



Wildlife Disease & Contaminant Monitoring & Surveillance Network

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The WILDCOMS newsletter reports recent newsworthy items, publications from member partners and items of interest about wildlife ecology from the UK and overseas. WILDCOMS is funded by NERC UKRI and delivered under the National Capability Programme.

Spotlight on Vector-Borne diseases in wildlife

Vector Borne-RADAR project

Scientists from the [Garden Wildlife Health \(GWH\) project](#) are part of the team who first detected Usutu virus (USUV), an emerging zoonotic virus of concern, in UK wild birds and mosquitoes in 2020¹. Analyses of disease surveillance and wild bird monitoring scheme data indicate that blackbird (*Turdus merula*) mortality may have occurred as a result of this virus infection on a scale sufficient to cause a regional decline of this passerine species in 2020 in the Greater London area². Moreover, USUV detection each subsequent year, of a highly similar strain, indicates that USUV is most likely to have overwintered in the UK with local persistence³.



Above: Male blackbird (*Turdus merula*)

These findings led to establishment of the [VB-RADAR project \(Vector-Borne Real-time Arbovirus Detection And Response\)](#) which launched in 2023. VB-RADAR is led by the Animal and Plant Health Agency (APHA) and delivered in partnership with the British Trust for Ornithology (BTO), UK Health Security Agency (UKHSA) and the Zoological Society of London (ZSL). It is a three-year project funded by UK Research and Innovation (UKRI) and the Department for Environment, Food & Rural Affairs (DEFRA). The multi-disciplinary workplan follows a One Health approach to enhance surveillance for mosquito-borne zoonotic flaviviruses of wild birds in the UK, specifically elucidating emergence and transmission pathways, through a combination of active and passive surveillance strategies in wild bird hosts and mosquito vectors. The BTO are currently appealing for citizen scientists to participate in the '[Blackbirds in Gardens](#)' project, to help understand how blackbirds use gardens and what the potential effects of USUV on their population in the UK are.

A summary of year two findings is available in the [Project partners annual update newsletter 2025/6](#).

¹ Folly et al., 2020. Detection of Usutu virus infection in wild birds in the United Kingdom, 2020. *Eurosurveillance*, 25(41), 2001732. [doi: 10.2807/1560-7917.ES.2020.25.41.2001732](https://doi.org/10.2807/1560-7917.ES.2020.25.41.2001732).

² Lawson et al., 2022. Combining host and vector data informs emergence and potential impact of an Usutu virus outbreak in UK wild birds. *Scientific Reports*. 12(1), 10298. [doi: 10.1038/s41598-022-13258-2](https://doi.org/10.1038/s41598-022-13258-2).

³ Folly et al., 2022. Evidence for overwintering and autochthonous transmission of Usutu virus to wild birds following its re-detection in the United Kingdom. *Transboundary and Emerging Diseases*. 69(6), 3684-3692. [doi: 10.1111/tbed.14738](https://doi.org/10.1111/tbed.14738).

Garden Wildlife Health (GWH)

Garden Wildlife Health (GWH) is a collaborative project between the Zoological Society of London, the British Trust for Ornithology, Froglife, and the Royal Society for the Protection of Birds, which aims to monitor the health of, and identify disease threats to, British wildlife. GWH focuses on garden birds, amphibians, reptiles, and hedgehogs, counting on the help of the public to submit reports of sick or dead wildlife of these species and to submit specimens for analysis.

The GWH team conducts post-mortem examinations on garden wildlife and routinely collects an archive of samples from each investigation for potential use in the future. Their national archive comprises 10,000s of frozen and fixed tissues, combined with parasite and culture collections, some of which date back to the early 2000s. These samples are often used to support collaborative projects, and the GWH team is interested to hear of research proposals that could facilitate optimal use of this resource in the future.

To report death or illness in garden wildlife, visit our [website](#).



GWH have produced a wealth of advice on creating a healthy environment for your garden. See [Amphibians](#), [Birds](#), [Hedgehogs](#), [Reptiles](#) and [Wildlife friendly gardening](#).

