



Australian Registry of Wildlife Health

Mission statement

The Australian Registry of Wildlife Health is committed to contributing to the preservation of Australia's biodiversity through increased understanding of the interactions among animals, the environment, and disease causing agents.

Aim:

Our aim is to continue to enhance the Registry so that it can better contribute to wildlife health research, education and surveillance for the benefit of human health, domestic animal health, the agroecology, and wildlife care and management in Australia.

Registry background:

The Australian Registry of Wildlife Health is a diagnostic and resource centre that improves Australia's ability to detect and diagnose endemic, emerging and exotic diseases of wildlife that could have negative impacts on Australia's trade/economy, biodiversity, tourism and human health.

The Australian Registry of Wildlife Health was established by Dr. Bill Hartley at Taronga Zoo in 1985 to develop a collection of information and materials relating to healthy and diseased native fauna and zoo animals. Since its inception, the Registry has grown into a significant **resource centre** to allow us to better understand the health of Australian ecosystems. As a **diagnostic centre** the Registry manages a high wildlife caseload. In fact, at the International Wildlife Disease Association Conference in Cairns, 2005, Dr. Philip Ladds presented data illustrating that **the Registry has a higher caseload of free ranging animals than all of the State and Commonwealth agriculture agencies combined.**

Recently the Taronga Conservation Society Australia has enhanced its commitment to the operation of the Registry by employing a dedicated Registrar and part-time information and resources coordinator. Additional resources are obtained through service contracts and grants, particularly from the NSW Department of Environment and Climate Change, the Australian Government Department of Agriculture, Fisheries and Forestry, and Animal Health Australia.

The Registry is regularly used by private, government and university based veterinarians, researchers and biologists. Access to materials and information in the Registry is free to those interested in the study of wildlife health.

Objectives (what we do):

- Diagnostic pathology services for state conservation and welfare services, species recovery programs, researchers and wildlife rehabilitators
- Providing information and advice regarding diseases affecting free-living and captive wildlife in Australia to support species conservation and research endeavours
- Archiving materials and information on wildlife diseases for future reference and research

- Disseminating information regarding wildlife health through scientific articles, presentations at conferences, newsletters,
- Education and training through externships, graduate student training, mentoring, and the organisation of wildlife pathology workshops
- Providing a window into ecosystem health

Assets (what we have):

- 23 years of animal health information and diagnostic materials
- Computerised archival system - tracking data, paraffin blocks, glass slides, 35 mm slides, digital images and electronic reports
- Standardised taxonomic and diagnostic tables
- Comparative pathology self-teaching slide sets for common disease of Australian amphibians, reptiles, birds and mammals
- Wildlife Health Investigation Manual - 800 copies distributed
- A dynamic and interactive Website - www.arwh.org
- A comprehensive collection of 35 mm reference photos of diseased and healthy fauna
- A library containing field manuals, textbooks, manuscripts and reprint journal articles

Stakeholders (who benefits):

- Commonwealth and State Agriculture Departments
- Animal Health Australia
- Universities, students and researchers
- Commonwealth and state conservation agencies
- Species recovery programs throughout Australia
- Wildlife Disease Association - Australasian Section
- Australian Association of Veterinary Conservation Biologists
- Zoos within Australia and the Australasian Regional Association of Zoos, Parks and Aquaria
- Australian Museum
- Wildlife rehabilitators
- Commercial veterinary pathology laboratories
- Commonwealth and State Human Health Department

Public good:

The Registry has contributed to public good in Australia through the following activities and representations:

