

Wildlife Health in Australia



Newsletter of the Australian Wildlife Health Network

Volume 7, Issue 3

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Message from the Chair

DR. CHRIS BUNN,

Office of the Chief Veterinary Officer

Welcome to another edition of the AWHN newsletter. Briefly I want to introduce two activities that the network has initiated in the last year. We are now well advanced in the production of fact sheets on selected wildlife diseases. A number of key authors have been used in their production. The aim is to provide precise scientific data with mention of key peer-reviewed references. The fact sheets present Australia's current state of knowledge about the particular condition. Those currently available can be viewed at:

http://www.wildlifehealth.org.au/AWHN/FactSheets/Fact_All.aspx

We currently have :

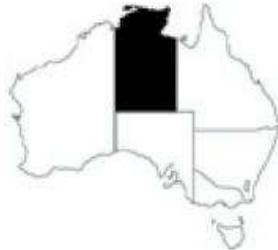
28 Fact Sheets available online, 10 Fact Sheets in progress or being updated. Our other initiative is to analyse recently published key papers. On a regular basis, the Network undertakes assessment of key wildlife disease publications with recognised experts and/or authors, and provides information to network members. The latest, Analysis paper 1- Bornavirus and proventricular dilatation disease (PDD) implications for Australia.pdf is available.

The next will examine the potential of modified myxoma viruses as a vaccine for protecting domesticated rabbits against myxomatosis.

Disease Events

Northern Territory

One Black flying fox (*Pteropus alecto*) was presenting with weakness from Darwin. Histology revealed probable bacterial enteritis. (ABL Negative)



A vet reported numerous dead magpie larks (*Grallina cyanoleuca*) under one tree at a school, and several in the vicinity showing neurological signs. Despite 6 fresh birds being brought in for full gross, histological and virus isolation (spleen & brain), no significant findings were found on post-mortem and virus isolation was negative. Avian influenza virus was excluded. Event may have been caused by a toxin, but there was no known history of toxins being used in the area. A green tree frog (*Litoria caerulea*) was submitted for euthanasia and post-mortem following attempted

treatment for two weeks with antibiotics by a local vet. It had been found initially with severe skin vesicles and ulcers. Histology revealed severe ulcerative fungal dermatitis with pigmented hyphal fungi. Fungal culture of lesions yielded *Trichosporon asahii*. In addition the frog had severe pyogranulomatous uveitis due to *Empedobacter (Flavobacterium) brevis*. Histology of internal organs was unremarkable. It could not be ascertained whether the post-mortem findings identified the initial problem it had in the wild.

South Australia

Interesting case in the Mid North area where 51 out of 51 aviary finches died overnight. 7 sparrows were also found dead in the garden.



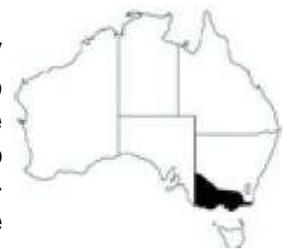
Tests were negative for common toxins like organophosphates. Avian Influenza virus, Newcastle disease virus and West Nile virus were excluded. Post mortem revealed that the sparrows and the finches had *Candida albicans* infections and it appeared to be the primary infection. One raven submitted with neurological deficits in right leg and cachexia, was diagnosed with a non-suppurative encephalitis. Avian Influenza and West Nile virus were also excluded in this case.

In the lower Goolwa River, fresh water turtles have been dying and it is suspected to be due to the current state of the lakes. No post mortems have been carried out at this stage as further environmental assessment is being done.

ABL was excluded in 4 bats submitted between April and June. None showed neurological signs.

Victoria

Three bats submitted for ABLV exclusion tested negative. Two wedge tailed eagles were found dead next to a kangaroo leg near Hamilton. Toxicological tests are pending but the gizzard content of one positive for botulinum toxin. AI was excluded. Two seals were submitted from near Torquay, One diagnosed with a cerebral infarct (possibly age related) in addition to unilateral corneal ulceration, the second was found to have septicaemia secondary to a foreign body embedded in skin (possibly a stingray barb).



