverness DSC on 19th November after the bird attacked an adult human, who fought back by kicking the bird. Body condition was good and significant findings were limited to those consistent with trauma as the cause of death. “Rogue" capercaillie, aggressive adult males which are found repeatedly to attack humans, domestic mammals and even vehicles, are rare in Scotland but there have been several incidences since at least the early 1950’s. More recently, Scottish Natural Heritage issued a press release in April 2012 to confirm that a “rogue" capercaillie, which had become an “unwitting media star" due to his fearless and territorial behaviour towards humans and animals in 2011, had been killed by a
dog. It has been speculated that a low population density, specifically a lack of other male capercaillie to challenge, may predispose to this behaviour (Jenkins and Mylne (1962) and SNH press release (2012)). Severe chronic conjunctivitis and sinusitis associated with mycoplasmal infection was diagnosed in a juvenile male common buzzard (*Buteo buteo*) which was found dead close to low voltage domestic overhead wires. The bird was emaciated and the periocular regions were bilaterally very swollen, with white mucoid discharge occluding the semi-closed eyes. Both infraorbital sinuses contained a large amount of pale tan, caseous, foul smelling material, which extended into the nasal sinuses. The oral cavity, the trachea and the lower respiratory tract were unremarkable. An unidentified *Mycoplasma* profile was detected by PCR/DGGE in samples of the material. The profile did not match the standard avian *Mycoplasma* controls, including *M. gallisepticum, M. synoviae, M. gallinarum, M. iners, M. gallinaceum, M. pullorum, M. lipotaciens, M. iowae gallopavonis, M. meleagridis*, and *M. glycophilum*. A heavy but mixed bacterial growth including *Pasteurella* species was isolated from both eye swabs. The role of other initiating causes, e.g. cryptosporidia and Trichomonas could not be definitively excluded as the severity of the bacterial infection was thought likely to have masked the original pathology. The severe ocular pathology and subsequent impairment of the ability to source food was thought to have been the ultimate cause of death in this case. A very low residue of Bromadiolone (0.012 mg/kg) was detected in liver tissue, but was not thought to be involved with the morbidity or mortality of the bird.

**References**


Scottish Natural Heritage, press release, 20-04-12, “Capercaillie death could have been avoided” SAC Consulting Veterinary Services

**Wildfowl and Wetlands Trust (WWT) report January – March 2015**

**Passive surveillance of waterbirds**

Between January and March 2015, 54 wild birds of 17 species from five WWT sites (Slimbridge, Gloucestershire; Martin Mere, Lancashire; Arundel, West Sussex; Welney, Norfolk; Caerlaverock, Dumfriesshire), were submitted for post mortem examination (Table 1).

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Total</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trauma</td>
<td>14</td>
<td>4* x whooper swan (1 x juv), mallard, tufted duck, moorhen, 3*x coot, wood pigeon, snipe, 2 x kingfisher</td>
</tr>
<tr>
<td>Necrotic enteritis</td>
<td>7</td>
<td>2 x mute swan (1 juv), 5 x whooper swan (3 x juv)</td>
</tr>
<tr>
<td>Aspergillosis</td>
<td>6</td>
<td>2 x mute swan (1 juv), Bewick's swan, whooper swan (juv), wigeon†, wood pigeon</td>
</tr>
<tr>
<td>Mycobacteriosis</td>
<td>6</td>
<td>pink-footed goose, western greylag goose, 3* x mallard, black-headed gull</td>
</tr>
<tr>
<td>Drowned</td>
<td>4</td>
<td>European green-winged teal, 3 x coot</td>
</tr>
<tr>
<td>Lead poisoning</td>
<td>5</td>
<td>3 x whooper swan (1 x juv), Canada goose*, common pochard</td>
</tr>
<tr>
<td>Visceral gout</td>
<td>3</td>
<td>whooper swan, 2 x black-headed gull</td>
</tr>
<tr>
<td>Trichomoniasis</td>
<td>2</td>
<td>2 x wood pigeon</td>
</tr>
<tr>
<td>Pododermatitis septicaemia</td>
<td>a 1</td>
<td>coot</td>
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<tr>
<td>Intestinal obstruction</td>
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<td>whooper swan</td>
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<tr>
<td>Tumour</td>
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<td>Mallard</td>
</tr>
<tr>
<td>Blindness (eye problem)</td>
<td>1</td>
<td>Mallard*</td>
</tr>
<tr>
<td>No diagnosis</td>
<td>3</td>
<td>3 x whooper swan</td>
</tr>
</tbody>
</table>

