Wildlife Disease & Contaminant Monitoring & Surveillance Network

WILDCOMS newsletter number 25: Autumn 2019 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

Predatory Bird Monitoring Scheme (PBMS)

'Bird of Prey and Pollution' reports (1980-1997) now available: Work on pollutants and birds of prey, based on samples sent in to what is now called the Predatory Bird Monitoring Scheme (PBMS), was originally described in annual 'Bird of Prey and Pollution' reports. Until recently, the earliest report on the PBMS website dated back to 1998. Recently the series of earlier reports dating back to 1980 has been scanned. The work described in these reports focussed largely on the contamination of birds of prey with organochlorine pesticides and contaminants. The reports contain both a description of the findings and also the original data. In all, the downloadable reports span nearly a 40 year period. The reports can now be downloaded at https://pbms.ceh.ac.uk/content/pbms-reports.

New reports on rodenticides in red kites now published: The latest annual report on the exposure of red kites to second generation anticoagulant rodenticides (SGARs) is now published on the PBMS website (Walker et al., 2019). It describes the magnitude of liver residues and the extent of associated poisoning in birds that died in 2017 and 2018. All of the 66 kites from England & Wales and 10 of the 11 red kites from Scotland had detectable liver residues of at least one SGAR.
The report draws together data from across the WILDCOMS network, namely from the: UK Centre for Ecology & Hydrology's Predatory Bird Monitoring Scheme (PBMS), Institute of Zoology's Disease Risk Analysis and Health Surveillance (DRAHS) programme and from the Wildlife Incident Investigation Scheme (WIIS) for England & Wales and for Scotland, run by Fera Science and SASA (Science & Advice for Scottish Agriculture), respectively.

New reports on rodenticides in barn owls now published: The latest annual report on rodenticide residues in barn owls has been published (Shore et al., 2019). The current report is the fourth in a series of annual reports that describe the monitoring of second generation anticoagulant rodenticide (SGAR) liver residues in barn owls in Britain. This work is an element of an overarching monitoring programme undertaken to track the outcomes of stewardship activities associated with the use of anticoagulant
rodenticides.

Using long-term datasets to understand the impact of neonicotinoid seed treatments on farmland bird populations: Worldwide, the debate surrounding the environmental safety of neonicotinoid (NN) insecticides continues. Whilst the EU banned the use of these compounds in 2018, many other countries continue using them on a large number of agricultural crops. To date, the majority of neonicotinoid avian research has been laboratory-based and the true extent and impact of neonicotinoid exposure within farmland bird communities remain poorly understood. To fill this knowledge gap, PhD student Rosie Lennon (University of York) has worked in collaboration with the PBMS at the UK Centre for Ecology & Hydrology and the Royal Society for the Protection of Birds to investigate the effects of neonicotinoid seed treatments on farmland birds in the UK using multiple data obtained from the field.

Yellowhammer © Rosie Lennon

The most recent work to be published from the PhD made use of long-term datasets to assess the potential impact of NN seed treatments on the populations of 22 farmland bird species. Twenty-one years of NN usage data (Pesticide Usage Survey, Fera Science Ltd.) was spatially matched to bird abundance data (BTO Breeding Bird Survey) and the analysis estimated the change in population for each species per unit application of NN applied as seed treatments. The study concluded that dietary exposure to NN seed treatments has had no consistent effect on farmland bird populations; however, populations of skylark, *Alauda arvensis*, red-legged partridge, *Alectoris rufa* and house sparrow, *Passer domesticus* showed significant negative associations with NN use. This research highlights the advantages of using long-term datasets to assess the impact of agrochemicals on non-target species. The publication can be accessed here and watch this space for more (field-based) research that is to be published sometime in the New Year. Any questions regarding the research can be forwarded directly to Rosie (rjl529@york.ac.uk).

Disease risk analysis and health surveillance (DRAHS) project

Wart-biter cricket; Dr Tammy Shadbolt ©

DRAHS Project news: In September 2019 DRAHS vets Dr Tony Sainsbury and Dr Tammy Shadbolt visited Colchester Zoo to review the disease risk management protocol for the Fisher's estuarine moth breeding and reintroduction programme which is now in its tenth successful year. Dr Tammy Shadbolt also undertook a final visit to East Sussex South Downs for the fieldwork season to carry out post release health surveillance of wart-biter crickets in collaboration with Natural England. The population at the reintroduction site appears to be thriving and healthy. Two new projects have recently commenced, one carrying out a disease risk analysis (DRA) for a conservation translocation of Madagascan fish species funded by National Geographic and a second DRA for the reintroduction of the *Guam kingfisher* (*Todiramphus cinnamominus*) funded by the Guam government. In November DRAHS produced updated Disease Risk Management and Post-Release Health Surveillance reports on work undertaken for all project species for the period April to October 2019 and hosted the biannual meeting for Natural England and collaborating partners at the Zoological Society of London.

