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## **Inquiry into the status, health and sustainability of Australia's koala population**

The focus of this submission is koalas in **Victoria**, but it may apply generally.

### **Status and sustainability of Victoria's koala populations:**

I am not aware of reports of the distribution and abundance, and trends, for koala populations in Victoria, so am unsure if koala populations are secure and sustainable. The Victorian Department of Sustainability and Environment (DSE) and Parks Victoria are the agencies to provide this information and have a Koala Technical Advisory Committee. However, these agencies may not have adequate funding for these tasks.

In some populations there is evidence of over-browsing, and some of these are being managed by methods including vasectomy, hormone implants in females and translocation.

In some populations there is some evidence of decline (Warrandyte, based on community koala counts, J. Pryor submission), high morbidity-mortality (Mornington Peninsula, Somers, Balnarring; Brisbane Ranges), and now few or no koalas (Hall's Gap, Grampians).

There is considerable good will in the Victorian community about our wildlife and natural ecosystems, and with input of additional funds DSE and ParksVic could work with local communities and universities to:

- monitor and undertake regular populations estimates to improve our baseline knowledge of their koala population status and trends,
- investigate factors affecting koala status and sustainability, including disease, genetics and inbreeding/heterogeneity, climate (drought etc), nutrition (over-browsing, leaf bugs, trace elements), land-use (fragmentation, chemical etc), urbanisation (car injury, dog attacks), etc.

## Health of Victoria's koala populations

I am not aware of reports about the impacts of health on the status of Victorian koala populations and their sustainability. Obendorf, 1983, in the *Journal of Wildlife Disease* (19(2) pp123-131) reported on koala mortality and morbidity of 44 wild koalas from 1975 to 1980 in Victoria. Veterinarians at University Veterinary Faculties and Zoos have expertise but funding comes from foundations and is not adequate or sustainable.

Dr Joanne Meers, University of Queensland, has reported different levels of infection in koala populations with the koala retrovirus. How this virus spreads between populations and if it results in higher rates of neoplasia (cancers) or disease, rather than just infection, from organisms such as *Chlamydophila spp* (Chlamydia) are important questions. Aspects of this research are being undertaken at present. Koala pathology investigations at The University of Melbourne's Faculty of Veterinary Science (Wildlife Health Surveillance Victoria) have examined 58 koalas between 2008 and 2011, however there is no sustainable funding for this project. A previous report is *Causes of mortality and morbidity of wild koalas in Victoria* by Obendorf in the *Journal of Wildlife Disease*, 1983, 19(2) 123-131.

Populations with low genetic diversity (eg. fragmented, isolated, inbred, island populations) could be more susceptible to infectious disease and have other characteristics that reduce their fitness (skeletal or reproductive changes). Do we have enough understanding about the genetics of koala populations?

Are there any significant nutritional (iodine or copper deficiency etc) or environmental contaminants (from agricultural, urban, industrial, mining activity) that impact koala health?

We need to be careful spending limited funds on one species, koalas. Integrating health/disease, genetics and environmental factors (climate, soil, leaf bugs, land-use etc) with population demographics could provide a better understanding of koala ecology if funded adequately. Can a regression (or other) model be used to analyse the risk factors or drivers that affect status and sustainability of koalas? This approach could be applied to other species to identify processes impacting wildlife ecology for improved conservation of biodiversity.

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