



Wildlife Disease & Contaminant Monitoring & Surveillance Network

Winter SPOTLIGHT 2014 www.wildcoms.org.uk

Newsletter: Number 9

Spotlight – Lead (Pb)

Decline in lead levels in otters following control of lead emissions. [Cardiff University Otter Project](#) research revealed a massive decline of 73% in Pb levels measured in otter bone between 1992 and 2004, following UK legislative control of Pb emissions – clear evidence that control measures have successfully reduced environmental exposure. The research also revealed interesting interactions between environmental variables driving Pb uptake. For example, while spatial variation in bone Pb reflected spatial variation in Pb emissions (Figure) across much of the study area, high wind speed in some areas eliminated this relationship, presumably because of reduced local deposition. Measured levels were probably below the level of concern for otter health, but the potential impact of sub-clinical effects at population level should not be disregarded. For more information see Chadwick et al., 2011 Lead levels in Eurasian otters decline with time and reveal interactions between sources, prevailing weather, and stream chemistry. *Environmental Science and Technology*. 45 (5) 1911-1916.



Spatial variation in modelled Pb emissions in south west England (from National Atmospheric Emissions Inventory).
Darker shading indicates higher emissions.

Lead intoxication incidents associated with clay pigeon shooting. The [Animal Health and Veterinary Laboratories Agency \(AHVLA\)](#), formerly Veterinary Laboratories Agency, has investigated on-farm potential food safety incidents on behalf of the Foods Standards Agency (FSA) since 2001. Lead intoxication accounts for the majority of on-farm potential food safety incidents and is associated with a variety of different sources of lead, including lead acid batteries, paint, geochemical lead and metallic lead. Several of the metallic lead incidents involve exposure to lead shot from clay pigeon shooting. This paper describes five such cases that have occurred since 2008, three in birds and two in cattle, with the intention of highlighting this hazard: <http://veterinaryrecord.bmj.com/content/early/2013/11/25/vr.102120.extract>

Lead (Pb) exposure differs significantly between raptor species. For the last two years the [Predatory Bird Monitoring Scheme \(PBMS\)](#) has quantified the extent of exposure to lead (assessed from liver residues) in two predatory bird species. The red kite (*Milvus milvus*) is a

scavenger and, as such, is particularly at risk from consumption of Pb ammunition in unretrieved game. Sparrowhawks (*Accipiter nisus*) prey predominantly upon live passerine birds that are unlikely to be shot in the UK and so probable sources of exposure are diffuse Pb contamination.

Red kites had significantly higher Pb concentrations than those measured in sparrowhawks but the majority of sparrowhawks and all the red kites had liver Pb concentrations below those thought to cause clinical and sub-clinical adverse effects in Falconiforme species. As part of this study we also examined the liver Pb isotope ratios in to explore whether they can be used to ascribe likely sources of any Pb detected in the birds.

Further information available in the report available to download from the PBMS website: <https://wiki.ceh.ac.uk/display/pbms/Publications/>

Lead poisoning in red kites. Scavenging birds in the UK may ingest lead shot when they feed on the carcasses of animals shot by hunters. Mortality through lead shot ingestion was predicted to be a problem for reintroduced red kites *Milvus milvus* because a major component of their diet is known to be dead animals. Indeed when the [Disease Risk Analysis and Health Surveillance Programme \(DRAHS\)](#) and the PBMS studied the pathological findings from a subset of 44 red kites found dead after reintroduction, we found that six of these birds had liver levels consistent with death through lead poisoning. In the same study, we examined 264 pellets regurgitated by red kites found in a Northamptonshire wood where a large number of red kites had a winter communal roost. Approximately 2% of these pellets contained particles of the size and shape typical of lead shot. Given that lead dissolves rapidly in the highly acidic raptor intestine, the results from these pellets were probably an under-representation of the scale of exposure of red kites to lead.

Continuing work over the last five years has shown that cases of lead poisoning have continued to occur in the red kite population, and there are signs that sustained exposure affects the quality of red kite bones. Lead poisoning of scavengers, like red kites, could be reduced if hunters found and removed shot carcasses and alternatives to lead was used as ammunition.