Queensland

There have been a number of Flying foxes submitted over the past three months (n=7). One Grey Headed Flying fox (*Pteropus poliocephalus*) presented with neurological signs (unable to fly, self mutilating) tested positive for ABL with some Negri bodies in the brain on histopathology. ABLV was excluded from all the other cases. This is the fourth ABLV positive bat from Queensland this year, which underscores the importance of necropsy examination of all bats showing neurological signs, and not just those which have interacted with pets or humans. One of the negative ABLV cases (a captive spectacled flying fox (*Pteropus conspicillatus*)) which presented with neurological signs turned out to be severe disseminated toxoplasmosis. Despite this protozoan disease being found in a number of Australian mammals, it is unknown whether there has ever previously been a case in flying foxes.

There have been recent reports of increased mortalities of Eastern Grey Kangaroos at Coombabah wetland (Gold Coast hinterland) over the last 2 months (dead adults and moribund juveniles). One was necropsied at Currumbin Sanctuary, and showed intravascular protozoal-like parasites, which may be similar to those reported in NSW previously. Further investigation is underway with images being sent to a number of specialists.

In April/May, a seabird rescue group reported increased mortalities in pied cormorants (*Phalacrocorax varius*) from the Sunshine Coast, Moreton Bay and the Gold Coast. Exact numbers are unknown but there were approx. 20 found at Morton Bay with further reports of more both to the north and south. Three birds (two juveniles and one of unknown age) were necropsied and the only consistency was they were all very emaciated. Additional findings included heavy burdens of gastric nematodes (n=2); heavy ectoparasite (lice) burdens (n=1); mild haemoprotozoan infection (probably *Plasmodium* sp. (n=1)), aspergillosis (n=1) & ulcerative oesophagitis (n=1) -possibly acquired whilst in care. Queensland Health is currently looking at samples to check if there is any link with the recent oil spill, however that may have been too long ago and a seasonal event is being suspected. "Cormorant May Syndrome" has been described by wildlife carers as occurring at this time each year, affecting principally juvenile pied cormorants, which present with weakness and vague neurological signs. Avian influenza virus and Newcastle Disease virus were excluded.

In April and May there were reports of a large number of wild rainbow lorikeets (*Trichoglossus haematodus*) (n > 15) with neurological signs found on the Gold Coast over a couple of weeks. Birds were weak, stary eyed and slightly ataxic. Five birds were necropsied. One had a non-suppurative poliomyelitis, which was



considered morphologically very similar to a previously described suspect viral poliomyelitis in rainbow lorikeets. No fresh tissues were available for virus isolation from the bird with poliomyelitis. Virus isolation was attempted and unsuccessful from the other submitted samples. ND virus was excluded in this case.

There was also an event involving a mixed flock of Major Mitchells (*Cacatua leadbeateri*), corellas (unspecified *Cacatua* species) and sulphur crested cockatoos (*C. galerita*) with beak and feather lesions in Millmerran. A diagnosis of Psittacine Beak and Feather disease was based on histology of one sulphur-crested cockatoo.

A number of bird poisoning have also occurred including three mortality events attributed to Fenthion, one involving rainbow lorikeets (*Trichoglossus haematodus*), and two events affecting mixed bird species. One case involved more than 50 birds of mixed species and Fenthion was found in high concentrations in a suspect bait material (bread). In addition, there was a poisoning case where bendiocarb, a carbamate pesticide, was identified in mortality of crested pigeons (*Ocyphaps lophotes*). Avian influenza virus was excluded in all these cases.

New South Wales

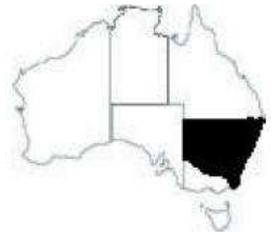
Two more botulism events concerning ducks were reported from Sydney suburban areas. To date over 50 birds (mainly ducks) have been reported from a number of locations including Centennial Park (previous AWHN newsletter), Rockdale and Parramatta. In the case from Parramatta, 2 birds were submitted to laboratory with cloacal ballooning which can be indicative of muscle weakness and therefore potential botulism. On testing the birds - *Clostridium botulinum* - type C or D was confirmed.

The death of 25 king parrots (*Alisterus scapularis*) and currawongs (*Strepera* sp.) was found to be caused by organophosphate poisoning with Fenthion. The birds were reported as showing signs of weakness and paralysis before they died. There was also a suspect case of poisoning in Uralla, near Wagga Wagga where there was sudden death involving a large number of pigeon and doves.