Table 1. Primary causes of wild bird mortality found at WWT reserves Jan-Mar 2015. * denotes one individual euthanased. † Sarcocytis also found

During this quarter traumatic injuries were the most common cause of death (14 cases). Flying accidents accounted for five of these deaths including: three whooper swans (including one juvenile) that collided
with powerlines at the Martin Mere reserve, Lancashire; and two adult male kingfishers died together at the end of March as a result of cerebral haemorrhages following a collision with a window at Arundel (likely chasing each other in a pre-breeding season territorial dispute). A snipe was also found dead with severe injuries to its pectoral muscles, possibly sustained from predation by a sparrowhawk Accipiter nisus.

A European wigeon which died of aspergillosis at Martin Mere, Lancashire, also had sarcosporidian macrocysts in the pectoral musculature. Some 10 years ago or so a wildfowler reported (to WWT) seeing similar pathology in a wigeon shot on the Ouse Washes, noting it as unusual as he had been shooting wildfowl in the region for many years and had not encountered it previously. The WWT waterbird post mortem dataset began in 1971 and this protozoal parasite was not detected prior to 2011, when two separate cases were detected: a wigeon (also with shotgun injuries and aspergillosis) at Welney, Norfolk; and a captive wigeon from Castle Espie in County Down. Since 2010 there have been a small number of other reports of such pathology from hunters in the UK and on the continent e.g. Denmark reported the infection in mallard (http://www.jaegerforbundet.dk/page651.aspx?recordid651=2090).

Dabbling ducks play the role of intermediate host, with carnivores as definitive hosts (Friend and Franson 1999). Due to the extraordinary nature of the pathology of the infection (muscles, e.g. pectoral and leg, filled with what look like grains of rice) hunters would readily note it and should play an important role in future surveillance for this, what appears to be, an emerging disease. Sarcocystis in wildfowl are not thought to pose a zoonotic risk and cooking kills all lifecycle stages of the parasite.

Some seven swan deaths were due to necrotic enteritis: five whooper swans (three juveniles) and two mute swans (one juvenile). For the whoopers this may have been related to feeding on high carbohydrate root crops such as potatoes and sugar beet (Pritchard et al. 2004).

Lead poisoning caused the death of five birds at three WWT centres (Welney, Slimbridge and Caerlaverock): three whooper swans, a Canada goose and a pochard were found to have between 1 and 29 eroded lead shot pellets in their gizzards. It is notable that pochard have an increasingly unfavourable conservation status (e.g. having declined by >50% in the UK in the last 25 years, and >40% in a recent 10 year period (Hayhow et al. 2014)). Although lead poisoning will not be responsible for this decline, it is known to be a significant anthropogenic cause of death in this species. Newth et al. (2012) reported 16.7% of 72 deaths due to the disease in GB and 20.7% of 29 live birds to have had elevated blood lead levels.

“No diagnosis” of the whooper swans indicates carcases with all or part of the viscera missing although amidosomiasis (gizzard worm) was found in one of these birds.

References


Wild bird report from APHA Diseases of Wildlife Scheme (DoWS), AIV in Wild Bird Surveillance and other projects

Swans
Investigation into Mute swan (Cygnus olor) mortalities on the River Wear.
Over the past 15 months an increase in mortality of mute swans on the River Wear at Chester-le-Street has been reported. There have been an estimated 55 deaths from a flock of approximately 80 resident wild mute swans. No other bird species appear to be affected. Since January 2015, 29 post mortem examinations have been performed at Thirsk VIC. Clinical signs in affected swans included inappetance, weakness, neurological signs such as an inability to raise neck or an abnormal posture but the majority of birds have been found dead without any known history of disease. Post mortem findings included air sacculitis, distended proventriculus, hepatomegaly, enlarged kidneys as well as carpal grazes, pododermatitis lesions and hock burns. The parasitic burdens appear low. Bacteriology has been unremarkable. All submissions have been avian influenza A virus negative on PCR. Virus isolation testing has been negative. Lead testing on kidney was performed on a sample of birds from each submission and the levels ranged from 229-3358µmol/kg DM consistent with a diagnosis of lead toxicosis. The source of the lead is unknown but may be related to the sediment as the site is downstream from a lead ore field. The Environment Agency are performing extra sediment sampling in addition to their water lead monitoring program in this area.

