Australian Wildlife Health Network

The Australian Wildlife Health Network (AWHN)[1] is a national government initiative that links Australian, state and territory agriculture, public health and veterinary agencies and laboratories; wildlife, conservation and environmental agencies; and overseas wildlife health centres in Canada, the United States, New Zealand, India and Europe. The network has a major focus on human and animal health issues associated with free-ranging populations of wild animals.

The network operates the national database of wildlife health information (eWHIS).[2] Consistent with its vision for a nationally integrated wildlife health system, from this year, eWHIS will be brought into the national Biosecurity Surveillance Incident Response and Tracing (BioSIRT) system as NeWHIS, the National Wildlife Health Information System. It is hoped that this will facilitate linkage and information flow with Australia's states and territories and the Australian Biosecurity Intelligence

Network and further support Australia's National Animal Health Information System.

A number of sources are used in collating information within the national database, including submissions by network subscribers, and state and territory wildlife coordinators. This report details some of the wildlife disease and mortality events recorded in eWHIS for the June quarter. The AWHN would like to thank all those who submitted information for this report.

Wild bird mortality events and avian influenza exclusion

Thirteen wild bird mortality events were investigated across Australia during the quarter. None were typical of deaths due to highly pathogenic avian influenza, and avian influenza (AI) was excluded as the cause in five of the events as part of Australia's passive (dead bird) AI surveillance program. AI exclusion testing was not warranted in the remaining eight events based on clinical signs, history, prevailing environmental conditions and/or other diagnoses.

Avian influenza surveillance

As part of Australia's AI surveillance program, a combination of healthy, live and hunter-killed wild birds (active surveillance) and sick or dead wild birds (passive surveillance) is targeted. Samples from sick birds include submissions from members of the public, private practitioners, universities, zoos and sanctuaries. During 2009–10, active wild bird surveillance occurred at sites in New South Wales, Queensland, Victoria, Tasmania, South Australia, the Northern Territory and Western Australia. Sources for active wild bird surveillance data include state and territory government laboratories, universities and samples collected under Australia's Northern Australia Quarantine Strategy (NAQS).

Swabs (cloacal, faecal) and blood samples were collected from 921 wild birds during the quarter (April–June 2010); 9546 wild birds have been sampled since July 2009. The majority of samples were collected from waterbirds (ducks and waders). No highly pathogenic AI viruses have been identified. A number of positive swabs to low pathogenic AI are undergoing further testing, and serology samples are also being tested. Passive surveillance will continue using wild bird mortality events.

Australian bat lyssavirus and Hendra virus

Fifty-four bats were tested for Australian bat lyssavirus (ABLV), from Queensland, New South Wales, Victoria and Western Australia. Bat submissions were made for a variety of reasons: 28 had potentially dangerous contact with humans, although no bats displayed unusual, aggressive or agitated behaviour this quarter; 2 were submitted following trauma; 14 were found dead, a number of which were tested due to potentially dangerous contact with a pet dog or cat; 3 were submitted with no history; and 1 was submittted with respiratory signs. Two bats (one from Broome, Western Australia, and one from Advancetown, Queensland) were confirmed as ABLV positive by both positive indirect fluorescent antibody test for lyssaviral antigen and PCR for viral RNA. Hendra virus was excluded from three little red flying foxes (*Pteropus scapulatus*) from Ingelwood, south-west Queensland.

Bat movements seem to have increased during the January to May period, and may be associated with changes in food availability on the east coast. Lack of normal food may force bats into contact with people and domestic animals as they forage in urban areas containing fruiting trees and orchards. Fruit bats also appear to be moving south and west, with some species reported in Tasmania and as far west as South Australia.

Surveillance

Eighty-five wildlife events have been added to the national database this quarter. Of interest are cases of salmonellosis in a sulphur-crested cockatoo (*Cacatua galerita*) and house sparrow (*Passer domesticus*) from Tasmania, botulism in Australian pelicans (*Pelecanus conspicillatus*) from Victoria, and chlamydophilosis in endangered Carnaby's black cockatoos (*Calyptorhynchus latirostris*) in Western Australia.

Surveillance for hydatids in wallabies is currently occurring in Tasmania. Tasmania is provisionally free of hydatids or echinococcosis, and hunters are submitting any suspect cysts found in wallabies they shoot to rule out hydatids. Two wallabies were submitted for testing in the quarter, and the suspect lesions were filarial granulomas in the pericardium and lungs.

