



Wildlife Disease & Contaminant Monitoring & Surveillance Network

WILDCOMS newsletter number 26: Winter/Spring 2020 www.wildcoms.org.uk

The WILDCOMS newsletter is produced 3 or 4 times a year and reports recent newsworthy items and publications from member partners

WILDCOMS Scheme news

Coronavirus. How has Covid-19 affected the WILDCOMS schemes?

We apologise - our winter newsletter has been delayed because of Covid19 and staff home-working arrangements. When receiving newsletter content from the WILDCOMS schemes for the current newsletter, much of the informal feedback we have had is that submissions (e.g. of dead otters and predatory birds) and lab work is largely suspended. At best, researchers have been permitted to visit labs once a week to check on existing and critical experiments that were up and running before shut-down. In addition, meetings and conferences have been postponed, cancelled or delivered in a virtual environment. That said, our monitoring work continues; meetings are held via Zoom, papers are published, reports are written and data continue to be analysed. We hope you find the newsletter interesting – it is packed with information on new collaborations, publications, meetings and events attended prior to shut-down and more.

On behalf of the WILDCOMS teams, we hope that you stay safe and well.

Scottish Raptor Health

“There is a lot of blood, sweat and guts between dreams and success” — Bear Bryant.

Gaby is days away from placing the final dot on her thesis. Some useful but concerning findings keep emerging, some included in the thesis and many more for deeper analysis to be added to publications soon. Post-mortem examinations were performed on over 170 carcasses, representing 15 Scottish raptor species. Cause of death, lesions, body condition, and levels of intestinal parasitism were evaluated. Tissues were screened for heavy metals, pesticides, pharmaceuticals and poisons. Blood samples from 51 free-living golden eagle nestlings were screened for the same chemicals. Causes of death, most common ailments suffered, and the presence of the suite of tested chemicals were evaluated for the sampled Scottish raptor population.

Toxic chemicals were found in individuals as young as two weeks of age and geographical patterns linked to the Scottish landscape were identified for multiple chemicals. Concentrations of mercury, lead and cadmium were detected across all raptor species tested. No pharmaceuticals were detected, and only low levels of pesticides were found, however, their prevalence in connection with specific causes of death suggest some could be contributing to mortality.

Combined, the methods evaluated during this work will allow the development of a toolbox to use raptor health as an indicator of the health of the wider ecosystem across Scotland.

[Disease risk analysis and health surveillance \(DRAHS\) project](#)

Project news: In December, Dr Tammy Shadbolt attended the biannual Great Britain Wildlife Disease Surveillance Partnership (GBWDSP) meeting in Westminster on behalf of DRAHS and updated partner organisations on project news. Before the Christmas break a meeting was held between DRAHS and the Amphibian and Reptile Conservation Trust (ARC) to review the 2019 pool frog reintroduction project. In January, Dr Tammy Shadbolt and Georgie Gerard held a meeting with the People's Trust for Endangered Species lead project co-ordinator to review plans for the 2020 quarantine and translocation of the endangered hazel dormouse. DRAHS has been busy planning the logistics for continued disease risk management (DRM) and post-release health surveillance (PRHS) for all project species for which active translocations are expected to continue in 2020. February 2020 was an exciting month for the DRAHS team with a number of new external collaborations formed and research projects initiated. Georgina Gerard began work on a disease risk analysis (DRA) for the translocation of Golden Coin turtles in collaboration with Hong Kong partners. Dr Tammy Shadbolt began work on a number of research projects looking at health and disease in hazel dormice, pool frogs and birds of prey. DRAHS was also delighted to welcome new recruit Dr Sophie Common. Sophie is an experienced vet and graduate of the MSc Wild Animal Health course in 2019 who will be working on translocation DRA for a native British species alongside Dr Helen Donald for the next 3 months.