One grey heading flying fox (*Pteropus poliocephalus*) found in Padstow presented with aggression and neurological signs was diagnosis positive for Australian Bat Lyssavirus.

In NSW, a red fox was found near Cooma in a pet dog's bed. The fox was extremely friendly. Foxes are part of the sylvatic cycle of rabies in other countries and it is known that the dumb form of the disease may present as the fox losing its fear and becoming friendly.

The veterinarian suspected rabies and the fox was



ethanised. The salivary glands were removed and the head sent to AAHL for rabies exclusion testing. No rabies antigen was found in the brain or the parotid gland. In addition, no encephalitis was seen on histopathology. It is suspected that the fox may have been hand-reared by a human.

There has been a recent report from the South Coast of NSW in which a parrot breeder down lost a large number of parrots, mostly nestlings. Further investigation required but initial reports suggest a virus may be involved.

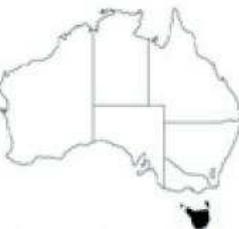
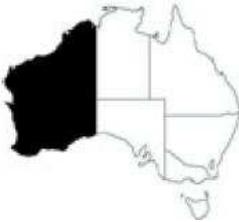
Western Australia

WA reported organophosphate poisoning (OP) as the cause of death in four bird large mortality events in the Perth metro area. Two events in April involved approximately 100 doves (*Columbia livia*) and the second effecting 5 Magpies (*Gymnorhina tibicen*). In May a large batch of wheat sold at several retail outlets was found to be contaminated with dichlorvos when over 200 laughing turtle doves (*Streptopelia senegalensis*) and long beaked corellas (*Cacatua tenuirostris*) were found dead. Another mass bird mortality event occurred in May at a metropolitan rubbish tip where fenthion poisoning affected silver gulls (*Larus novaehollandiae*), Ibis (*Threskiornis sp.*), pelican (*Pelecanus conspicillatus*) and a raven (*Corvus sp.*) (n>165). In another event, a small group of magpies in a rehabilitation centre died from severe coccidiosis.

A captive breeding colony of bilbies in a Broome wildlife park died within the space of a few days. A second colony of 4 bilbies in an enclosure approximately 500 metres away remains clinically normal. All were submitted to the Animal Health Laboratory for necropsy. Clinical signs consisted of depression, a slight serous nasal discharge and then death. Briefly, post mortem findings consisted of a mild nutmeg appearance of the livers, dark red oedematous lungs as well as tracheal oedema. Histopathological examination revealed severe tracheitis and severe broncho-interstitial pneumonia with intranuclear inclusion bodies. Lung tissue was positive for Herpes virus by PCR. Genetic sequencing results are pending. There are currently no known cases of this disease occurring elsewhere.

Tasmania

There have been reports of sparrows dying in and around Hobart suburbs (approx. 20 have been reported at various sites). Some live birds have been seen to be weak. We've had 9 submitted to the lab since late July which so far have had mixed results: *Salmonella sp* (sent to MDU for typing) and Toxoplasmosis (IHC pending). All tested so far have been AI negative. Samples have been sent to AAHL for ND rule out. Final results are still pending.



AWHN updates

Australian surveillance for avian influenza viruses in wild birds between July 2005 and June 2007



L Haynes, E Arzey, C Bell, N Buchanan, G Burgess, V Cronan, C Dickason, H Field, S Gibbs, PM Hansbro, T Hollingsworth, AC Hurt, P Kirkland, H McCracken, J O'Connor, J Tracey, J Wallner, S Warner, R Woods and C Bunn

Objective

To identify and gain an understanding of the influenza viruses circulating in wild birds in Australia.

Design

A total of 16,303 swabs and 3782 blood samples were collected and analysed for avian influenza (AI) viruses from 16,420 wild birds in Australia between July 2005 and June 2007. Anseriformes and Charadriiformes were primarily targeted.

Procedures

Cloacal, oropharyngeal and faecal (environmental) swabs were tested using polymerase chain reaction (PCR) for the AI type A matrix gene. Positive samples underwent virus culture and subtyping. Serum samples were analysed using a blocking enzyme-linked immunosorbent assay for influenza A virus nucleoprotein.