APHA Thirsk

During the Quarter, swan mortalities involving mute and whooper swans (Cygnus cygnus) were frequent and excluding the incident above, 22 carcasses from 6 incidents were examined. All were AIV negative, this is an important surveillance finding given the significant changes in AIV epidemiology in wild birds over the 2014-15 winter period in Europe and the Northern Hemisphere.

At one coastal lake in Lancashire, deaths in a large number of mute swans produced two submissions of 7 birds, many were autolysed and had suffered predation, however the consistent finding was emaciation linked to starvation, probably in turn related to an insufficient or inappropriate diet. Mute swans are particularly susceptible to starvation in winter when submerged vegetation, which forms their principle diet, is dormant. An additional factor identified by APHA DoWS several years ago in swans from the Thames estuary, is that malnutrition may cause breast muscle depletion and this can render the birds effectively flightless, confining them to one area. (There are few species of flying birds with bodyweights greater than 10kg and taking to the air for mute swans involves a significant expenditure of energy). In an unrelated incident, at a saline lake with sparse winter vegetation in another area of Lancashire, over-wintering mute swans rely on provision of supplementary food, usually bread and corn. This diet can cause (clostridial) necrotic enteritis and this disease at the same site caused a significant mortality several years ago. Of 150 birds present, 25 looked ill and at least 9 died. Many were sent to a RSPCA wildlife centre. Two were examined by APHA Shrewsbury and necrotic enteritis was again diagnosed – for the same reasons as previously. Two swans were submitted dead from a lake close to an old rifle range in the Midlands and both were diagnosed with lead poisoning. This was probably due to a change in water level at the lake exposing an area of lead-rich silt contaminated with shot derived from the range, although this could not be confirmed. In the South of England, several submissions from a large over-wintering mute swan flock revealed a miscellany of causes of death including amyloidosis, air-sacculitis, pericarditis and trauma, all of which are diagnosed relatively frequently in swans by the DoWS. At another site, lead poisoning was suspected in a mute swan on the basis of kidney lead levels. The bird came from a pond in a park where sporadic swan deaths have been reported in recent years.

Common Buzzard (Buteo buteo)
Thirteen common buzzards from 9 incidents were submitted during the Quarter. Most were submitted by the Wildlife Incident Investigation Scheme (WIIS) as suspect deliberate poisoning cases. Results of toxicological analysis are awaited and are reported by the WIIS Scheme. Several of the birds died in a state of emaciation, probably related to starvation and an inability to find suitable food, several died from traumatic injury, one bird had a large mass in the crop however carcass autolysis prevented histopathological analysis. In several birds the history, in particular the circumstances in which the birds were found, good body condition and other factors suggested that illegal poisoning could not be excluded and toxicology was recommended in these cases.

APHA Diseases of Wildlife Scheme, AIV Surveillance in Wild Birds, WIIS.
Mammals (see also Mammals in the Conservation Concern Section)

Reports from Scotland:
An adult male fox (Vulpes vulpes) was submitted to Edinburgh DSC in autumn 2014. Found dead on an old bowling green in North Lanarkshire, the animal appeared to be in good bodily condition. On post mortem examination, icterus was evident. Within the left caudal lung lobe there was focal thickening of a bronchus. The liver was pale tan coloured, with a patent common bile duct. No abnormalities were seen in the consistency of the liver parenchyma. The kidneys were discoloured black on the capsular surface, while the cortex and medulla were tan to yellow. Approximately 50 ml of red coloured urine was present in the urinary bladder, with some dark red to black sediment. The spleen was quite markedly enlarged and dark red to purple. The stomach and intestinal tract contained only scant fluid content. Blood and haemoglobin in urine, as measured by urine dipstick, appeared to be very high, whereas only a small number of red blood cells were present in centrifuged deposit, suggesting that haemoglobunuria rather than haematuria was present. Histopathology showed a predominantly centrilobular hepatic necrosis, possibly related to haemolysis and secondary hypoxia. There was no convincing evidence of adenoviral infection. Interstitial nephritis was present; it was noted that this may be seen with leptospirosis. Leptospira PCR screening on frozen kidney tissue was declined by the submitting charity. A low residue of bromadiolone, a rodenticide, was detected in liver tissue but was not thought to be related to the death. A diagnosis of death due to haemolysis was returned, with leptospirosis considered the primary differential diagnosis in the case.

