



Wildlife Disease & Contaminant Monitoring & Surveillance Network

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Summary of the existing practices of the partner schemes in WILDCOMS

As part of the planned activities of the WILDCOMS network, one of the work packages (Best practice guidelines and increased operational harmonisation) focuses on increasing harmonisation, collaboration and efficiency of resource utilisation. This is related primarily to operations that are common to all partners' schemes, namely 'sample collection & processing'; 'necropsies and recording'; and 'specimen archiving'.

In the first instance, our main objective was to compile an inventory of 'Sample Collection & Processing' amongst the WILDCOMS partners. This information can be accessed through the [WILDCOMS website](#). It comprises four main areas: i) a general overview of the partner's schemes (including information about what is collected and why), ii) a description of the contaminant classes that are analysed by each scheme, iii) a list of the analysed contaminants and iv) an inventory of the disease screening techniques employed by the different schemes. The present Spotlight highlights and summarises this information.

General Overview - WILDCOMS has nine partner schemes, each with a dedicated website [click for more information](#). Schemes have been running for different lengths of time with the most recent set up 2 years ago and the oldest running for approximately 50 years. Some schemes are very specific to a certain type of vertebrate taxa, such as birds of prey or fish, whereas others cover a wide range of taxa. The number of taxa analysed in each scheme is a function of the scheme's main aims. These aims include general exposure monitoring for contaminants and pesticides, post-registration monitoring of mortalities associated with pesticides, and disease surveillance and monitoring. The geographical spread of monitoring also varies between schemes; three analyse samples from throughout the UK, two are restricted to Scotland, one to England and three to England and Wales. Sampling in most schemes is responsive, which means samples are found and collected opportunistically either by members of public or by scheme members; planned sampling is conducted only by two schemes, both focussed on fish. The samples that are collected range from specific tissues to whole animal. All the schemes archive samples to some extent.

Contaminants - All schemes that undertake chemical analysis measure a wide range of compounds (Table 1). These include legacy persistent organic pollutants such as organochlorine insecticides and PCBs, replacement flame retardants, trace and toxic metals, rodenticides and a variety of current-use pesticides. The number of compounds within each contaminant class that is analysed varies between schemes. For instance, 8 schemes measure insecticides and, in total across all these schemes, 115 compounds are determined. This means that, within the WILDCOMS network, there is the capacity and expertise to analyse a wide range of contaminants of concern for vertebrate wildlife and also the potential for the exchange of samples amongst the different schemes to quantify different contaminants according to need.

Table 1. Contaminant groups analysed by the WILDCOMS partners, including number of compounds analysed in each contaminants group and number of schemes that analyse it.

| | PCB | Metals/Semi metals | Nematicides | Acaricides | Insecticides | Anticoagulant rodenticides | Molluscicides |
|------------------------------|------------|--------------------|--------------------------|------------|-----------------|----------------------------|---------------|
| Number of compounds analysed | 37 | 16 | 3 | 14 | 115 | 9 | 4 |
| Number of schemes | 5 | 6 | 2 | 2 | 8 | 4 | 5 |
| | Herbicides | Fungicides | Other Vertebrate control | Other | Pharmaceuticals | Flame retardants | PAHs |
| Number of compounds analysed | 14 | 57 | 2 | 8 | 6 | 36 | 16 |
| Number of schemes | 3 | 2 | 2 | 5 | 3 | 3 | 5 |

Disease screening and disease surveillance - Five of the WILDCOMS partners screen for diseases and between them examine amphibians, reptiles, fish, mammals and birds. As in the case of contaminants, schemes screen for a wide variety of diseases and carry out studies that range from gross pathology to virology and omics (Table 2). General diagnostic tests, gross pathology and parasitology are carried out by all five schemes whereas other, more specific tests, are carried out by fewer schemes. As a result of the formation of the **WILDCOMS** partnership, there is greater sharing of samples to enhance overall the UK screening of contaminants and disease.

Table 2. List of disease screening performed by the WILDCOMS partners, including number of schemes that carry out each screening.

| | Diagnostic | Includes surveillance | Gross pathology | Virology | Bacteriology | Bio chemistry | |
|-------------------|--------------|-----------------------|-----------------|----------|--------------|---------------|------------|
| Number of schemes | 5 | 5 | 5 | 3 | 3 | 3 | |
| | Parasitology | Electron microscopy | Histopathology | Serology | Haematology | omics | Biomarkers |
| Number of schemes | 5 | 4 | 4 | 5 | 3 | 1 | 1 |

This review on "Sampling collection & processing" has helped to increase the sharing of samples between schemes; examples are given in the **WILDCOMS** annual report. It has also promoted exploration of opportunities to further increase sharing of resources, an exercise that is undertaken continually as part of **WILDCOMS** knowledge exchange activities.

WILDCOMS news, events and contact information

The first report from the WILDCOMS network for the period 2011-2012 is now available. Please navigate to [Wildcoms Annual reports](#) for access. If you would like to see a particular topic in the **spotlight** section of the WILDCOMS quarterly bulletin, or would like to contact us about other **WILDCOMS** related matters, please e-mail Dr Gloria Pereira (WILDCOMS coordinator) at (mdgds@ceh.ac.uk).