Results

No highly pathogenic AI viruses were identified. However, 164 PCR tests were positive for the AI type A matrix gene, 46 of which were identified to subtype. A total of five viruses were isolated, three of which had a corresponding positive PCR and subtype identification (H3N8, H4N6, H7N6). Low pathogenic AI H5 and/or H7 was present in wild birds in New South Wales, Tasmania, Victoria and Western Australia. Antibodies to influenza A were also detected in 15.0% of the birds sampled.

Conclusions

Although low pathogenic AI virus subtypes are currently circulating in Australia, their prevalence is low (1.0% positive PCR). Surveillance activities for AI in wild birds should be continued to provide further epidemiological information about circulating viruses and to identify any changes in subtype prevalence.

Australian Veterinary Journal, July 2009 issue.
Copies of the full article can be provided on request.

National Avian Influenza Surveillance Program—Annual Workshop 2009



In Sydney, on May 14, 2009, the Network brought together the AI Group for the Annual workshop. The surveillance program has been a successful research and monitoring exercise, and since July 2005, more than 38,000 birds have been sampled. AI has been excluded in more than 109 wild bird mortality events, and no HPAI viruses have been identified.

There is evidence to show exposure to most AIV subtypes has been found in Australian wild birds, including LPAI H5 and H7, however most are likely to be endemic strains. It was identified that there is the possibility of HPAI H5N1 introduction by migratory birds via SE Asia where H5N1 endemic, and that there exists the possibility of endemic LPAI H5 and H7 in Australian wild birds mutating into HPAI if introduced into poultry. Below are the outline of the conclusions that resulted from the meeting.

Key Conclusions from the day:

- Australia has its own endemic viruses, which have a broad range of wild bird avian influenza virus subtypes.
- Some longer-term temporal patterns to virus subtype prevalence. Estimated that this would require at least 10 years more data to test.
- Unanimously agreed that surveillance remains necessary in particular passive surveillance is still necessary for H5N1 using wild bird mortality events.
- Both virus genetics and bird ecology were identified as the critical knowledge gaps required to further understand the ecology, evolution and transmission of specific avian influenza subtypes within Australia.

Key recommendations from the day:

- Continue Passive surveillance (wild bird mortality events)
- Future optimisation of surveillance to include targeting key species, concentrate on key locations, and emphasise virus isolation and genotyping isolates.

New Appointment to the AWHN Operations Committee



The AWHN Operations Committee oversees the day to day running of the Network. It is Chaired by an appointment from Australian Government Department of Agriculture, Fisheries and Forestry. In June, the Operations Committee welcomed Dr James Watson as the newly appointed representative of CSIRO's Australian Animal Health Laboratory (AAHL).

James is Veterinary Investigation Leader at AAHL where he is responsible for managing the laboratory's specimen accession and results reporting functions. He also plays a key role in the management of diagnostic investigations and is the key AAHL contact for diagnostic submissions from national veterinary laboratories during responses to emergency animal diseases. He is the primary manager of AAHL's testing conducted in support of disease investigations and surveillance programs. He is also responsible for the laboratory's client interface for routine diagnostic testing and represents the facility on national working groups and advisory committees relating to specific livestock diseases and standardisation of testing methods. James also participates in delivering exotic animal disease training for Australian and New Zealand veterinarians at AAHL and is the Australian delegate on the world animal health organisation (Office Internationale des Epizooties - OIE) expert surveillance panel on equine influenza.

We are extremely pleased to welcome both James and AAHL to the Operations Committee and look forward to working more closely with them in future.

More information on James is located at :

<http://www.csiro.au/people/James.Watson.html>

INTERESTING CASES

The Australian Registry of Wildlife Health



Diamond Python, Captive

Adult male presented with skin wounds to caudal body, euthanased after treatment resulted in no change. Skin appeared fragile and separated easily from the subcutis. The gross findings of skin fragility in this snake were striking and very similar to those seen in domestic animals with some form of collagen dysplasia, known by such terms as Ehlers-Danos syndrome, dermatosparaxis and cutaneous asthenia. Histologically, the collagen bundles in the superficial dermis did appear thin, however this is difficult to assess without tissues from the same site on the body of an age-matched unaffected snake with which to compare. In domestic animals and humans, collagen dysplasia has been identified as a hereditary disease in some cases, with the actual biochemical defect being identified in fewer cases. Particularly in cats, this disorder has also been identified as an acquired condition, secondary to spontaneous and iatrogenic hyperglucocorticism, diabetes mellitus, hepatic lipidosis, cholangiocarcinoma and administration of various drugs. Definitive diagnosis of this disease has typically been made using electron microscopy. If a suitable institution can be identified, tissues are available which could be forwarded for further testing.