Recent publication news from GWH

The following recent publications, delivered in collaboration with coauthors from government animal and public health agencies, diagnostic laboratories and wildlife rescue centres, utilised long-term sample archives from the GWH project:

Lean, F.Z.X. et al., 2024. [Colocalization of hedgehog arterivirus 1 \(HhAV-1\) and histologic lesions in the European hedgehog \(*Erinaceus europaeus*\) with neurological disease](#). *Veterinary Pathology*. Dec 12:3009858241300553.

Lean et al. (2024) investigated the association of hedgehog arterivirus (HhAV-1) infection and neurological disease in European hedgehogs (*Erinaceus europaeus*). HhAV-1 was first identified following an outbreak of neurological disease that affected hedgehogs in care at a wildlife rehabilitation centre in England in 2019. Through histopathological investigation of tissues collected during post-mortem examinations of the 2019 and two subsequent incidents, combined with *in situ* hybridisation, **co-localisation of neurological lesions with HhAV-1 RNA was evidenced, which strongly supports an association between the virus and clinical neurological disease**. Additionally, HhAV-1 was detected in free-living hedgehogs that died due to road collision or predation injuries, albeit at a lower viral load and with no evidence of neurological lesions present. The distribution and frequency of occurrence of HhAV-1 infection in hedgehogs in Great Britain, as well as its impact on hedgehog health in free-living animals, remains uncertain and is the focus of ongoing research.

The findings of this article have also contributed to the update of the GWH disease factsheet on [Arteriviruses in Hedgehogs](#). This factsheet is available to access and download from the [project website](#).

Vecchiato, M. et al., 2025. [Limited occurrence of *Borrelia burgdorferi* sensu lato in the European hedgehog \(*Erinaceus europaeus*\) and *Ixodes hexagonus* in Great Britain](#). *Ticks and Tick-borne Diseases*. 16(3), 102475.

Borrelia burgdorferi sensu lato (*Bbsl*) bacteria are the causative agents of Lyme borreliosis, a zoonotic disease known to be transmitted by *Ixodes* spp. ticks. **Vecchiato et al. (2025)** investigated the occurrence of *Bbsl* infection in hedgehogs and *Ixodes hexagonus* in Great Britain to inform our understanding of these species as potential hosts or vectors. Archived hedgehog tissues and *Ixodes* spp. tick samples collected during hedgehog post-mortem examinations (2013-2022 inclusive) were screened for *Bbsl* using a pan-*Borrelia* qPCR assay. The majority of ticks on hedgehogs were identified as the hedgehog tick *I. hexagonus* (649/668), with a small number of *I. ricinus* (18/668) and a single *I. frontalis* found. Only 4.2% (4/96) of hedgehogs and 1.2% (4/355) of pooled tick samples tested positive, which indicates that ***Bbsl* infrequently circulate in hedgehog and *I. hexagonus* in Great Britain**. *Borrelia afzelii* was the only *Borrelia* species characterised by sequence analysis in both hedgehogs and

ticks. Histopathological examination of tissues of *Borrelia*-qPCR positive hedgehogs showed no evidence of borreliosis, and therefore no indication of clinical significance of *B. afzelii* to hedgehog health. The low occurrence of *B. afzelii* in *I. hexagonus*, combined with the lower frequency of human biting behaviour of this tick species compared to *I. ricinus*, suggests that **the public health risk of infection from *I. hexagonus* bites is lower than for *I. ricinus*.**

[Cardiff Otter Project](#)



[The Otter Project](#) is a UK national scheme collecting otters found dead in England, Scotland, and Wales to investigate contaminants, disease, and population biology. We collaborate with researchers from other institutions and disciplines to maximise the usage of the otter archive. We are keen to collaborate, sharing data and samples and also encourage potential postgraduate researchers to approach us with research ideas.

Please see more information on our [Otter Project website](#).

Welcoming our new PhD students

Two new PhD students, Chloë Hawthorn and Jiaying Gu, are going to join the Otter project. Congratulations, Chloë and Jiaying, on securing the PhDs, and the WILDCOMS team looks forward to working with you.



Above: Chloë Hawthorn

Otters versus gadgets: how does passive sampling compare with sentinel species monitoring for evaluation of freshwater pollution?