- National Animal Health Strategy Steering Group
- Frawley Reference Group for Wildlife - seeking to integrate wildlife health surveillance within the National Animal Health Surveillance System
- Steering committee towards the creation of the Australian Wildlife Health Network (AWHN)
- Advisory committee of the AWHN
- Operations committee of the AWHN
- Assistant state coordinator for the AWHN
- Management committee of the domestic animal pathology registry
- Contributing diagnostic data to Australia's annual OIE submission
- Regular reporting to Animal Health Surveillance Quarterly, Wildlife Disease Association (WDA) Newsletter, AWHN State Coordinator Meetings
- Providing a diagnostic service for free-ranging, feral and captive wildlife
- Assisting with diagnostic investigations undertaken through state Agriculture labs
- Discovering a variety of infectious agents and parasites
- Contributing to the published literature on disease in Australian Fauna

- Providing standardised taxonomic and diagnostic tables to the AWHN and Animal Health Australia (AHA) towards Australia's standards for the National Animal Health Information System
- Providing advice and information to the Department of Agriculture, Fisheries and Forestry upon request
- Maintaining close contact with the Canadian Cooperative Wildlife Health Centre and the New Zealand Wildlife Health Centre
- Establishing high standards for wildlife health diagnosis and investigation in Australia.

Registry Publications:

Rose K. 2007. WILDLIFE HEALTH INVESTIGATION MANUAL, Zoological Parks Board of NSW, Sydney.

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Rose K.A., Handman E., Low Choy J., Mathis A. 2003. *Leishmania* sp. associated with non-suppurative dermatitis in red kangaroos (*Macropus rufus*) in Australia's Northern Territory. Proceedings AAVCB Canberra, May 2003.

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Registry Investigations / Discoveries:

- *Ongoing investigations into outbreaks of avian mortality with particular attention to avian influenza, Newcastle's disease, and West Nile virus exclusion*
- *Investigated the mortality in pied currawongs (*Strepera graculina*), magpies (*Gymnorhina tibicen*), magpie larks (*Grallina cyanoleuca*) and ravens (*Corvus coranoides*) that died in discrete outbreaks in 2003, and 2006. The outbreaks occurred across NSW, QLD and VIC. Avian influenza, Newcastle's disease and West Nile virus were excluded in the course of the investigation.*
- *Confirming the presence of a novel adenovirus in the tissues of a group of parrots confiscated by the Commonwealth Department of Environment and Heritage, 2006. The birds were being maintained in quarantine at several sites across Australia. The investigation required the coordination of samples and testing within NSW, VIC, SA and the ACT. These novel viruses could have a severe adverse impact on psittacine biodiversity if they were to reach free ranging birds.*
- *Confirming the presence of Polyoma virus in captive finch populations in Australia. Although there are anecdotal reports of the presence of this virus in Australia, the Registry organised overseas testing of samples to confirm the presence of this pathogen, 2006*
- *Coordinated and contributed to an investigation into mortality of the highly threatened orange-bellied parrot, 2006 (*Neophema chrysogaster* - only approximately 200 birds remain in the wild). Identified the presence of a herpesvirus associated with liver necrosis while investigating high chick mortality, and ruled out the presence of polyoma virus, Pacheco's virus and adenovirus. This investigation spanned NSW, VIC, SA, and TAS.*
- *Investigating ill-thrift and regurgitation in young Tawny frogmouths that resulted in the identification of the first avian isolate of *Caryospora* in a bird in Australia (identified by Dr. Peter O'Donoghue).*
- *Identifying and investigating outbreaks of neurological dysfunction in Tawny frogmouths (*Podargus strigoides*) attributable to *Angiostrongylus cantonensis* infection. Tawny frogmouths appear to be a good indicator of the prevalence of the parasite in the environment, and they are a good indicator species for potential human exposure to the parasite.*
- *Investigation of outbreaks of mortality among green turtles (*Chelonia mydas*) off the coast of NSW in October 2003 and October 2004. The outbreaks were caused by systemic infection with the single celled parasite *Caryospora cheloniae*. While algal toxins were identified within the liver tissue of animals dieing within the 2003 outbreak, algal toxins were not identified in significant concentrations within the tissues of animals that died in the 2004 outbreak.*
- *Investigation of Inclusion Body Disease in a group of snakes confiscated by NSW DEC.*

