



8 - 11 August 2022 • Melbourne Zoo
inspiring sustainability action
HYBRID CONFERENCE & WORKSHOPS



A LIVING KOALA GENOME BANK: A NEW PARADIGM FOR KOALA CONSERVATION

By

¹S Johnston, ¹J Seddon, ²K Beagley, ¹L Hulse, ¹T Keeley, ³M Barnes, ¹A Mucci, and ⁴M Pyne

¹The University of Queensland, Australia

²Queensland University of Technology, Australia

³Dreamworld, Australia

⁴Currumbin Wildlife Hospital, Australia

Presenter and Corresponding Author:

Presenter Name: Dr Lyndal Hulse

Presenter Email: l.hulse@uq.edu.au

ABSTRACT

A pilot program entitled “A Living Koala Genome Bank” is a zoo-based concept for capturing genetic variation and restoring population connectivity for the future preservation and management of local wild koala populations. Researchers at The University of Queensland and Queensland University of Technology collaborated with Dreamworld under a Queensland State Government Advanced Queensland Innovative Partnerships research grant designed to embed scientists into industry. This pilot program examined the role and importance of zoos and wildlife parks to koala conservation in their local area; in this case, the Gold Coast region. The program aimed to use an off-exhibit breeding centre to pilot the potential of genetic management of local wild populations and explore whether captive koala populations might serve as reservoirs for safe-guarding the genetic diversity amongst local wild populations. The project focused on the (1) establishment of a practical means of genetic exchange and breeding opportunity between isolated wild koala populations in the form of a zoo based koala breeding centre in which the animals were held temporarily and then released back into the wild, preferably with a new joey and (2) the development of reproductive, diagnostic and genetic tools that would allow us to facilitate the captive breeding of healthy (disease and genetic) offspring and (3) vaccinate any captive or wild-released offspring against chlamydiosis. The first 3 koalas bred in the Living Koala Genome Bank pilot project have now all been successfully released into a colony at Elanora Conservation Park, on the southern Gold Coast and are currently being monitored by the ecology team at Currumbin Wildlife Hospital; some of the dams that were released also have joeys. This presentation will discuss some of the associated challenges (legislative, political, practical) and success stories of this pilot program, highlighting the important future role that zoos and wildlife parks can play in this form of conservation.

BIOGRAPHY

Dr Lyndal Hulse is a Postdoctoral Research Fellow at The University of Queensland with expertise in wildlife genomics and genetics. Lyndal completed her PhD in 2021 and examined the effect of *Chlamydia* on male koala fertility. Previous to being employed at The University of Queensland, Lyndal was employed as senior scientist and project manager within the private sector veterinary pathology and biotechnology industries. She has undergraduate degrees from The University of Queensland and a postgraduate degree of Masters of Science in Agriculture from the University of New England specialising in molecular biology and quantitative genetics. Lyndal has extensive molecular and animal genetics experience and specialises in wildlife genomics and the development and implementation of molecular diagnostic assays within various animal industries.