Chloë Hawthorn, who is currently our Project Officer, will be starting her PhD this September on the [RED-ALERT Programme](#), a NERC funded Centre for Doctoral Training (CDT). She will be supervised by Dr Elizabeth Chadwick and Dr Frank Hailer at the Otter Project, along with Dr Gloria Dos Santos Pereira at UKCEH. The Industrial Partner on the project is Thomaz Andrade at Natural Resources Wales (NRW).

Chloë's project will evaluate methods to monitor and manage freshwater pollution, aiming to inform environmental policy at a critical time for aquatic ecosystems. She will assess how well passive sampling reflects chemical threats compared to traditional approaches. Through co-located passive and active water sampling, biota analysis, and use of archived otter tissues, Chloë will evaluate detection efficiency, quantify contaminant transfer through the food web, and model landscape-scale pollution patterns across Wales.



Above: Jiaying Gu

Environmental health and infectious disease: how chemical cocktails help drive emerging zoonoses in mammals

Jiaying Gu has just started her PhD with the [OneZoo programme](#) (cohort 2), a NERC funded CDT. Primarily based at Queen's University, Belfast, Jiaying is supervised by Dr Connor Bamford, she is co-supervised by Dr Elizabeth Chadwick and Dr Frank Hailer at the Otter Project, along with Associate Professor Rachael Tarlinton at the School of Vet Medicine and Science, University of Nottingham. Dr Catherine Moore at Public Health Wales is the project's External Partner.

Jiaying's PhD research aims to bridge environmental health and infectious disease. She is investigating how chemical pollutants, such as heavy metals like lead, may influence viral susceptibility, immune responses, and potential adaptations in mammals, with a particular focus on otters.

Conferences

This spring, the Otter Project team attended two important conferences to share our research.

Presentation at the 16th International Otter Congress in Peru (February 2025)



In February, Principal Investigator Liz and Project Officer Chloë travelled to Lima, Peru, for the IUCN Otter Specialist Group's 16th International Otter Congress, joining otter researchers from across the globe. **Liz was invited to present an overview of the 30-year legacy of the Cardiff University Otter Project, highlighting the value of using wildlife found dead for conservation, disease and pollution monitoring.** In follow up from this, Liz will be leading a new Otter Specialist Working Group aiming to expand biobanking and chemical monitoring in other countries and species.

Left: Liz and Chloë at the 16th International Otter Congress, Peru

Chloë presented our PFAS research, which revealed geographic variation in PFAS contamination across Britain and underscores the role of otters in tracking these persistent pollutants. It was fascinating to hear about research on other otter species, including the recently confirmed the 14th species of otter *Lontra annectens*, as well as more familiar otters from around the globe. It was particularly interesting to learn more about how IUCN 'Green Status' is assessed, and how this adds much needed nuance to conservation monitoring. Post conference, we were privileged to be able to see marine otters *Lontra felina* just south of Lima, as well as a family group of giant otters *Pteronura brasiliensis* during a trip to Tambopata National Reserve in the Amazon rainforest.

Presentation at the 70th annual Mammal Society Conference in Wales, UK (March 2025)

Closer to home, in March, Liz and Postdoctoral Researcher Emily attended the 70th annual Mammal Society Conference in Bangor, Wales, joining researchers and conservationists from across Britain. **Liz also spoke here on the long-term impact of the Otter Project, while Emily presented our PFAS research. It was very interesting to hear of the other mammal research and monitoring going on in Britain, such as recovery strategies for red squirrels and plastic pollution in hedgehogs.** The conference concluded with a dinner and prize-giving ceremony celebrating individuals who have made significant contributions to mammal conservation.

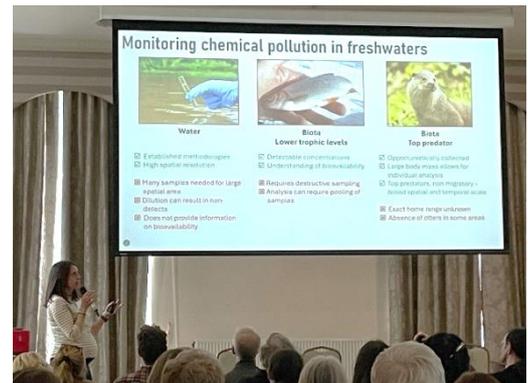
Congratulations to all the winners, and a special mention to [Grace Yoxon who won the Mammal Champion Award](#). Grace, alongside Paul Yoxon, founded the International Otter Survival Fund in 1993. We're proud to work closely with IOSF and are especially grateful for their support in facilitating the delivery of otters from Scotland.