- *Assisting NSW Agriculture in the investigation of a potential outbreak of Ophidian Paramyxovirus, a viral disease exotic to Australia. This virus has the potential to decimate populations of snakes if released to free-ranging animals.*
- *Co-ordinating the investigation into the discovery of what appears to be a novel Leishmania species in macropods in the Northern Territory. This single celled parasite has the potential to cause disease in threatened species of wildlife, and domestic animals, and its zoonotic potential is uncertain.*
- *Investigating an outbreak of sudden death in a colony of young grey headed flying-foxes (Pteropus poliocephalus) that were hand raised and about to be released to the wild. The investigation focused on ruling out exposure to toxins or diseases that could have been a serious health concern to the NPWS rangers and volunteers caring for the bats (i.e. Lyssavirus, Hendravirus, Menangle virus, and a variety of arthropod borne viruses). The investigation also provided information necessary for animal management, particularly regarding the implications of releasing sick animals into a wild population of a vulnerable species.*
- *Identifying the cause of sudden death of silver gulls (Larus novaehollandiae) on Prospect Reservoir. Sydney Water staff was concerned regarding the possibility of the sudden deaths could have been caused by toxins or agents infectious to humans.*
- *Assisting the Green and Gold Bell Frog (Litoria aurea) recovery program by providing post mortem examination of dead frogs and providing health surveillance of tadpoles prior to group release in the wild. Pre-release health screening is imperative in a captive breeding and release scheme to ensure that potential pathogenic organisms are not introduced to wild populations. Investigating cases of mycobacteriosis and inclusion body disease in captive reared tadpoles.*
- *Providing a collated report of available health information to the Quoll Recovery Program.*
- *Providing annual updates of information to the Bandicoot Recovery Programs.*
- *Investigated the mortality of eight little penguins (Eudyptula minor novaehollandiae) at Manly, due to dog attack. Through the efforts of the Recovery Program and NPWS these findings culminated in a declaration of Critical Habitat for the colony.*
- *Investigated mortalities of wildlife on behalf of both NPWS and RSCPA where there was concern for animal welfare:*
 - *Little penguin mortality on Montague Island*
 - *Grey headed and black flying-fox mortality associated with the use of electrical grids surrounding orchards*
 - *Wedge-tailed eagle mortality from leg-hold trapping in western NSW*
 - *Common wombat mortality by vehicle inflicted injury – western NSW*
- *Investigating the incidence and pathogenesis of Chytrid fungus in an urban population of Green and Gold Bell Frogs in conjunction with the Australian Museum. This fungus has recently been associated with the decline of Australian amphibian populations (Berger et al., 1998).*

- Investigating outbreaks of disease and mortality in wildlife populations in Bicentennial Park and Little Penguins from the Little Manly Penguin colony.
- Investigating outbreaks of necrotising enteritis in Rainbow Lorikeets in the Sydney area.
- Identifying a nerve cell storage disease in a black-eared miner (*Manorina melanotis*) recently brought into captivity to initiate a captive breeding program due to its highly threatened status in the wilds of South Australia (Miller, 1998).
- Conducting post mortem examinations on stranded marine mammals and sea turtles to ascertain health problems that may have contributed to the stranding event.
- Discovering a previously, unrecognised protozoa within the brain and testes of a Fijian Crested Iguana (*Brachylophus vitiensis*). These Iguanas are threatened due to declining populations and their geographical restriction to a small group of islands in and around Fiji (Laing, 1992). Taronga Zoo participates in a captive breeding program for the Fijian Crested Iguana.
- Involved in a consultancy for the New Zealand Department of Conservation to investigate the health status of Takahe (*Porphyrio mantelli*) in the Murchison Mountains and offshore islands. This work was conducted to enable the recovery group to prepare a management plan that may include re-introducing Takahe from breeding programs on offshore islands to the wild founding population in the Murchison Mountains (Crouchley, 1994).