Wildlife Disease & Contaminant Monitoring & Surveillance Network

NEWLETTER: Number 4

Autumn SPOTLIGHT 2012

Rodenticides

The risks of secondary exposure and potential poisoning of non-target species by second-generation anticoagulant rodenticides (SGARs) is well documented. There is no UK statutory post-approval monitoring programme for rodenticides only, but three WILDCOMS partner schemes, the **Predatory Bird Monitoring Scheme (PBMS)**, the **Wildlife Incident Scheme (WIIS**) and the **WIIS-Scotland**, measure rodenticide residues in non-target species. The work (and its purpose) differs between schemes and is complementary.

The **PBMS** determines exposure by measuring liver SGAR concentrations in annual samples of barn owls, kestrels and red kites found dead from any cause but often from traffic collisions and starvation. The aim is to assess the scale of exposure in populations, and how this varies spatially, over time and between species. The **PBMS** also works with its **WILDCOMS** partner, the **Disease Risk Analysis and Health Surveillance (DRAHS)** Programme in respect to its work on red kites. The DRAHS conducts post-mortems on all red kites submitted to the PBMS, gathering specific data it needs for its programme on reintroduced species, and shares key post-mortem data and kite tissues with the PBMS – these are needed by the PBMS to examine the extent of exposure of red kites to SGARs.

WIIS (covering England and Wales) and **WIIS-Scotland** determine effects by quantifying residues of all rodenticides in predatory birds and mammals and companion animals that have been submitted to them as suspected victims of rodenticide, or other pesticide, poisoning. Chemical analysis of tissue residues is part of the evidence used to assess if rodenticides are the likely cause of death. Both schemes have extended their scope by routine monitoring all birds of prey for rodenticides, irrespective of whether they are suspected of being poisoned by rodenticides or by other compounds. Thus, both gather some general information on exposure but, unlike the **PBMS**, samples are restricted to birds suspected of having been poisoned by something.

WILDCOMS facilitates close collaboration between the **PBMS, WIIS and WIIS Scotland**. Birds offered to the **PBMS** that, on initial enquiry, are suspected of having been poisoned, are forwarded on to **WIIS** or **WIIS-Scotland** to ensure potential illegal poisonings are followed up. The schemes are also currently sharing their data to further develop approaches by which residues may be used more effectively to determine the scale of mortalities in populations; this follows on from initial recent published work. The value of the **WIIS, WIIS-Scotland** and the **PBMS** for monitoring the environmental impacts that rodenticides may have on non-target species is recognised in the recent CRD consultation on future use of rodenticides in Britain (see Environmental Risk Mitigation Measures document, section 5).

Scheme News

The latest **Animal Health and Veterinary Laboratories Agency (AHVLA) Diseases of Wildlife Scheme** quarterly report has been published.

Wild bird avian influenza surveillance (AIV) in Great Britain. Surveillance for AIV in wild birds has been compulsory for European Union (EU) Member States since 2006 following the detection and westward spread of the 'Eurasian lineage' H5N1 Highly Pathogenic Avian Influenza (HPAI) virus from south-east and central Asia in December 2003 towards Europe in October 2005. **AHVLA** have published an article entitled An evaluation of wild bird avian influenza surveillance in Great Britain

AHVLA Diseases of Wildlife Scheme has been involved in investigating unusual mortality of Pinnipeds in the UK associated with helical (corkscrew) injuries. The results have been published in Aquatic Mammals 2012, 38(3), 229-240, DOI 10.1578/AM.38.3.2012.229

WIIS-Scotland. An Argyll farmer pled guilty to possessing the banned substance carbofuran on 18 April 2012 at Oban Sheriff Court. He was fined £1,200 for the offence. The Pesticide Poisoning of Animals in 2011 - A Report of Investigations in Scotland has been published.

Disease Risk Analysis and Health Surveillance (DRAHS) Programme has recently published the first evidence that squirrelpox viral disease is associated with the decline of red squirrels (*Sciurus vulgaris*) in Ireland, and grey squirrels (*Scuirus carolinensis*) were found to be seropositive to the virus. The emergence of squirrelpox in Ireland. Animal Conservation doi:10.1111/j.1469-1795.2012.00570.x McInnes C.J. et.al., 2012.

The **UK Cetacean Strandings Investigation Programme (UKCSIP)** has recently had three toxicology papers (see below) published or in press with the CEFAS laboratory.