Scheme News

WIIS-Scotland have recently published their main analytical method entitled 'A liquid chromatography-electrospray tandem mass spectrometry method for the determination of multiple pesticide residues involved in suspected poisoning of non-target vertebrate wildlife, livestock and pets'. Please see:

<http://pubs.rsc.org/en/Content/ArticleLanding/2013/AY/c2ay25555c>.

- The latest positive results for quarter 3 of 2012 have been published and can be viewed on the [SASA website](#).

Institute of Zoology (IoZ). Two interesting publications by the Veterinary Team at the IoZ on infectious and non-infectious native species diseases are available. Please see:

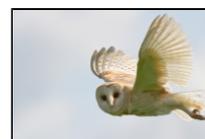
- Colville K, Lawson B, Pocknell AM, Dagleish MP, John SK, Cunningham AA (2012) Chlamydia in British songbirds. *Veterinary Record*. 171: 177 doi: 10.1136/vr.100506.
- Lawson, B., Robinson R.A., Colville K.M., Peck K.M., Chantrey J., Pennycott T.W., Simpson, V.R., Toms, M.P., Cunningham, A.A. (2012) The emergence and spread of finch trichomonosis in the British Isles. *Phil. Trans. R. Soc. B* 367: 2852--2863 doi:10.1098/rstb.2012.0130.

AHVL Diseases of Wildlife Scheme.

- The latest quarterly report of the GB Wildlife Disease Surveillance Partnership has been published: <http://www.defra.gov.uk/ahvla-en/publication/wildlife-survreports/>
- Avian influenza surveillance. The European Commission have published the "Annual Report on surveillance for avian influenza in wild birds in Member States of the European Union in 2011" produced by the AHVLA. A total of 32,357 wild birds, from 26 Member States of the European Union and one Non-Member State were tested during the 2011 survey. Low pathogenicity avian influenza viruses of subtypes H5 or H7 were detected in birds sampled from eight Member States. Consistent with previous years, these infections were identified through active surveillance of dabbling ducks (*Anas spp.*), and swans (*Cygnus spp.*). [Click for the report](#).

Cardiff University Otter Project have recently published a paper examining how tick infestations on otters are associated with climate and host factors. Only a single species of tick, *Ixodes hexagonus*, was found to infect the otter, and warmer and wetter conditions (during positive phases of the North Atlantic Oscillation) were associated with high prevalence. Juvenile otters carry most ticks - probably because of the length of time spent in the holt, which is the questing location for this tick. Sherrard-Smith et al., 2012. Abiotic and Biotic Factors Associated with Tick Population Dynamics on a Mammalian Host: *Ixodes hexagonus* Infesting Otters, *Lutra lutra*. *PLoS One* 7, e47131. [Link to journal](#)

Scheme News (ctd.)



Predatory Bird Monitoring Scheme (PBMS)

- The potential toxicity of polybrominated flame retardants (PBDEs) resulted in a ban on the most toxic compounds (penta- and octa-PBDE mixtures). Using archived PBMS samples, we demonstrated that levels in the eggs of marine birds (gannets) fell rapidly as a result of this ban but there was no such decline in sparrowhawk eggs, used as a sentinel of terrestrial contamination. The results of this monitoring are published as Crosse et al., 2012a. *Environmental Pollution* 161 93-100 <http://dx.doi.org/10.1016/j.envpol.2011.10.003> and Crosse et al., 2012b. *Environmental Science & Technology* 46 135041351. <http://dx.doi.org/10.1021/es303550f>.
- Lee Walker, PBMS coordinator, presented a talk at a national symposium organised by the Veterinary Association for Wildlife Management. The symposium drew together vets, academics and non-government organisations to discuss a number of important subjects relating to wildlife diseases and conservation. Lee's talk "What do anticoagulant rodenticide residues in predatory birds tell us about non-target exposure and risk?" can be viewed on Youtube <http://www.youtube.com/watch?v=OQFSuJScCal#t=06h54m41s>
- A PBMS poster was presented at an international workshop on 'Environmental monitoring of biocides in Europe'. The meeting was held jointly by the German Federal Environment Agency (Umweltbundesamt) and the **NORMAN network** to exchange existing information and data on exposure pathways for biocides, prioritisation of biocides for a monitoring campaign, practical issues regarding sampling and analysis, and monitoring data handling and evaluation. The poster presented recent results on anticoagulant rodenticides in predatory birds. Posters and information presented at the workshop can be downloaded from the NORMAN network website.

WIIS-England & Wales. A gamekeeper in Blyton, Lincolnshire, was fined a total of £1950 and described by a judge as an "old-fashioned" gamekeeper, who had resorted to "vicious" methods. This outcome followed a collaborative investigation of the death of two buzzards that were found close to a predated pheasant carcass. Toxicology testing, at the Wildlife Incident Unit at Fera, confirmed that the pheasant carcass had been laced with carbofuran and that the buzzards had been poisoned following exposure to carbofuran.