Communications: DRAHS has also been busy raising the profile of the team and generating awareness of British species conservation via a number of communication channels. DRAHS released a blog piece in January circulated on ZSL's Yammer as part of their internal communications strategy to raise awareness of the teams work. Dr Tammy Shadbolt joined the Q&A panel for new recruits at the regular ZSL induction day at the end of the month. As part of their external communications strategy DRAHS participated in an event for schoolchildren celebrating the United Nations (UN) International Day of Women and Girls in Science. Dr Tammy Shadbolt was also interviewed by the Times Higher Education about her life and work as a wildlife vet and research associate at ZSL.

The disease risk analysis and health surveillance (DRAHS) team (pictured below) has initiated several exciting new collaborations and research projects.



Dr Tammy Shadbolt took part in an event for school children celebrating the United Nations International Day for Women and Girls in Science (pictured above)

[Predatory Bird Monitoring Scheme \(PBMS\)](#)

Sample exchange with Natural History Museum starts.

Recently an initiative between the Predatory Bird Monitoring Scheme (PBMS) and the Natural History Museum (NHM) to share specimens launched with the first set of PBMS birds being sent to NHM at Tring. Through this collaboration, promoted through the WILDCOMS network, the PBMS will share specimens of more rarely submitted species, such as long-eared owls, so that the NHM can retain samples for their research and reference collections. The NHM will return soft tissue samples such as liver, to the PBMS allowing retrospective studies on the levels of pollutants in raptors. NHM Tring: <https://www.nhm.ac.uk/visit/tring.html>

New study on neonicotinoid exposure in birds

Rosie Lennon (PhD. Student at the University of York), who is co-supervised by PBMS principle investigator Richard Shore, investigated the exposure of farmland birds to neonicotinoid (NN) seed treatments just prior to the ban on their use in the England in 2018. The findings of this study remain relevant as the treatments are still used

elsewhere, and they also provide generic information about the exposure risk to farmland birds from seed treatments. Clothianidin treated cereal seeds were found on the soil surface at all 25 farms surveyed in the study. Fifteen bird species were observed consuming treated seed at seed piles and clothianidin was detected in the plasma of 10/11 farmland bird species sampled. The results of the study provide clear evidence that a variety of farmland birds are subject to NN exposure following normal agricultural sowing of NN-treated cereal seed. Furthermore, the widespread availability of seeds at the soil surface was identified as a primary source of exposure (see [Lennon et al., 2020](#)).

[WIIS-Scotland](#)

The results from WIIS-Scotland are published quarterly. The results for incidents from quarter 4 of 2019 have been added to the SASA website and can be viewed [here](#). The next update, for quarter 1 of 2020, is scheduled to be published mid-July 2020.

[Wildlife Incident Investigation Scheme \(WIIS\)](#)

WIIS makes enquiries into the death or illness of wildlife, pets and beneficial invertebrates that may have resulted from pesticide poisoning. The scheme has two objectives:

1. To provide information to the regulator on hazards to wildlife and companion animals (usually cats and dogs) and beneficial invertebrates (honeybees, bumble bees and earthworms) from pesticide use;
2. To enforce the correct use of pesticides, identifying and penalising those who deliberately or recklessly misuse and abuse pesticides.

Following thorough investigation, chemical analyses and interpretation of the results, the case is assigned to one of the following categories. Where an animal is involved in the case the cause of death has been established as pesticide poisoning :

Approved use: the pesticide(s) involved were used in accordance with their conditions of authorisation.

Misuse: the pesticide(s) involved were not used in accordance with their conditions of authorisation. The pesticides involved may have been used carelessly or accidentally, but there was no indication of any intention to deliberately harm wildlife or other animals.

Abuse: the pesticide(s) involved were used in breach of their conditions of authorisation and that this has been done with the deliberate intent of harming or attempting to harm wildlife or other animals.

Unspecified: the circumstances of the case could not establish where the pesticide may have come from. Therefore, it is not known if the pesticide(s) involved were used in accordance with their conditions of authorisation, or if the pesticide(s) had been misused, or whether or not there was a deliberate intention to harm wildlife or other animals.

Veterinary use: Where it is established that veterinary products are involved in a case and this use is not further classified into abuse, misuse, approved use or unspecified use. These cases are recorded as some active substances in veterinary products are also found in pesticides.