Brushtail Possum, Wild

Adult female presented to hospital in very poor condition after being fed cat food, bread and milk by residents for 1 month after it took to living in their laundry. The animal was missing most of its fur and had multiple skin wounds and swellings over its entire body. The animal was consequently euthanased. This possum was suffering from advanced lymphosarcoma involving multiple tissue but primarily affecting the skin. The close association with epidermis suggests this is a T-cell epitheliotropic lymphosarcoma, also known as mycosis fungoides in domestic animals. The severe alopecia demonstrated by this animal was almost certainly a result of neoplastic effect on cutaneous adnexal structures. Interestingly, the aorta of this animal was markedly mineralized. Lymphosarcoma is well known for inciting hypercalcemia of malignancy, a secondary effect of which can be aortic mineralization. The left ventricular hypertrophy likely resulted from decreased elasticity of the aorta and therefore increased load on the ventricular muscle.

(Photos courtesy of the Registry)

Wildlife Health in Australia is the newsletter of the Australian Wildlife Health Network. The newsletter aims to facilitate communication between people with an interest in Australian wildlife health issues. It is distributed to approximately 500 professionals and others around the country and overseas. We encourage you to show it to others and give us critical feedback on its contents.

If you wish to contribute to a future addition of the newsletter please send (in word format) articles to the AWHN email or postal address with your name and contact details supplied.

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 website: www.wildlifehealth.org.au



DISEASE WATCH HOTLINE

1800 675 888

The Disease Watch Hotline is a toll-free number that connects callers to the relevant state or territory officer to report concerns about any potential emergency disease situation.

INFORMATION IN THIS NEWSLETTER IS NOT INTENDED FOR CITATION IN SCIENTIFIC LITERATURE—PLEASE CONTACT THE AWHN FOR DETAILS

WILDLIFE CO-ORDINATORS*

GOT SOMETHING TO REPORT?

We are interested in receiving reports of unusual or mass wildlife mortalities. If you see anything suspicious, please download and complete the submission form (endorsed by Animal Health Australia) found on our website (www.wildlifehealth.org.au) and send it to your local Dept of Primary Industries or your State Coordinator as listed below.

State or Territory	Co-ordinators	Notes	Address	Contact details
AAT (Australian Antarctic Territory)	COLIN SOUTHWELL	Government rep Appointed by the Director, Australian Antarctic Division (DEWR)	Australian Antarctic Division Channel Highway Kingston TAS 7050	colin.southwell@aad.gov.au W: 03 6232 3450 F: 03 6232 3351 M: 0407 768 085
ACT	WILL ANDREW	Government vet	ACT Veterinary Services Parks Conservation & Lands (Athlon) PO Box 158 Canberra ACT 2601	will.andrew@act.gov.au W: 02 6207 2357 F: 02 6207 2093 M: 0419 239 073
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NT	CATHY SHILTON	Government rep Appointed by CVO NT	Dept of Business, Industry and Resource Development Berrimah Vet Laboratories	cathy.shilton@nt.gov.au W: 08 8999 2122
QLD	ANITA GORDON	Government rep Appointed by CVO QLD	QLD Dept Primary Industries Animal Research Institute 665 Fairfield Road Yeerongpilly, QLD 4105	anita.gordon@dpi.qld.gov.au W: 07 3362 9419 F: 07 3362 9440
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SA	CELIA DICKASON	Government rep Appointed by CVO SA	Disease Surveillance , PIRSA Animal Health Flaxley Agricultural Centre P.O. Box 1571 Flaxley SA 5153	celia.dickason@sa.gov.au W: (08) 8391 7125 F: 08 8388 8455
VIC	MARK HAWES	Government rep/ Appointed by CVO VIC	Department of Primary Industries Primary Industries Research Victoria 475 Mickleham Rd, Attwood VIC 3049	Mark.hawes@dpi.vic.gov.au W: 03 9217 4209 F: 03 9217 4399
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*AWHN Coordinators are funded by Animal Health Australia as part of Australia's National Animal Health Information System.

We are extremely grateful for their ongoing support.