Pain et al., 2007 Lead contamination in captive and free-living red kites *Milvus milvus* in England. *Science of the Total Environment* 376: 116-127.

Red kite image courtesy of Doug Simpson.



Scheme News

WIIS-Scotland. The Pesticide Poisoning of Animals in 2012 - A Report of Investigations in Scotland has been published and can be viewed at <http://www.sasa.gov.uk/document-library/pesticide-poisoning-animals-2012>.

The latest results for 2013 have been published on the [Science & Advice for Scottish Agriculture \(SASA\) website](#) and can be viewed at [Positive Results 2013](#).

GB Wildlife Disease Surveillance Partnership. The latest report of the GB Wildlife Disease Surveillance Partnership is available: <http://www.defra.gov.uk/ahvla-en/publication/wildlife-surveys/>.

Publications: The [AHVLA](#) is the EU Reference lab for Avian Influenza (AI) and has recently prepared the annual reports on AI surveillance in poultry and wild birds in member states of the European Union. These have been published on the [European Commission website](#). Links to the [Annual report](#) and [website link for all reports](#).

Other wildlife related publications which have authors from AHVLA:

- McInnes et al., 2013 First cases of squirrelpox in red squirrels (*Sciurus vulgaris*) in Scotland. Veterinary Record Case Reports 1 (1).<http://dx.doi.org/10.1136/vetreccr.164.17.528rep>
- Naulty et al., 2013 Squirrelpox virus in red squirrels (*Sciurus vulgaris*) in the Republic of Ireland. Journal of Wildlife Diseases 49 (4) 1070-1073.
- Simpson et al., 2013 Causes of mortality and pathological lesions observed post-mortem in red squirrels (*Sciurus vulgaris*) in Great Britain. BMC Veterinary Research 9:229.<http://www.biomedcentral.com/content/pdf/1746-6148-9-229.pdf>
- Hogg et al., 2013 Mass mortalities in gulls associated with eating livestock fodder. Veterinary Record Case Reports 1 (1).<http://dx.doi.org/10.1136/vetreccr.c4047rep>
- Davison et al., 2013 Meningoencephalitis and arthritis associated with *Brucella ceta* in a short-beaked common dolphin (*Delphinus delphis*). Journal of Wildlife Diseases 49 (3) 632-636.
- Duff et al., 2013 Mass mortality of puffins, linked to starvation. Veterinary Record 173 (9) 224.<http://dx.doi.org/10.1136/vr.F5407>
- Duff. 2013 Mass mortality of starlings roosting by a roadside. Veterinary Record 173:613-614.<http://doi:10.1136/vr.f7539>

The Predatory Bird Monitoring Scheme (PBMS) is pleased to announce that the Department for Environment, Food and Rural Affairs (Defra), Scottish National Heritage (SNH) and Scottish Environment Protection Agency (SEPA) have joined the funding partnership (Natural Environment Research Council, Natural England, the Royal Society for the Protection of Birds (RSPB) and the Campaign for Responsible Rodenticide Use (CRRU)) for the PBMS this year.

WILDCOMS news

An article written by Professor Richard Shore and Dr Glória Pereira was recently published in Innovation International. The article explains how **WILDCOMS**, a novel collaborative project, is facilitating dissemination of research on potential threats to UK wildlife. [View PDF](#). International Innovation, published by Research Media, is the leading global dissemination resource for the wider scientific, technology and research communities, dedicated to disseminating the latest science, research and technological innovations on a global level. More information and a complimentary subscription offer to the publication can be found at: www.researchmedia.eu

The **WILDCOMS** network held a partners meeting in September 2013 in London, and a stakeholder meeting in Scotland in November 2013. Attendees of the stakeholder meeting included representatives from Scottish Environment Protection Agency (SEPA), Scottish Society for the Prevention of Cruelty to Animals (Scottish SPCA), The British association for Shooting & Conservation (BASC-Scotland), the Wildlife Management Branch of Scottish Government and Scottish National Heritage (SNH).

The latest WILDCOMS annual report which reports on the activities of the network during its second year is available from the [WILDCOMS website](#).

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 the WILDCOMS coordinator, Dr Gloria Pereira (mdgds@ceh.ac.uk)