In 2019, (to September) there were 265 investigations and in 40 of these cases they were assigned to one of the above categories see [here](#).

The WIIS relies on members of the public and other interested organisations to find and report suspicious incidents that usually involve the death of one or more animals. Controls on pesticides are there to protect human health and the environment and where a prosecution, or other enforcement action is used it sends a clear message to anyone who is storing or using pesticides illegally. Offences of this nature are taken very seriously and the WIIS and partner agencies work together to provide effective and efficient investigation and prosecution. There is a Freephone number to report suspicious incidents to WIIS, 0800-321600. Anyone who has information relating to bird of prey persecution should report it to their local police force by calling 101, or to Crimestoppers anonymously on 0800 555111.

The Wildlife Incident Unit at Fera (WIIS England and Wales) has taken all measures to ensure business continuity for the safe supply of all analytical services to support WIIS during the COVID pandemic and there is also a full scope of other scientific services from York, see [here](#).

Cardiff University Otter Project

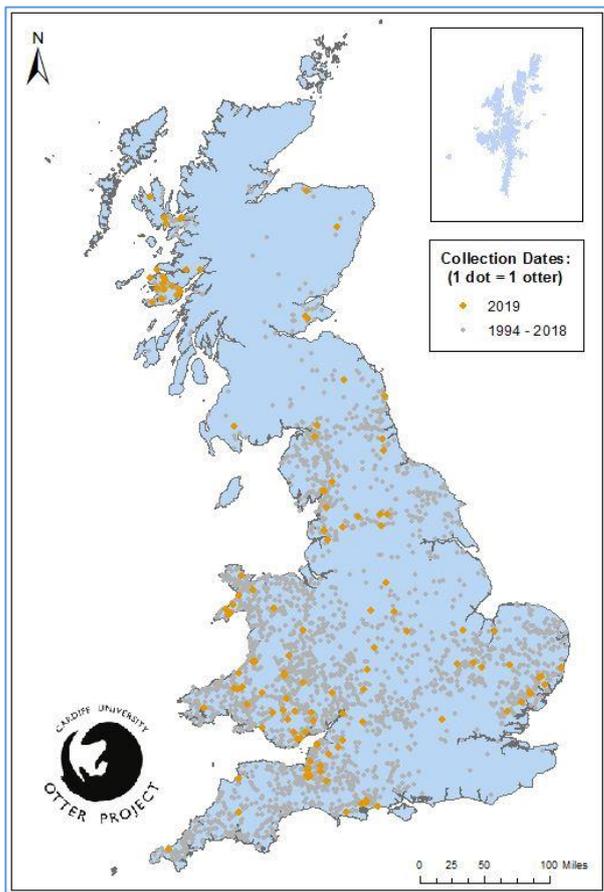
Work on the otter genome. In a collaboration between CUOP and the Wellcome Sanger Institute led by [Frank Hailer](#), the whole genome of the Eurasian otter *Lutra lutra* has been sequenced for the first time. The genome will provide a wealth of information, enabling the otter project and others to delve more deeply into many facets of otter biology, and help inform ongoing conservation efforts. Find out more via our video summary <https://twitter.com/i/status/1230079609632370689>, press release <https://www.cardiff.ac.uk/news/view/1762037-otter-genome-to-help-understand-genetic-legacy-of-pollution-crisis-and-secure-species-future>, or see Mead et al 2020.

[Sarah du Plessis](#) (the newest PhD researcher to join the Cardiff University Otter Project) started in October 2019. Her project will use the newly sequenced reference genome to compare DNA from tissue samples held in the otter project archives, helping to bring greater understanding of the historic population structuring of the UK otter population.

Chemical monitoring. [Emily O'Rourke](#) (PhD researcher) is continuing to work with the Environment Agency (EA), Natural Resources Wales (NRW) and others to explore legacy and emerging contaminants. In March, Emily attended an EA knowledge exchange event (see photo). The event was held for all PhD students who are supervised



by the EA to make connections with EA staff and other PhD students. Emily presented a flashtalk highlighting her progress, and the continued support needed from the EA and the public to facilitate sample collection. Emily has recently received data quantifying concentrations of a range of PFAS (perfluorinated substances) from 50 otter livers (funded by the EA, analytical work carried out by CEFAS). A preliminary summary of the data has been made available to the EA (O'Rourke et al., 2020), and more detailed analysis will follow.