SAC Consulting Veterinary Services

Report from APHA Diseases of Wildlife Scheme; Mammals
Gp C Streptococcus sp. were isolated from swabs from foxes (Vulpes vulpes) submitted by Wildlife Centres, and from a fox carcase. The carcase was icteric (but negative for leptospira by PCR) and the bacterium cultured from the lung; some of the swabs came from wounds and abscesses. A definitive diagnosis was not established in these cases, however it is possible that they relate to intraspecific aggression. Significant, often fatal streptococcal infections occur as a result of foxes biting each other during the vulpine rut, which occurs in January and February. Foxes are susceptible to streptococcal infections which frequently cause septicaemia and icterus (Duff et al, 1995).

There were two submissions of deer carcasses in poor body condition. In the first, a red deer (Cervus elaphus) from an area where sick and dead deer had been seen, lung worm were found, while in this animal's stomach, a significant proportion of the ingesta appeared to comprise moss of presumably low nutritional value. The area had been recently opened to the public and red deer were thought to be regularly disturbed by field sports and walkers and this may have affected their feeding behaviour. The second case was a roe deer (Capreolus capreolus) with a severe foot abscess from which Truperella pyogenes was cultured. A fallow deer (Dama dama) pluck was submitted by a hunter in Devon and found to have abscesses from which Mycobacterium bovis was isolated consistent with bovine tuberculosis. In a similar but unrelated case in a roe deer, a hunter submitted a pluck with unusual lesions these however were caused by lungworm infestation.

Three submissions of bat carcasses were examined for white nose disease, the causative fungi was not cultured.

References

UK Priority and Conservation Concern Species

WILD BIRDS

Great Crane Project
Survival of Eurasian cranes Grus grus released in the South West of England between 2010 and 2014 remains high with a number of pairs currently attempting to breed. Health monitoring of 10 faecal samples collected from the free-living birds found coccidia in all samples: 10 with few to very numerous Eimeria reichinowi and eight with few to very numerous E.gruis. Trichostrongylids were found in two of the samples. No clinical consequences have been noted.
CONSERVATION CONCERN MAMMALS

*Mycobacterium lepromatosis* an adult red squirrel (*Sciurus vulgaris*)

In January, an adult red squirrel was submitted to Dumfries DSC for examination after being found dead with patches of alopecia and scabbing around the muzzle and alopecia on the tail. Histopathological examination of skin samples at the Royal (Dick) School of Veterinary Studies revealed changes consistent with squirrel leprosy. *Mycobacterium lepromatosis*, the cause of leprosy in red squirrels, was detected by PCR. Squirrel leprosy is a relatively recent novel presentation of dermatitis in red squirrels (Meredith and others 2014); no grey squirrels (*Sciurus carolinensis*) so far have been found to be affected. The condition is an important differential diagnosis for squirrel poxvirus disease (SQPV), and although it is unlikely to have the same magnitude of population impact as SQPV infection, it is still of concern in a population already in such dramatic decline. The disease is chronic, and presents with bilateral areas of variable alopecia and cutaneous swelling of the snout area, lips, eyelids, pinnae and distal limbs. It is worth noting that *M. lepromatosis* has been described as a potential cause of human leprosy in Mexico, Costa Rica and Singapore, although no cases of direct zoonotic infection have been reported. Reports of sightings of similarly affected squirrels to the Royal (Dick) School of Veterinary Studies or SAC Consulting are encouraged.

References

SAC Consulting Veterinary Services

MARINE MAMMALS

‘Corkscrew’ seals/seal predation

A preliminary report to the Scottish Government was published in January 2015 by the Sea Mammal Research Unit, with co-authorship by the Scottish Marine Animal Strandings Scheme (Thompson and others, 2015). The report describes direct observations of adult grey seal (*Halichoerus grypus*) predation on grey seal pups, made on the Isle of May at the end of 2014. The bodies of the grey seals that were retrieved for necropsy had traumatic injuries which were remarkably similar to those seen in both common (*Phoca vitulina*) and grey seals bearing characteristic ‘corkscrew’ or spiral type injuries, which have been found in various locations around the UK over the past few years. Consequently, this new evidence suggests that in at least a significant number of cases, these unusual injuries are more likely to be the result of predation by grey seals rather than interaction with boat propellers, as had been previously thought.