A summary of our PFAS research can be found in [the Autumn 2024 WILDCOMS Newsletter](#), and links to our papers can be found on [our website](#).

GB Wildlife Disease Surveillance Partnership

The GB Wildlife Disease Surveillance Partnership is made up of the following organisations: Animal and Plant Health Agency (APHA), 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) and Forestry England (FE).

The GB Wildlife Disease Surveillance Partnership quarterly publishes reports. The latest reports are accessible on the [GOV.UK website](#).



Above: Emily presenting PFAS research at the 70th annual Mammal Society Conference, Wales, UK

Predatory Bird Monitoring Scheme (PBMS)

The **Predatory Bird Monitoring Scheme (PBMS)** is a long-term monitoring system designed to measure various chemical contaminants in wildlife based on predatory birds based on the support from the public for bird carcass submission.



Predatory Bird
Monitoring Scheme



UK Centre for
Ecology & Hydrology

Partial re-opening of the scheme to bird carcass submissions



After a long pause in wild bird collection due to Highly Pathogenic Avian Influenza (HPAI), the PBMS has partially re-opened and can now receive bird submissions from wildlife professionals. The PBMS is a long-term monitoring scheme designed to measure various chemical contaminants in wildlife supported by public submission of predatory birds. Carcass collection was suspended in March 2023 in line with Government guidance to protect the public. We are currently able to work with wildlife professionals to collect birds and therefore, if you or your organisation have procedures in place to safely handle birds then we would like to hear from you. Our email is pbms@ceh.ac.uk.

Above: The barn owl (Tyto alba) is one of the species that the PBMS monitors for contaminant residues, specifically second-generation anticoagulant rodenticides, and which the scheme is particularly keen to receive (image @rhallam www.fotosearch.co.uk Stock Photography)

PBMS metal exposure studies presented to Defra working group

In January 2025, the PBMS presented recent work on metal concentrations in predatory birds to the Defra metals working group. This group seeks to develop the H4 indicator that tracks changes in wildlife exposure to environmental chemicals over time and considers the potential risk to wildlife from chemicals in terrestrial, freshwater and marine ecosystems. The PBMS team focused on the results of metal exposure studies including the difference in metal tissue concentrations and in temporal trends of exposure, speculating that diets and habitats were important factors. These results will inform future contaminant monitoring for the terrestrial environment and reporting for the H4 indicator.

Workshop with APHA

An overview of PBMS activity was presented to the Wildlife Expert Group (WEG) in a workshop in January 2025, aimed at developing a common understanding of tissue sample collection and to share knowledge about the wider impacts of the PBMS work. Delegates from the PBMS, Lee Walker (Principal Investigator) and Elaine Potter (Project Coordinator) outlined the history, scientific impacts, administration, communications with experts and the public, and research process of the scheme to members of the WEG. This workshop with the WEG (composed of veterinary experts including Veterinary Investigation Officers from APHA and partner-organisations delivering disease surveillance in UK wildlife) has led to increased submissions of sample-sets from APHA to the PBMS facilitating ongoing contaminant monitoring programmes.

Potential collaborations with external research bodies

The PBMS is always seeking to widen its research topics and develop collaboration opportunities. The team is currently developing new research project ideas with two external collaborators, the University of Sussex and the [Sanger institute](#).