DRAHS Staff and students: Pathology and Field Technician Inez Januszczak left DRAHS in September to experience life living and working abroad. She was an invaluable asset to the team during her four years working with DRAHS. Georgina Gerard who recently graduated from the Royal Veterinary College and Zoological Society of London MSc in Wild Animal Biology joined DRAHS in October replacing Inez. BBSRC veterinary student Freya Martin completed her placement with the DRAHS team and produced an excellent report titled 'Risk factor analysis of helminth infestations of reintroduced wild red kites in England and Wales 1994-2018.

DRAHS Conference attendance: Dr Tammy Shadbolt attended the British Veterinary Zoological Society conference in Manchester in November and delivered a poster presentation. Dr Tony Sainsbury, Dr Tammy Shadbolt and Dr Helen Donald presented talks on DRAHS project species at the Zoological Society of London Science conference in November. Dr Claudia Carraro presented a poster at the same conference.

Garden Wildlife Health

Healthy gardens for people, plants and wildlife symposium: On October 24th 2019, the "Healthy gardens for people, plants and wildlife" symposium was held at ZSL London Zoo, co-organised by the Garden Wildlife Health project (www.gardenwildlifehealth.org) and the Wildlife Gardening Forum (www.wlgf.org).

Domestic gardens are an important but often overlooked resource for many wildlife species. The goal of this symposium was to share findings on how to optimise garden habitat management to safeguard the health of people, plants and wildlife, whilst identifying areas for future research and collaboration.

The event comprised a variety of inspirational talks, on topics ranging from how to conserve pollinators through planting for biodiversity to the benefits of nature engagement for human health and wellbeing. The audience of 190 attendees was diverse, including public, academics, people working in applied conservation, students, community and professional gardeners, gardening journalists and wildlife rehabilitators.

WIIS-Scotland

The results from WIIS-Scotland are published quarterly and the results for incidents from quarter 2 of 2019 have been added to the SASA website and can be viewed here. The next update, 2019 quarter 3, will be published January 2020.

The WIIS-Scotland team was represented at a meeting of the European Raptor Biomonitoring Facility (ERBF) in Bucharest in September 2019 to address issues relating to the investigations of cause of death in raptors exposed to primary or secondary pesticide poisoning across Europe. More information about the ERBF can be found here.

PhD studentship based within the University of Aberdeen with opportunities to work at the Scottish Government SASA laboratories in Edinburgh: EASTBIO: Pesticide problems for honey bees: a closer look in our towns. Application deadline 5 January 2020. Further details can be found at: https://www.findaphd.com/phds/project/eastbio-pesticide-problems-for-honey-bees-a-closer-look-in-our-towns/?p114032. Image: © SASA Crown copyright

Cardiff University Otter Project

In September the otter project welcomed **two new research assistants**; Becky, who has just finished her master's degree and Zoe, who is completing a placement year as part of her undergraduate degree. They are responsible for carrying out post-mortems, and recently they have had some interesting finds. Stomach contents have revealed quite a range of prey species; including two common periwinkles from an otter sent to us from the Isle of Skye by IOSF, two pairs of suspected juvenile mallard feet in an individual from Durham, and over 100 newts in one otter from Bangor.

This year we have been continuing our **public enagement activities** using Colin and Oscar the otters to educate the wider public on the research we carry out, and the importance of otter conservation and protecting the freshwater ecosystem. In October we teamed up with Amy from Project Splatter (www.projectsplatter.co.uk) to attend Super Science Saturday at the National Museum in Cardiff. Check our Facebook and twitter pages for future events.

In the archive we have been busy selecting liver samples to be used as part of the **LIFE APEX project** (www.lifeapex.eu). Apex aims to use samples collected from top predators to evaluate chemical contamination of the environment, across Europe. Cutting edge methods will help identify an unprecedented range of chemicals in our samples, we look forward to receiving the results and hope this can help contribute to environmental protection.