1. Butyltin compounds in liver of harbour porpoises (Phocoena phocoena) from the UK

Some recent rodenticide results from the **PBMS, WIIS** and **WIIS-Scotland** are described below.

PBMS: the most recent data indicates that that approximately 90% of barn owls have been exposed at some time to one or more SGAR. Analysis of long-term trends in barn owls demonstrates exposure rose from 1983 (start of monitoring) to approximately the mid-2000s, largely due to rises in exposure to difenacoum and bromadiolone. The proportion of owls with multiple compounds in their livers has also risen over time. The pattern of exposure since approximately 2005 appears more variable with no clear temporal trend. Spatial analysis of long-term data indicates that the proportion of owls with detected liver SGAR residues is approximately two-three fold higher in England than in Scotland or Wales.

WIIS: the principal aim is mortality monitoring that may be linked to pesticide use. Red kites scavenge, eat dead rats, and so are vulnerable to exposure to anticoagulant rodenticides. The intensive monitoring of kites following their re-introduction to England means that dead birds are likely to be found and reported to **WIIS** (introduced bird mortalities were investigated by **WIIS** from 1995). From 1995 - 2011, 184 red kite submissions were investigated and the intentional, illegal use of a range of pesticides has killed at least 77 of these birds. However, there is also a high level of exposure to anticoagulant rodenticides. A total of 130 of the kites had anticoagulant rodenticide residues in their liver tissue. The impact of this on a species that is being actively re-introduced is uncertain, but 51 were assessed as having suffered possible lethal exposure to anticoagulant rodenticide.

WIIS Scotland has measured rodenticide residue data from 140 red kites analysed since 1997 and compared the results with recently reviewed data on rodenticide use on Scottish arable farms see Pesticide Usage Survey Reports. The residue analysis showed that there is widespread exposure in kites with 69% having detectable residues of anticoagulant rodenticides and 34% containing residues of more than one compound. Post mortem examination established that rodenticide exposure was the cause of death in 12 individuals (10 were juveniles). The residue profiles closely reflected agricultural use patterns in that bromadiolone and difenacoum were used most widely and were the most prevalent residues detected in kites.

Overall, the **PBMS, WIIS** and **WIIS-Scotland** demonstrate that there is very widespread exposure of non-target birds of prey, including those subject to reintroduction programmes, and this exposure is not restricted to species that feed on rats. Exposure is known to have increased over time in at least one species and varies between regions and between species. Some of this exposure is known to cause mortalities, and collaborative future work between the schemes hopes to elucidate the scale of this mortality more clearly.

CONTACT US

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).

prior to and following the ban on the use of tributyltin in antifouling paints (1992-2005 & 2009) Marine Pollution Bulletin (in press) Law R.J. et al.

2. Contaminants in cetaceans from UK waters: status as assessed within the Cetacean Strandings Investigation Programme from 1990 to 2008. Marine Pollution Bulletin 64: 1485-1494. (2012) Law, R.J. et al.

3. Investigating links between polychlorinated biphenyl (PCB) exposure and thymic involution and thymic cysts in harbour porpoises (*Phocoena phocoena*). Marine Pollution Bulletin 64: 2168-2176. (2012) Yap, X. et al.

Please navigate to the WILDCOMS website news area for more information on these publications.

PBMS and **WIIS** have been recognised at EU level as key indicators of the impacts of changes in rodenticide use. The European Chemical Industry Council (CEFIC) has established a European Biocidal Products Forum (EBPF), an industry platform where all industry stakeholders involved in the biocides sector can exchange views and give input in the ongoing debates. The EBPF has recently published a document on Sustainable use of rodenticides as biocides in the EU. In this document, the PBMS and the WIIS are cited as example indicators that are key for assessing the effect of changes in risk brought about by the implementation of sustainable use initiatives for rodenticides.

WILDCOMS news and events

An online article featuring **WILDCOMS** appears on Defra Landscape. The article is entitled Wild things. New partnership creates a ‘one-stop-shop’ for monitoring disease among wildlife.

The work of the schemes involved in the **WILDCOMS** network was highlighted by NERCs Planet Earth in an online blog by Adele Rackley entitled Corpses needed for environmental assessment.

WILDCOMS work was presented at the Joint WDA EWDA conference on Convergence in wildlife health.
To view a copy of a poster describing **WILDCOMS** see Posters.

The next **WILDCOMS** partners and stakeholders meeting will take place on the 26th and 27th of November, respectively, in London.