Wildlife Disease & Contaminant Monitoring & Surveillance Network

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Wildlife and Zoonoses - infectious diseases that can be transmitted from animals to humans.
It is increasingly recognised that wildlife can be important hosts for diseases that are a risk to the health of man. A recent report estimated that, of 335 emerging infectious diseases in recent decades, 60% were zoonotic and, of these, 72% originated in wildlife. Therefore, wildlife is one of the most important sources of new and emerging zoonotic diseases. Several schemes in the Wildcoms network are involved in surveillance, investigation and research of wildlife zoonoses and some examples of key zoonotic disease threats are given below.

Avian Influenza (AI): is a highly contagious viral disease affecting the respiratory, digestive and/or nervous system of many species of birds. It is caused by a Type A influenza virus and there are two types, low pathogenic (LPAI) and highly pathogenic (HPAI). LPAI does not always cause obvious disease in birds. It is thought that influenza viruses circulate freely in the global wildfowl population. In rare cases, some HPAI strains have lead to severe disease and deaths in people where infection has resulted from close contact with infected birds. AI viruses can exchange genetic material with human influenza viruses in humans or susceptible animals to emerge as new viruses which may be capable of being spread easily between people. This is what makes AI a potential threat to public safety. The AHVLA Diseases of Wildlife Scheme, funded by Defra, has been carrying out surveillance for zoonotic diseases, including AI, for many years. Defra, monitors the international situation and distribution of avian influenza detections. Information found on the Defra website includes GB Wildlife Surveillance Partnership quarterly reports and Bird flu

West Nile virus (WNV): is a flavivirus that is primarily transmitted and amplified between avian reservoir hosts and many species of mosquitoes and other biting insects in enzootic cycles. It has been associated with encephalitis in humans, horses and some species of birds. It has also been detected in a wide range of other animals including reptiles and amphibians. WNV is endemic in parts of Africa, the Middle East and South West Asia. More recently, outbreaks of WNV have occurred in more temperate zones, including Eastern Europe, Russia, France, Italy and Portugal. In 1999, WNV was reported for the first time in the United States resulting in outbreaks of encephalitis in the human population in and around New York. Subsequently the disease spread to the whole of North America resulting in over 700 human fatalities and the death of many thousands of horses and wild birds. Every year since 2001, the VLA (now AHVLA) has carried out WNV surveillance in targeted species of wild birds in the UK. However, no evidence for the presence of WNV has been obtained in any of the submissions to date. Further information is available from the Defra VLA website page on West Nile Virus.

Scheme News

AHVLA Diseases of Wildlife Scheme (AHVLA). The latest AHVLA quarterly report has been published http://vla.defra.gov.uk/reports/

***Echinococcus multilocularis* (tapeworm)** is one of the most pathogenic parasitic zoonoses in central Europe. A paper by Alex Barlow *et al.* entitled *Echinococcus multilocularis* in an imported captive European beaver (*Castor fiber*) in Great Britain (doi: 10.1136/vr.d4673) has been published in the Veterinary Record

Information about wildlife disease surveillance was published by Microbiology Today, (2003), Vol 30

Information about zoonoses can be found on the Defra VLA website in VLA Zoonoses reports and Zoonoses page. In addition the The Health Protection Agency (HPA) provide information from the Human Animal Infections and Risk Surveillance group

Disease Risk Analysis and Health Surveillance: Harness mounted radiotransmitters fitted to red kites for post-release monitoring have been associated with pathological lesions. See Veterinary Record (2011) 169:311.

Research and Monitoring for and with Raptors in Europe, EURAPMON, is an ESF Research Networking Programme. Its aim is to strengthen the contribution of research and monitoring for and with raptors in Europe to delivery of biodiversity and environmental and human health benefits including maintenance and recovery of raptor populations and their habitats, and reduced chemical threats to ecosystem and human health. The work conducted by EURAPMON is relevant to several of

Brucellosis in bottlenose dolphins in UK waters. Research conducted by The UK Cetacean Strandings Investigation Programme (CSIP) and AHVLA Truro has shown links between zoonotic and probably fatal disease and high pollutant (PCB) exposure in a small and endangered bottlenose dolphin (*Tursiops truncatus*) populations around the coasts of Southwest England. Eight bottlenose dolphins that stranded in Cornwall between June 2004 and December 2007 were examined using a standardized necropsy and bacteriological methods. *Brucella* species infection was found in 4/8 (50%) dolphins on bacteriological culture and 6/8 (75%) had serological evidence of exposure to *Brucella* species on serological analyses of pericardial and other fluids. High or very high levels of the sum of 25 individual chlorobiphenyl congeners were also determined in blubber samples from two of the bottlenose dolphins (45.5 and 446.6 mg/kg lipid weight). Such high levels of PCB exposure may have had an immunosuppressive role increasing susceptibility to brucellosis and other infectious diseases. Population level impacts of brucellosis in bottlenose dolphin are unknown. Brucella species was first discovered in marine mammals in the UK in Scotland in 1994 and has subsequently been reported in many marine mammal species globally. Further details of the work of the CSIP and publications can be found on the UK Cetacean Strandings Investigation Programme website.

Otters and zoonotic organisms: Parasitological screening of otters is a key aspect of the Cardiff University Otter Project, and is led by a NERC and Somerset Otter Trust funded PhD student Ellie Sherrard Smith. She has recently discovered that otters are an important host for the hedgehog tick *Ixodes hexagonus*, which can parasitise humans and companion animals. This tick itself is also a potential carrier of a range of pathogens including Lyme disease (*Borrelia burgdorferi*), Boutonneuse fever, Q fever, tick-borne fever and Tularemia (*Rickettsioses*), tick-borne encephalitis and babesiosis. In a parallel study, Ellie has found biliary parasites *Pseudamphistomum truncatum* and *Metorchis albidus* (both: Trematodes, Opisthorchiidae) in 13.5% and 7.85% of otters respectively. *P. truncatum* is concentrated in south west England and south Wales, while *M. albidus* occurs primarily in the south east of England. Both parasites can infect humans via consumption of raw or undercooked fish, and cause significant health problems. In a separate study, the Cardiff University Otter Project is collaborating with the national Toxoplasma reference unit at Swansea, to investigate seroprevalence of *T. gondii* in otters. Approximately a third of humans worldwide are infected with *T. gondii*, through consumption of infected meat, congenital transfer or environmental exposure to oocysts. Screening of wildlife may provide a useful index of environmental exposure, and is the subject of an ongoing research programme. Further details and publications can be found on the Cardiff University Otter Project website.

the WILDCOMS partners and their stakeholders. More information can be found on the EURAPMON website http://www.eurapmon.net/

WILDCOMS events

6th SETAC World Congress / SETAC Europe 22nd Annual Meeting
Dr Thomas Maes (CEFAS), the representative for the Clean Seas Environment Monitoring Programme in the WILDCOMS network, will present a poster outlining the aims and activities of WILDCOMS at the Society of Environmental Toxicology and Chemistry's (SETAC) 6th World Congress in Berlin (20-24 May 2012). Visit the SETAC website for full details http://berlin.setac.eu/home/

OTHER events

WDA-EWDA joint Conference. Lyon, France July 2012.
http://www.ewda.org/

Wildlife Diseases and Conservation one day symposium. London, UK, November 2012. Full details from the Veterinary Association for Wildlife management website.

CONTACT US

The WILDCOMS website is currently under construction and some pages have yet to be populated. All future outputs from WILDCOMS will be published on the website http://www.wildcoms.org.uk/

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).