This year **215 post-mortems** have been carried out from otters across England, Wales and Scotland. We rely on the public reporting dead otters (see www.cardiff.ac.uk/otter-project/found-an-otter for details) and we are very grateful to the organisations and volunteers who collect and deliver otters. However, some regions are poorly represented. We are looking to expand our collection network and would be very interested to hear from anyone who could help support our research by storing and posting otters to us.

cardiff.ac.uk/otter-project @otterprojectuk @Otter_Project otters@cardiff.ac.uk

Cetacean Strandings Investigation Programme (CSIP)

New study reveals mothers detoxify themselves by passing on most neurotoxic PCBs through lactation

Harbour porpoise calves around the UK are carrying a more neurotoxic cocktail of PCBs than their mothers, as females unknowingly detoxify themselves by transferring the chemicals while feeding their young.

PCBs were used in electrical equipment, surface coatings and paints back in the mid-1980s, before being banned across Europe due to their toxic effects on both people and wildlife. However, the group of persistent toxic chemicals continues to enter the marine environment through terrestrial run off, dredging and atmospheric transport, resulting in a complex mixture of the chemicals entering the food chain.

The highest levels are often found in odontocetes (toothed whales) that are high up in the food chain, where they can cause suppression of the immune and reproductive systems and have contributed to population declines of several species in some regions. For the full story see https://www.zsl.org/science/news/harbour-porpoise-calves-exposed-to-neurotoxic-pcbs-in-mothers-milk and in Publications: Williams et al, 2019.

Upcoming conferences

Holistic approaches to conservation, 11th February 2020, London, UK
Examples of Zoological Society of London projects across the world will be presented.
ZSL runs holistic conservation programmes in 13 countries and is just getting started in many more. Working with people is central to each of these projects, and the involvement of hundreds of thousands of people underpins conservation success. The free event will explore what has been achieved so far e.g. ZSL's KELOLA Sendang Project in Indonesia, which works with local communities, governments, and international palm oil companies to secure sustainable livelihoods for people across the landscape and nurture tiger habitat.
See: https://www.zsl.org/science/whats-on/holistic-approaches-to-conservation

Other news

Chernobyl-Level Radiation Exposure Increases Bumblebees' Appetite for Nectar: A team of researchers from the University of Stirling and the UK Centre for Ecology and Hydrology have demonstrated that simulated Chernobyl-levels of radiation exposure negatively affect energy use in buff-tailed bumblebees (*Bombus terrestris*) by increasing their metabolic rate and driving elevated nectar consumption. http://www.sci-news.com/biology/chernobyl-level-radiation-bumblebees-appetite-nectar-07899.html. Image: Emma Simpson-Wells unsplash.com

Recent publications from the WILDCOMS schemes

Lennon R.J. et al., 2019. Using long-term datasets to assess the impacts of dietary exposure to neonicotinoids on farmland bird populations in England. PLoS ONE 14(10): e0223093. https://doi.org/10.1371/journal.pone.0223093

Movalli, P., et al. 2019. Progress on bringing together raptor collections in Europe for contaminant research and monitoring in relation to chemicals regulation. *Environmental Science and Pollution Research* **26** 20132-20136. https://doi.org/10.1007/s11356-019-05340-6

Shore, R.F., Taggart, M.A. 2019. Population level impacts of chemical contaminants on apex avian species. *Current Opinion in Environmental Science & Health* **11** 65–70. https://doi.org/10.1016/j.coesh.2019.06.007

Shore, R.F. et al., 2019. Second generation anticoagulant rodenticide residues in barn owls 2018. CEH contract report to the Campaign for Responsible Rodenticide Use (CRRU) UK, pp. 24. https://pbms.ceh.ac.uk/sites/default/files/stewardship-2018-owls_FINAL.pdf

Walker, L.A., et al. 2019. Anticoagulant rodenticides in red kites (*Milvus milvus*) in Britain in 2017 and 2018. Centre for Ecology & Hydrology, Lancaster, UK. 28 pp https://pbms.ceh.ac.uk/sites/default/files/Red_Kite_2017-18_FINAL.pdf

Williams, R.S. et al., 2019. Juvenile harbor porpoises in the UK are exposed to a more neurotoxic mixture of polychlorinated biphenyls than adults. Science of the Total Environment. https://doi.org/10.1016/j.scitotenv.2019.134835

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