Christine McDonald, Secretary
Senate Standing Committee on Environment and Communications Reference Committee
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Re: Inquiry into Environmental Biosecurity

Thank you for the opportunity to contribute. I would be grateful if you consider the comments below.

Environmental biosecurity is valued by many Australians and community groups so this inquiry is important for all Australians. It will also have an impact on ecosystem and human health for future generations.

In many ways, biosecurity in Australia is decades behind North America, Europe, New Zealand and in some ways India. Dr Pradeep Malik from The Wildlife Institute of India has taught Wildlife Health Management to staff of the Indian Department of Environment for 25 years. No one does this in Australia at a state or federal level. For decades many states in the USA and Canada have had wildlife disease specialists (often veterinarians) working within their departments of environment to improve biosecurity. I visited some of these colleagues in 1985 during my Churchill Fellowship and continue to keep in touch. However, there have been only a few similar positions and people in Australia, possibly only one at present in Tasmania.

Ten years ago with support from the Australian Department of Agriculture, Forestry and Fisheries the Australian Wildlife Heath Network, now **Wildlife Health Australia (WHA),** was established. **WHA plays a key role in environmental biosecurity. Wildlife Health Australia is a lead organisation because of the depth of knowledge of its staff, the functions they have demonstrated and outcomes delivered over the last 10 years. WHA needs significantly more support to strengthen its focus from wildlife-domestic animals to include more emphasis on environmental biosecurity including biodiversity conservation and zoonotic diseases** (see OneHealth, see below). WHA's excellent staff of 3.5 wildlife heath specialists need strengthening and this could also be done by developing state or territory-based collaborative and cooperative networks modelled on WHA. In Canada, the Canadian Cooperative Wildlife Health Center is based at Veterinary Faculties across the country.

Professional Associations like the Wildlife Disease Association, Australasian Section, includes many dedicated, experienced scientists committed to environmental biosecurity and are a good source of advice for this Inquiry.

Environmental biosecurity is very important because it affects the health of our environment, wildlife, domestic animals and humans. (One Health)

Recognising that these areas are all linked underlines need for **a OneHealth approach**. (Google One World One Health 2004, Wildlife Conservation Society http://www.oneworldonehealth.org/) This has been recognised by Department of Agriculture, Fisheries and Forestry, but OneHealth also relies

on Environment-Agriculture-Health jurisdictions working together at national and state or territory levels.

Invasive species can harm Australia's natural environment and are usually considered at:

1. Pre-border. There is a need to build veterinary diagnostic capabilities in Papua New Guinea so they and we all have information on biosecurity threats and for greater collaboration with neighbours such as Indonesia.
2. Border. There is a need for increased capacity building in Indigenous communities around our northern coast to improve wildlife, feral and domestic animal health surveillance and early detection of exotic diseases.
3. Post-border.
   'General, scanning or passive surveillance is the only way a country can know what pathogens exist in its wildlife, and is the only available form of national vigilance for emerging diseases associated with wild animal pathogens.'
   General, scanning or passive surveillance is:
   - Detection of pathogens or disease in wildlife, and this begins with detection of sick or dead wildlife, so you need:
     - A network of people who are likely to encounter sick and dead wildlife (see bottom up approach below) and
     - People who are prepared to collect and transport or are trained to collect samples
   - Identification of pathogens and disease
   - Information management
   - Analysis of data and communication of results

   (Training Manual on Wildlife Diseases & Surveillance, OIE (World Animal Health Organisation) Workshop for OIE National Focal Points for Wildlife, 2010, p34 & 35 F.A.(Ted) Leighton)

