

THE ROLE OF CARERS IN NATIONAL WILDLIFE HEALTH NETWORK

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Introduction

Wildlife health is important to the maintenance of environmental health and biodiversity. Critically, evidence shows that wildlife disease can contribute to the decline and possible extinction of vulnerable and threatened species [1-5]. Disease in wildlife can also be an early indicator of changes in the environment. For example, in 2006 at Esperance in WA, lead intoxication was found to have caused a mass mortality of birds (wattle birds, honeyeaters and miners). Detection of this risk to people in wild animals led to action from both human health and environment authorities.

Globally, wildlife health is an important issue and a current priority for the World Organisation for Animal Health (OIE) and the Food and Agriculture Organisation of the United Nations (FAO). Australia is also increasing its focus on wildlife health.

The risk of disease to and arising from wildlife continues to be of significant concern to environmental, agricultural and human health agencies, in particular the risk of new and emerging diseases. Emerging infectious diseases (EIDs) are diseases that are either novel (e.g. a new or previously undetected organism); or have an increased / changed distribution (e.g. found in new locations or host species) or pathogenicity (e.g. causing increased severity of disease) in the last 30 years. EIDs are thought to be due to a number of factors for example; land-use change, globalisation and climate change [6-8].

Increased awareness and efficient wildlife health monitoring systems can assist in the detection of new and emerging diseases which could have serious implications for biodiversity, human health and domestic animal health [2, 9, 10]. In this paper, 'Wildlife' refers to free-ranging populations of native and feral animals, including amphibians, reptiles, birds and mammals and 'Disease' refers to unwanted health effects caused by any pathogen (bacteria, virus, fungus, etc) or toxin (chemical, algal, etc).

There are numerous examples of wildlife diseases that affect environmental health and biodiversity. These diseases may cause serious illness or even death in wild species [11, 12] or be more subtle [13] (e.g. affecting reproductive success).

Examples include:

- Psittacine Beak and Feather Disease
- Chytridiomycosis
- Tasmania Devil Facial Tumour Disease
- White-nose Syndrome (Note: this is a serious disease affecting bats in North America; It has not been detected in Australia)

Diseases originating from wildlife have also been identified as the major source of emerging zoonotic (diseases affecting humans) [14-16]. In some cases the disease may affect both wild animals and humans, whereas some disease have serious implications for humans without any affect to the wild animal carrying the disease [17].

Examples include:

- Australian Bat Lyssavirus
- Salmonella
- Leptospirosis
- Angiostrongylus

Diseases in wildlife can also affect domestic animals. These may subsequently impact trade and have serious economic consequences [17-19]. As above, in some cases the disease may affect both wildlife and domestic species, whereas in other cases wildlife may not be affected [17] but the implications of spillovers to domestic animals are very serious.

Examples include:

- Avian Influenza
- Hendra Virus
- Tuberculosis
- Foot and Mouth disease

The AWHN is constantly on alert for emerging and emergency diseases in wildlife which may impact on Australia's trade, human health and biodiversity. Increased awareness and monitoring wildlife health (via disease surveillance) are crucial to early detection and management of disease. We network closely with wildlife health

stakeholders to coordinate wildlife health surveillance and information across Australia to ensure a robust national wildlife health information system.

It is important for wildlife carers to be part of the national network, as a source of wildlife health information and knowledge, and as a crucial part of a coordinated response to disease events involving wildlife.

Who do we net work with?

AWHN links a network of more than 600 wildlife health professionals, members of the public and those with an interest in wildlife health, including representatives from federal and state conservation, agriculture and human health agencies, universities, zoos, private practices and wildlife carer groups and diagnostic pathology services.

The AWHN works within a 'One Health' framework by encouraging collaboration and communication on wildlife health issues across human health, animal health and environmental sectors. 'One Health' is a concept that recognizes wildlife health, human health and domestic animal health are strongly interlinked with each other and the environment.

Why do we network?

AWHN provides Australia with the framework for national management of wildlife health and disease.

Wildlife disease reports are often opportunistic in nature. However they can generate a broad picture of the disease situation within a region and have the potential to raise alerts to a potential emergency disease event. Coordinated wildlife disease surveillance relies on a Network of people and organisations who may detect, investigate and diagnose illness and mortality events.

Rapid and timely access to wildlife disease surveillance information and a Network of wildlife health professionals is crucial to Australia's decision making and to enable a coordinated response to disease incidents.

How do we network?

The AWHN aims to link, inform and support those who work with or have an interest in wildlife health through technical advice, facilitation, communications and professional support. AWHN

- Distributes (via email) a weekly Digest of wildlife health information relevant to Australia and the Region.
- Circulates ad hoc disease incident notifications and information requests (sent to AWHN subscribers* and focus group members).
- Maintains a website which includes
 - over 96 fact sheets providing factual information on what we do and don't know about wildlife health conditions in Australia
 - A resources area providing links to current wildlife health information and resources.
 - A list of links to useful contacts and organisations that may be able to assist with information or help with problem solving in wildlife management.
- Administers a number of focus groups, programs and projects.

*Note: Anyone can subscribe to the AWHN to receive the weekly Digest and any ad hoc disease incident reports.