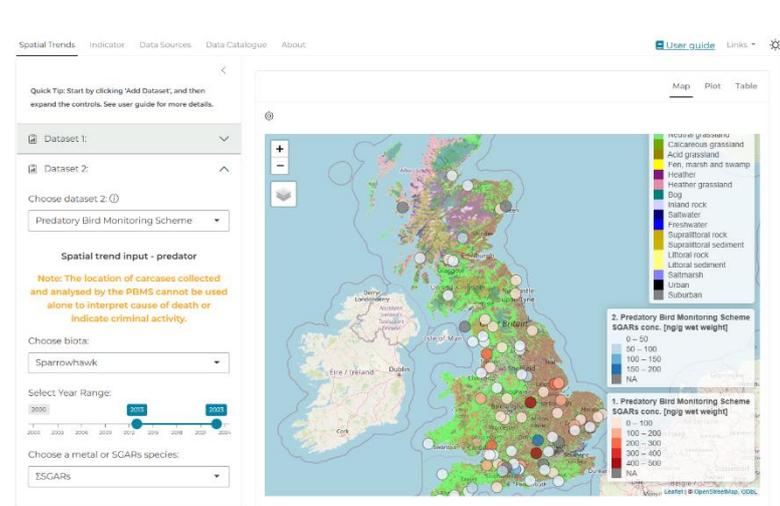
Supervised by Prof. Fiona Mathews, her team at the University of Sussex has conducted studies on the exposure of terrestrial wild vertebrates to (micro)plastics. The PBMS team is now sharing its bird samples with the team for a future study to examine the exposure of UK predatory birds to microplastics.

With Drs. Alex Cagan and Louise van der Weyden from the Sanger institute, the PBMS team is developing a pilot study to look for associations between contaminant residues and markers of genetic mutations in buzzard samples. If this proof of concept is successful then we'll look to develop proposals for larger studies. The PBMS will be providing

samples generated through projects supported by the NERC National Capability for UK Challenges (NC-UK) programme, Natural England and The Campaign for responsible Rodenticide Use. These samples have been analysed for a range of contaminants (as part of Natural England funded monitoring). The Sanger Institute will apply NanoSeq, an ultra-accurate duplex sequencing method created at the Wellcome Sanger Institute that pinpoints somatic mutations down to the single molecule level.

PBMS data used to test proof of concept visual communication tool

PBMS data on the exposure of predatory birds to environmental contaminants were included in a visual communication tool as one of the case studies of the System Level Indicators (SLI) project funded by the Joint Nature Conservation Committee (JNCC). The SLI project aims to develop a proof-of-concept visual communication tool for demonstrating the state of the environment in relation to chemical pollution. To demonstrate the capability of the tool, the project team, including Dr Shinji Ozaki from the PBMS, co-developed with stakeholders several case studies addressing current UK environmental concerns from chemical contamination.



Focusing on the exposure level of UK terrestrial wildlife to chemical contaminants, the SLI project team selected PBMS exposure data for the Common buzzard (*Buteo buteo*) and Eurasian sparrowhawk (*Accipiter nisus*), to heavy metals and pesticides (anticoagulant rodenticides) and visualised those data with other data and maps, such as land cover map, in the tool. For more, see the [SLI project website](#).

Left: A demonstration of the visual tool established by the SLI project team, showing SGAR concentrations in buzzard tissue (red) and sparrowhawks (blue) for 2013-2023 (from PBMS data) with Land Cover Map 2021 with 1 km dominant target class (from the UKCEH)

WIIS-Scotland



The results from [WIIS-Scotland](#) are published quarterly. **The results for incidents from the first half of 2024** can be viewed on the [WIIS Quarterly Reports webpage](#). SASA staff continue to survey rodenticide usage on behalf of the Scottish Government.

Retirement of Elizabeth Sharp



Above: Elizabeth Sharp

Elizabeth Sharp, the Senior Analyst for the Wildlife Incident Investigation Scheme (Scotland), retired from her 40-year career at SASA on the 30th of April 2025. Since joining the Chemistry Section at SASA in 1985, she has had many years of experience in the analysis of pesticide residues in animal tissues and has developed her expertise as the Senior Analyst in the WIIS-Scotland Team and as the section’s Quality Manager. She was one of the authors of the Pesticide Poisoning of Animals Report series and numerous scientific publications, of which the most recent peer-reviewed papers were George et al. (2024) and Campbell et al. (2024) (for details of these papers, see the [WILDCOMS Newsletter issue 34, Autumn 2024](#)). **Her contributions to the WILDCOMS have also been invaluable.**

The WILDCOMS team sincerely congratulate her on her retirement.