   Our project, **Wildlife Health Surveillance Victoria has focussed on post-border ecosystem health** for the last six years, undertaking approximately 100 investigations annually, but does not have sustainable funding. This is a very productive, efficient and collaborative project based at a Veterinary Faculty and working with the public, community groups and staff of DEPI and Parks Vic, other institutions, and Wildlife Health Australia. This pilot model could be used in all states and is cost efficient ($20,000-50,000-100,000 pa would make a big difference in each state, but a dedicated coordinator is essential). The key components, which all need strengthening, are:

   a. **Improving knowledge of baseline/existing endemic wildlife health and patterns of disease.** In Australia our baseline knowledge is generally poor, especially for a developed country, and there is limited funding. **Identifying high priority risks for the environment relies on knowing what we have already, and this baseline knowledge is lacking.**
   b. **Surveillance for early detection of new emerging and spill-over diseases** and changed patterns in Australia's natural environments. Wildlife Health Surveillance Victoria uses **a collaborative and cooperative bottom-up approach to investigate reports by the public, community groups and staff of departments of environment**

and Parks Vic etc of clusters of wildlife mortality or morbidity. Early detection (and control, although this may not be feasible) or prevention of spill-over of infections from domestic animals to wildlife, or visa-versa, is vital to prevent the creation of more new reservoirs of disease in our natural ecosystems. For example:

i. Captive bred wildlife can pick up infections in captivity and spread them to the environment during reintroduction programs so wildlife disease risk assessment programs need to be used to reduce environmental biosecurity risks during wildlife management.
   The OIE (World Organisation for Animal Health) and International Union of Conservation of Nature recently produced the Wildlife Disease Risk Assessment 2014.
ii. Waterbirds can be infected with diseases of domestic chickens, ducks and turkeys when visiting free-range farms. This is thought to be the source of serious Avian Cholera (bacterial *Pasteurella multocida*) disease in waterbirds in North America.
iii. Has *Chlamydophilla pecorum* in koalas come from the infection in sheep?
iv. Illegal movement of feral animals (pigs, deer etc) by hunters between and around states and territories increases biosecurity risks to wildlife, domestic animals and humans and may impact future generations.

c. **Reporting, analysis and communication.** Wildlife Health Australia provides the national wildlife disease surveillance data base and works with DAFF for international reporting and on key zoonotic diseases with wildlife reservoirs (Avian Influenza, Bat viruses etc). The Australian Registry of Wildlife Health provides an excellent wildlife pathology data base. **Funding is needed so these two key databases work together.**

There are many priority post-border risks that are poorly understood and disease ecology research is needed to:

- improve monitoring and detection of incursions,
- understand and increase awareness of potential pathways,
- expand response options and their integration, and
- inform decision-making.

Additionally, supporting collaborations between government and universities can provide a durable framework across the country that functions in both directions for surveillance and response. Engaging community groups though extension and engagement builds on this, as with the bottom up reporting system used by Wildlife Health Surveillance Victoria, above. These approaches build capacity and are more sustainable. **Preventing establishment of new reservoirs of infection is very cost effective** and does make sense to our communities.

If the focus of this inquiry is to prevent harm to Australia's natural environment, it is important that the Committee also considers non-living biosecurity factors that can have significant impacts due to human actions.

Traditionally biosecurity ignores non-infectious factors that harm Australia's natural environment. But these factors need to be considered somewhere. Are they included in this inquiry, or where are they being considered? Non-infectious factors that can harm Australia's natural environment include:

- Environmental contaminants from agriculture, forestry, mining, industry, urbanization etc. Toxicology is a growth area due to the new chemicals produced by people and used in our society. However, we have poor understanding of the impacts of many chemicals on our environments or on human health!
    - Eg Lead poisoning of wild birds at Esperance, WA, 2006-7 from mining and transport, that led to the diagnosis of lead toxicity in people of the community.
    - Impacts of endocrine disruptive chemicals (eg. from dairy cow urine in streams, from domestic chemicals at sewage treatment plants etc) Are these chemicals affecting wetland ecology and wildlife?
    - Are animals at the top of the food web in streams such as platypus or water rats impacted by chemicals from agriculture, forestry or mining?
- Genetic impacts resulting from fragmentation of ecosystems. Eg loss of genetic diversity in Koalas possibly resulting in increased genetic abnormalities such as testicular hypoplasia.
- Nutritional impacts on wildlife. For example:
    - Kangaroos diagnosed with chronic phalaris toxicity (similar to chronic phalaris staggers in sheep) due to toxic strains of introduced pasture plant phalaris.
    - Starvation associated with droughts, floods, fires etc which relate to human factors including climate change and land management.

Thank you for considering these points. I am happy to discuss these matters further.
Yours sincerely, Pam Whiteley

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