General Wildlife Surveillance – how does it work?

In Australia, animal health issues are managed at both state and territory level as well as at a national level. Wildlife health surveillance is similar. Wildlife health data are generated from a variety of sources and include submissions of sick or dead animals to:

- State and territory agriculture agencies
- State and territory environment or health agencies
- Zoo based wildlife hospitals
- University veterinary clinics
- Private veterinary clinics
- Wildlife rehabilitation and care facilities

The initial sick or dead wild animal(s) may be found by a member of the public, who may then alert someone from the one of the above organisations.

Situations which are of specific concern are those where there are signs of disease that are unusual or clusters of wildlife deaths. The next step is to determine if the wild animal(s) have a disease that endanger the health and welfare of the wild population, that has the potential to harm humans or that may lead to health and welfare issues for domestic animals.

This requires further investigation, for example by submission of dead wild animals or those euthanased because of severe illness

(unlikely to be successfully rehabilitated). Investigation can include gross necropsy and histopathology to determine the cause of illness or death. (See Spielmen paper [20] from 2010 AWRC for an overview of the importance of a necropsy).

If you see any signs of disease that are unusual or clusters of wildlife deaths then you should contact your local AWHN Wildlife Coordinator or call the Emergency Animal Disease Watch Hotline: 1800 675 888.

AWHN Wildlife Coordinators

AWHN collates health information from these events as part of Australia's animal health surveillance system and this ensures that information about the health of wildlife, livestock and other domestic animals can be considered together.

The national wildlife health surveillance system is based on Wildlife Coordinators, with a Primary 'Wildlife Coordinator' based at each state or territory agriculture agency. They are appointed by their Chief Veterinary Officers (CVOs) or in the case of Australian Antarctic Territory, the Director of the Australian Antarctic Division. Primary wildlife coordinators are assisted by an 'Alternate Coordinator', usually in the state / territory's environment agency.

Zoo-based veterinarians also contribute to the wildlife surveillance system by gathering information through their wildlife hospitals and by participation in wildlife health focus groups. Ten major zoos across Australia form the Zoo Based Wildlife Disease Surveillance Program, managed by the AWHN and the Zoo and Aquarium Association (ZAA), the peak representative body for zoos and aquaria in Australia.

Each month AWHN receives wildlife disease reports from Wildlife Coordinators and Zoo Coordinators from around Australia. Data are entered into the national electronic Wildlife Health Information System (eWHIS). Reporting is focused on six categories of disease. These are: diseases listed by the World Organisation for Animal

Health (OIE)¹, bat viral diseases, mass or unusual mortality events, Salmonella cases, arbovirus infections, and diseases that wildlife coordinators consider unusual or interesting. Reports also focus on incidents where a locally, nationally, or internationally notifiable or reportable disease could be involved. The 'interesting or unusual' category include significant clusters or patterns of disease, unexpected morbidities or mortalities, toxicity events, marine wildlife strandings, and cases with possible linkages to international events. These will be explored further during the presentation using examples.

Identifying priorities for surveillance and coordination across Australia can be challenging, especially where activities may be managed at a local, state or national level. Wildlife surveillance and coordination is particularly challenging; activities not only require coordination across states and territories, but also across multiple agencies and organizations (both government and non-government), often with loosely defined stakeholder groups.

We continue to recognize the need to integrate and coordinate wildlife health and surveillance activities between agencies, recognizing the mutual need for sustained direction and focus.

So where do Wildlife Carers fit in?

Wildlife carers are an important source of wildlife health information and knowledge because of their key role on the ground being in contact with wild animals around Australia. They can also be a crucial part of a coordinated response to disease events involving wildlife.

If you see any signs of disease that are unusual or clusters of wildlife deaths then you should contact your local AWHN Wildlife Coordinator. To assist your wildlife coordinator to determine the appropriate level of response, please fill in a Wildlife Incident Submission form (contact details and incident submission forms are available on the AWHN website).

You can join the AWHN and receive a weekly digest to maintain awareness of what's happening in Australia.

¹ OIE wildlife disease list can be found here: <http://www.oie.int/en/international-standard-setting/specialists-commissions-groups/working-groups-reports/working-group-on-wildlife-diseases/>

You are a substantial source of wildlife health information, so if you know of a resource or an event that might be of interest to AWHN subscribers – we welcome your contributions.

AWHN encourages wildlife carers to become involved with the Network, and contribute to the understanding and management of wildlife health in Australia.

If you would like more on the Australian Wildlife Health Network and wildlife diseases, go to: www.wildlifehealthaustralia.com.au

Footnotes

The Australian Wildlife Health Network (AWHN) has recently incorporated into a new association, to be known as Wildlife Health Australia Incorporated (WHA). So in future we will be known as Wildlife Health Australia!

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communication on key national disease incidents with which involve wildlife as part of their ecology. Her role also includes facilitation of linkages between key wildlife health stakeholders to improve communications. Tiggy graduated from Glasgow University Veterinary School in 1999 where she also completed her PhD in molecular parasitology. Previously, Tiggy has been involved in bird of prey field surveys in the U.S.A. and compiling a sea turtle rehabilitation manual for the U.K.