Unlocking the secrets of the koala

Dr Ben Moore from the Hawkesbury Institute for the Environment together with Professor William Foley from the Australian National University and Professor Phillip Hugenholtz from the University of Queensland have put together an international team* of scientists to increase our understanding about the health of one of Australia’s most iconic animals – the koala.

‘The diet of koalas consists of eucalyptus leaves which contain toxic chemicals possibly as a defence mechanism,’ explains Dr Moore. ‘Yet the koala is able to break down these toxins and digest them due to the composition of bacteria in its gut – microbiome. Although we know that the bacteria inside the koala’s gut are invaluable to its survival and adaptation, we know very little about how the microbes adjust to different diets and environment. The release of koalas after rehabilitation into new areas often results in poor survival outcomes due to their microbiomes’ failure to adjust. In this project we will investigate how koala microbiomes vary across time and location. We will focus on describing the variation of the microbiome in the hindguts of koalas, determining how they adapt to the natural toxins in the leaves they eat and to common antibiotics, will test whether microbial inoculations from well-adapted koalas can assist other koalas.’

Researchers will analyse the faecal microbiomes of koalas in different locations to maximise contrast in nutrition source and value. Using a range of analytical techniques, the chemical composition of koalas’ dietary intake will be analysed. The success of microbial inoculations will be trialled and the microbiome sequenced and catalogued.

This project will help create a more secure future for koalas as well as improve the welfare and husbandry outcomes for captive koalas, provide insight into the role of microbes in helping koalas cope with their diet

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