Update from the lab. A few weeks ago we received our 3700th otter. We perform a detailed post-mortem on every otter we receive, we record observations and measurements on the individual and take organ samples. We store the samples in an archive and use them to conduct a wide range of research such as contaminant analysis, population structure and dispersal, scent communication, diet and parasitology.

Otter deliveries and post mortems are currently on hold due to the Covid-19 lockdown. So far, we have received 184 otters that died in 2019 (although many are still waiting to be delivered – our annual total normally reaches >200) (Figure 1). 'Gaps' in recent coverage (i.e. grey dots, no orange) may indicate an absence of mortalities, but in some cases are due to gaps opening up in our collection network. We would be interested in hearing from anyone who may be able to help with otter collection in these areas, when lockdown ends. Most otters were dead as the result of road traffic collision (79% of those where cause of death has been determined) with just a few of individuals dead due to shooting (1), disease (2), drowning (3), and emaciation (5) respectively.

Map shows otters which died in 2019 (orange); grey dots indicate all otters received since 1994.

GB Wildlife Disease Surveillance Partnership - reports are published quarterly.

To access the latest report see: <https://www.gov.uk/government/publications/wildlife-gb-disease-surveillance-and-emerging-threats-reports-2019> and for earlier reports: [2018 reports](#), [2017 reports](#), [2016 reports](#), [2015 reports](#), [2014 reports](#).

Reports from before 2014 are available on the [archived AHVLA web pages on the National Archive website](#).

The GB Wildlife Disease Surveillance Partnership is made up of the following organisations:

- Animal and Plant Health Agency (APHA) (formerly AHVLA)
- Scotland's Rural College (SRUC)
- Institute of Zoology (IoZ)
- National Wildlife Management Centre of APHA (formerly part of FERA)
- The Centre for Environment, Fisheries and Aquaculture Science (CEFAS)
- The Wildfowl and Wetlands Trust (WWT)
- Natural England (NE)
- Forestry Commission England (FCE)

National Fish Tissue Archive

Monika Juergens attended the 1st conference of the UK Environmental Observation Framework (UKEOF) in Manchester in February 2020. The conference focus was Environmental Monitoring: meeting evidence needs.

Link to Monika's poster about the Fish Tissue archive:

http://www.ukeof.org.uk/documents/poster_monika_juergens.pdf

The UKEOF was established in 2008 in response to a growing need for closer communication between organisations with respect to evidence needs, improved efficiency of data collection and the sharing of observation plans, programmes and data. See <http://www.ukeof.org.uk/>.



Recent publications from the WILDCOMS schemes

Lennon, R.J., Peach, W.J., Dunn, J.C., Shore, R.F., Pereira, M.G., Sleep, D., Dodd, S., Wheatley, C.J., Arnold, K.E., Brown, C.D. 2020. From seeds to plasma: confirmed exposure of multiple farmland bird species to clothianidin during sowing of winter cereals. *The Science of the Total Environment* **273** in press.

<https://doi.org/10.1016/j.scitotenv.2020.138056>

Mead D, Hailer F, Chadwick EA, Miguez RP, Smith M, Corton C, Oliver K, Skelton J, Betteridge E, Doulcan JD, Dudchenko O. The genome sequence of the Eurasian river otter, *Lutra lutra* Linnaeus 1758. Wellcome Open Research. 2020 Feb 19; 5 (33):33.

O'Rourke E, Losada S, Barber J and Chadwick EA (2020) Concentrations of per- and polyfluoroalkyl substances (PFAS) in Eurasian otters (*Lutra lutra*) from England. Interim report for the Environment Agency, produced by Cardiff University Otter Project, at Cardiff University School of Biosciences.

Contact us

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