Recent WILDCOMS and featured publications

- Allain, S.J.R. et al., 2024. [Characterisation, prevalence and severity of skin lesions caused by ophidiomycosis in a population of wild snakes](#). Scientific Reports, 14(1), 5162.
- Ball, S. et al., 2024. [Genetic study of an isolated population of adders \(*Vipera berus*\) founded by historic translocation: implications for conservation: implications for conservation](#). Herpetological Journal, 34(4), 197-210.
- du Plessis, S.J. et al., 2025. [Historical genomic variation of Eurasian otters \(*Lutra lutra*\) in Britain, from hunting trophies](#). Conservation Genetics Resources
- Lean, F.Z.X. et al., 2024. [Colocalization of hedgehog arterivirus 1 \(HhAV-1\) and histologic lesions in the European hedgehog \(*Erinaceus europaeus*\) with neurological disease](#). Veterinary Pathology. Dec 12:3009858241300553.
- Seilern-Macpherson, K. et al., 2024. [Predation of anurans in southern England by *Batracobdella algira*, a leech previously unknown in the UK](#). Herpetological Journal, 34(4), 221-227.
- Thomas, N.E. et al., 2025. [Spatio-temporal changes in effective population size in an expanding metapopulation of Eurasian otters](#). Evolutionary Applications 18(1), e70067.
- Vecchiato, M. et al., 2025. [Limited occurrence of *Borrelia burgdorferi* sensu lato in the European hedgehog \(*Erinaceus europaeus*\) and *Ixodes hexagonus* in Great Britain](#). Ticks and Tick-borne Diseases. 16(3), 102475.

New vacancies

Undergraduate placement year opportunity (Otter Project; Cardiff university)

There is **one position available for the professional training year (PTY) placement for the 2025-2026 academic year**. This opportunity is **primarily intended for undergraduate students undertaking their third-year PTY**, but the **Otter project welcomes applications from anyone with an interest in the role**. No prior experience is required. The placement provides hands-on experience in research, data handling, spatial mapping, post-mortem techniques, and public engagement. For full details, please see the advert below. Please forward this advert on to any students or university lecturers who may be interested.



Professional Training Year Placement 2025-26 Cardiff University Otter Project

We have vacancies for a one year placement from 2025-26, offering the successful candidates a wide range of experience in research and project management.

About the project:
The **Otter Project** is a nationwide scheme that has been collecting otters found dead for post-mortem examination for 30 years. The otter is a European protected species, and acts as a sentinel of freshwater health. Data and samples are used in a wide range of research, while information on carcass locations is used to guide conservation.

About the placement:
Successful candidates will be involved in all aspects of this project, including:

- **Research:** Core work includes conducting weekly post-mortem examinations and sample archiving with opportunities to assist our team of PhD students using a variety of methods including field surveys, molecular ecology and microscopy. In addition, the successful applicants will be able to select and undertake an individual research project, chosen in line with their own interests.
- **Data analysis:** Successful applicants will be trained in database management, digital mapping (ArcMap GIS and QGIS) and statistical modelling using R.
- **Professional networking:** Liaising with conservation organisations and government agencies (e.g. Wildlife Trusts, Environment Agency) to arrange carcass collections.
- **Public engagement and science communication:** Maintaining social networking activities, and helping with engagement activities, such as science fairs, open days and school visits. Successful applicants will also monitor the project's emails and phone line, helping members of the public with queries.

Placements are usually for one year, typically starting in July to September (this is flexible and can be discussed). They are designed for undergraduate students undertaking a professional training year (PTY), although we will consider applications from anyone interested. The placement is unpaid, although as we are a part of a Higher Education (HE) institute, students will be entitled to their full student loan amount. There may also be some paid opportunities throughout the year, including open days and engagement events.

Applications:
Send your **CV and cover letter** to Dr Elizabeth Chadwick and Chloë Hawthorn at hawthornc1@cardiff.ac.uk with 'placement year' in subject header.
Deadline: **13th June 2025**.
More information on the project is available at www.cardiff.ac.uk/otter-project or email us at otters@cardiff.ac.uk to hear from our current PTY students



Live otter photos credit: Jeff Chard

Contact us

To see a particular topic in the WILDCOMS newsletter, contact us about WILDCOMS related matters or subscribe/unsubscribe from our mailing list please email wildcoms@ceh.ac.uk.

For detailed information about WILDCOMS and the schemes involved, navigate to www.wildcoms.org.uk.

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