4. Wildlife health investigation and a guide to necropsy

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1 APPROACH TO WILDLIFE HEALTH INVESTIGATION

1.1 Why study wildlife health?

In a global environment where approximately 75% of recently emerging and re-emerging zoonotic diseases emanate from wildlife reservoirs, there has never been more interest in wildlife health (Woolhouse 2002). Additional compelling factors driving an interest in wildlife health include public concern regarding animal welfare, zoonotic diseases and food safety issues associated with endemic and exotic disease, biodiversity protection, bioterrorism detection, climate change and its effects on animal and human health and disease, and the development of a nationally integrated biosecurity strategy (Bengis et al. 2004).

The significance of disease in wildlife populations and its impact on the conservation of biodiversity in Australia is poorly understood. Disease-causing organisms are a component of most natural ecosystems. A balance among the relationships of host, pathogen and environment most often meters the occurrence of disease. As wildlife habitats are modified through human activity and an increasing number of species are intensively managed, the possibility of disturbing these relationships increases. Wildlife health investigations are thus evolving through our increased involvement with wildlife management. The investigation of wildlife health and disease provides the opportunity to view individual species as indicators of environmental contamination, habitat degradation or climate change.

Wild animals may be subclinically infected with a variety of potential pathogens and can function as reservoirs for some disease-causing agents. Undiagnosed disease in wildlife may pose a significant risk to human health, to the agricultural industry, international trade, and to *in situ* and *ex situ* species recovery programs.

Some examples of the potential effects of wildlife disease include:

- potentially fatal respiratory illness in humans and horses in 1994, 1999 and 2004 caused by Hendra virus, a virus resident in flying fox populations (Murray et al. 1995; Breed et al. 2006);
- a 1998 outbreak of infertility and deformity in pigs caused by Menangle virus, a virus carried by bats (Philbey et al. 1998);
- the fifth Australian outbreak of highly pathogenic avian influenza in poultry occurred in Tamworth in 1997, and probably originated from free-living waterfowl (Sellek et al. 2003);
- Australian bat lyssavirus, found in a variety of bat species throughout Australia, has caused the death of two people in Queensland (Fraser et al. 1996; Allworth et al. 1996);