References
Vegetative endocarditis in a short-beaked common dolphin with *Brucella ceti* infection

A short-beaked common dolphin (*Delphinus delphis*) (national reference SW2015/22) was found dead stranded at Freshwater West in Pembrokeshire on 16th January 2015. The post-mortem examination revealed that it hadn’t fed for some time and had live stranded prior to death. The dolphin also had lesions within the right lung and proliferative lesions on the valves of the left side of the heart. Subsequent bacterial culture has revealed the presence of *Brucella ceti* in these lesions and pending confirmation by histopathology, vegetative endocarditis (*Brucella ceti*) is thought to be the likely cause of death. *Brucella ceti* infection has been previously recorded in a small number of short-beaked common dolphins found stranded in the UK (Davison and others, 2013; CSIP database).

References


Haemorrhagic enteritis in a harbour porpoise

A harbour porpoise (*Phocoena phocoena*) was found dead stranded at Deal in Kent on 7th February 2015 (national reference SW2015/41). The post-mortem examination found that it was a 152cm adult female porpoise in good nutritional condition. It had light parasitic burdens, no evidence of recent feeding and was pregnant with a 44cm long male foetus. Evidence was also found that indicated the porpoise had live stranded prior to death. The most significant finding was markedly extensive haemorrhage within the wall of the pyloric stomach. The haemorrhage was associated with separation of the majority of the stomach wall and the formation of a large blood clot, blocking communication between the third stomach and the intestine. Bacterial culture indicates that this unusual finding is likely to have had an infectious cause and was potentially polymicrobial in origin, with several bacteria isolated from the lesion (including *Klebsiella pneumoniae* ssp. *pneumoniae*, *Anaerobiospirillum succiniciproducens* & *Clostridium perfringens*). Confirmation of the cause of death is pending histopathological analysis.
AMPHIBIAN REPORTS

Amphibian morbidity and mortality reports

Amphibian morbidity and mortality incidents involving one or more individuals were described at 61 sites in the first quarter, the majority of which were reported in March when amphibians become active. The species comprised common frog (Rana temporaria) at 54 sites, common toad (Bufo bufo) at 6 sites, and smooth newts (Lissotriton vulgaris) at one site. Post-mortem examinations were conducted on 40 amphibians from 17 sites which comprised 25 common frog, 10 smooth newt and 5 common toad carcasses. All cases were negative for the chytrid fungi, Batrachochytrium dendrobatidis (Bd) and B. salamandrivorans (Bs) and ranavirus using real-time PCR testing.

Evidence of significant trauma or predation was found in 58% (23/40) of amphibian carcasses examined. Mammalian predation was the predominant cause of death. By assessing the dentition marks on the carcasses, domestic cats were suspected as being the most common predator.

An unusual amphibian mortality incident involving a mixture of common frog and smooth newts was reported from a garden site in Surrey. Multiple individuals of both species were affected (12 common frogs and 26 smooth newts) and carcasses were found over three short periods in December 2014 and subsequently in January and February 2015. Post-mortem examinations were conducted on a subset of these carcasses and no significant abnormalities were detected grossly or histopathologically. The examined carcasses were screened for ranavirus and Bd/Bs and all tested PCR negative. A site visit was conducted in March 2015 and the water quality of the pond was analysed using a commercial testing kit and found to be normal (all chemical parameters within normal limits). After suspicion of an electrical fault involving the domestic pond water pump, the home owner had the power socket inspected and an electrician confirmed a leaking earth. We therefore suspect that electrocution of dormant overwintering amphibians in the pond is the most likely cause of the mortality incident.

The results from this quarter underline the significance of non-infectious diseases as a cause of multiple mortality incidents in British amphibians which can only be determined by post-mortem examination and follow-up diagnostic testing.

REPTILIAN REPORTS

Grass snake with ocular disease

Relatively little is known about the infectious and non-infectious diseases that affect free-living British reptiles. Snakes have a spectacle (otherwise known as an ocular scale, or “eye cap”), which can be associated with disease in captivity, particularly problems with shedding (dysecdysis). An immature female grass snake (Natrix natrix) was found in a moribund state in Suffolk at the end of January. Post mortem examination confirmed that the animal was in good body condition. Inflammation of the left eye with perforation of the spectacle was present, considered likely due to trauma. Histology revealed increased numbers of white blood cells within blood vessels in both the eye and internal organs suggesting generalised disease. A large wound in the body (coelomic) cavity was present with loss of internal organs thought likely due to predation.
Figure 4. Grass snake.
The spectacle is opaque, has an irregular surface and multifocal areas of perforation.

Figure 5. Grass snake.
Histological photomicrograph of the affected eye. There is extensive ulceration and perforation of the spectacle (arrow) and cornea (arrowhead). Star: optic nerve; Lens: L. Haematoxylin and eosin