Wildlife disease surveillance in Victoria at a veterinary school.

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Introduction

- Wildlife health surveillance is an essential component of One Health, improving understanding of wildlife and ecosystem health, and reservoirs of zoonotic and livestock diseases.
- When multiple host species are infected or exposed to environmental contaminants One Health is a sound and efficient strategic framework.
- Veterinary faculties provide a productive base for wildlife health surveillance, e.g. the Canadian Wildlife Health Cooperative since 1990.
- **Wildlife Health Victoria: Surveillance** based at The University of Melbourne, was created in 2008.

Why? Wildlife health affects:
- Population distribution & abundance
- Fitness, immune function & disease resistance
- Reproduction,
- Morbidity and mortality

Why? Wildlife diseases can impact:
- Biodiversity, environmental biosecurity, environmental health
- Biosecurity, interaction with domestic animals
- Zoonotic disease, interactions with human health

Wildlife Health Management includes:
- Prevention
- Surveillance and early detection
- Response and recovery

Methods

- The project engages directly with a wide range of stakeholders, including the public, regional and rural communities, governmental organisations.
- Stakeholders report wildlife mortality and morbidity events to Wildlife Health Victoria: Surveillance (Discovery, What’s happening?)
- Dead wildlife are transported to the university for diagnostic investigations which involves input from faculty staff in pathology, microbiology, virology, parasitology, molecular epidemiology, and epidemiology.
- This project undertakes field inspections and engages in important collaborations with other institutions.
- Approximately 100 cases are investigated annually with key cases entered into Wildlife Health Australia’s database, feeding into a national surveillance program and the OIE. Feedback is provided to stakeholders.

How? During long term monitoring of an ecosystem and wildlife include wildlife health:
- Understand normal, baseline health patterns
- Detect changed patterns and investigate factors involved (animal host, environmental, disease agents – infectious and non-infectious)
- Test for zoonotic infections in wildlife reservoirs,

Results

**Grasslands:** Macropod endemic parasites, introduced phalaris pasture toxicity

**Forests:** *Chlamydia pecorum* from sheep/cattle? in koalas

**Forests:** Endemic Circovirus & *Chlamydia psittaci*

**Wetlands:** Botulism, *Pasteurella multocida*, *Mycobacterium avium*

**Zoonoses with wildlife reservoirs**

**Biodiversity and Conservation**
- E.g. Chytrid fungus in amphibians
- Circovirus in parrots & cockatoos
- Toxoplasmosis from feral cats in marsupials?

**Ecotoxicology**
- E.g. Environmental contaminants from agriculture, industry, mining and urban sources.

**Biosecurity, transmission between domestic and feral animals and endemic wildlife.**

**Circovirus in Sulphur-crested cockatoo**

**Ringtail possum Mycobacterium ulcerans**

**Sarcopistes scabiei in Koalas**

**Acute frog mortalities associated with rain events.**

General wildlife pathogen surveillance is the most important component of a national wildlife health programme and the only available form of national vigilance for emerging diseases associated with wild animal pathogens. OIE Training Manual on Wildlife Diseases & Surveillance 2010 p35