There has been another case of *Salmonella* Typhimurium DT160 in a sparrow found dead in southern Tasmania. As expected, it appears that this

strain is persisting in the wild population. It is interesting to note that, so far, no cases have occurred in the north of the state. The *Salmonella* event is a very good example of the AWHN in action. It was first brought to the attention of the AWHN and government authorities through Dr David Obendorf and Dr James Harris, private veterinarians based in Hobart, Tasmania. They performed the initial investigation, and recognised this as being significant and worthy of further examination. The importance of nongovernment sources of information to support Australia's biosecurity is being increasingly recognised. This is especially so in the wildlife area where issues cross jurisdictional boundaries and the need for a One Health, collaborative-type approach has always been important.

The significant role that Australia's private veterinarians can play in supporting Australia's general wildlife health surveillance system has also recently been recognised by the inclusion of wildlife in the National Significant Disease Investigation Program.[3] This is run by Animal Health Australia to support Australia's state and territory surveillance programs.

Investigation of kangaroo deaths

There have been several reports of mass mortality events in kangaroos in Australia. Climatic conditions from November 2009 to February 2010, which led to flooding and high insect populations in parts of New South Wales and Queensland, prompted environmental and agricultural agencies to be on alert for disease in animals. Based on historical events, an epidemic mass mortality event affecting kangaroos in south-west Queensland and north-west New South Wales was considered possible. A report of deaths was received from a local kangaroo harvester in early March 2010 through the Kangaroo Management Program (New South Wales Department of Environment, Climate Change and Water), who contacted the AWHN and requested that notification be sent to relevant state authorities.

These initial kangaroo deaths were from the Tibooburra area, including parts of Sturt National Park in New South Wales. The area affected extended to just north of Quilpie, including the Paroo and Bulloo river systems in Queensland, where there had been heavy summer rains. The pasture available was excellent, with good diversity of herbage and grasses. Investigation and surveillance established that the number of deaths was low and the incidents were restricted to relatively small areas in New South Wales and Queensland during mid-February to March 2010.

Government field veterinarians, veterinary diagnostic laboratories and environmental officers collaborated closely in both states during the incident, and kangaroo harvesters were kept informed. In New South Wales, gross examination of two affected animals found degrees of blindness without external eye lesions, and severe inflammatory, haemorrhagic and arthritic changes around and in most limb joints and tendons and along long bones examined, with lesser subcutaneous haemorrhages along limbs and over ribs. The skin's appearance was unchanged. In Queensland, two live affected animals were examined. The main presenting signs included weakness and downwards-facing ears. One had enlarged joints and the other exhibited uncoordinated movement.

A comprehensive set of samples was collected from four animals suitable for necropsy, two red kangaroos (*Macropus rufus*) in New South Wales and two common wallaroos (*Macropus robustus*) in Queensland, and submitted to laboratories for analysis. Histology findings were indicative of a mild nonsuppurative choroiditis in all four animals. Joint cytology from one common wallaroo presenting with enlarged joints was consistent with arthritis. Anaemia and myocardial necrosis were also noted as potentially contributing to the animal's depression and debility.

Despite a good range of fresh and fixed samples submitted, the aetiological agent has not yet been confirmed. It is possible that sampling of animals with choroiditis occurred too late to isolate the virus.

The environmental conditions this year were similar to those associated with mortality events in kangaroos in 1990 and 1998. A difference was that in 1998, heavy rain occurred in winter and early spring. However, the clinical signs, pathology and epidemiology of the 2010 event were distinctly different to the 1994–96 Wallal blindness epidemic, and the 1990 and 1998 events, and fewer animals were affected. This might be related to the much lower kangaroo densities of 2010. Heavy rainfall and insect activity appear to be factors common to all three mortality events.

A full report, including field and laboratory results from New South Wales and Queensland, comparisons

with previous kangaroo mortality events, and event logistics and resources, is being finalised.

The AWHN wishes to thank everyone involved in the event for their expertise, time and collaborative involvement; this item would not be possible without such cooperation. It is another example of the benefits of cross-jurisdictional collaboration in the management of wildlife health in Australia.

[1] www.wildlifehealth.org.au

[2] www.wildlifehealth.org.au/AWHN/Subscribers/SubscribeLogin.aspx

[3] www.animalhealthaustralia.com.au

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