

Ten years of research shows chlamydia vaccine can save lives of wild koalas

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The largest and longest-ever survey of wild koalas has confirmed a chlamydia vaccine, developed by the University of the Sunshine Coast, can protect the animals from developing and dying from the disease.

The study, [published](#) in *npj Vaccines*, found the [vaccine](#) effectively reduces the chance of a koala developing signs of chlamydial [disease](#) during breeding age, and reduces deaths from the disease in [wild populations](#) by at least 65%.

Lead author, UniSC Research Fellow Dr. Samuel Phillips, said more than a decade of clinical data—gathered through regular screenings across a large wild koala population in South East Queensland—was combined to evaluate the vaccine's effectiveness over multiple generations.

"Critically, the results show the vaccine can stop koalas dying from the disease and help aid the recovery of a declining population," Dr. Phillips said.

"By using this vaccine, the average age at which koalas are likely to develop chlamydial disease was pushed back more than three years, from five to over eight years old, crucially protecting them during their main reproductive years."

UniSC researchers, led by Professor of Microbiology Peter Timms, have been at the forefront of efforts to develop a vaccine, based on *Chlamydia pecorum*'s major outer membrane protein (MOMP), to protect koalas from the devastating effects of infection.

"This study stands as the largest and longest-ever conducted on koalas, conclusively confirming the significant positive impact of this vaccine," said Professor Timms, who co-authored the study.

Chlamydia in koalas can cause conjunctivitis, [urinary tract](#) and reproductive tract infections, and in severe cases, blindness, severe cystitis, infertility and death. Left untreated, animals with severe infections may have their life expectancy reduced by several years.

"The current treatment is antibiotics, which has its limitations and can disrupt the koala's ability to digest eucalypt leaves, leading to starvation and occasionally death. Furthermore, treating infection often does not prevent future infection," Professor Timms said.

"We know that vaccination is essential to reduce the rapid, devastating spread of this disease, and this vaccine can play a role in the longer-term survival of koalas, especially in South East Queensland and New South Wales where chlamydia affects 50% or more of populations."

This latest study combines datasets from a 10-year project that tracked and monitored the health of a specific population of wild koalas in South East Queensland's Moreton Bay region.

Proving long-term benefits across life span of koalas

Dr. Phillips said it was "an unprecedented opportunity" to assess the effectiveness of UniSC's MOMP-based vaccine to protect koalas from chlamydial disease and or death.

The project involved more than 680 wild koalas, with approximately 150 koalas under veterinary management at any given time. It was led by co-author Dr. Jon Hanger from Endeavour Veterinary Ecology.

Across five separate trials, 165 koalas were vaccinated using four similar versions of the vaccine. While each trial lasted approximately two years, many of the koalas continued to be monitored until the end of the program in 2023.

"This allows us to evaluate the long term effectiveness of the vaccine across the life span of many individual animals," Dr. Phillips said.

The research team recommends future koala management plans should

include vaccination as part of a holistic strategy to protect [koalas](#) from all known threats.

"When vaccination is combined with multiple koala conservation strategies, including addressing traffic, wild and [domestic dogs](#) and importantly, retaining and restoring habitat—local population declines can be reversed," Dr. Phillips said.

More information: Samuel Phillips et al, Immunisation of koalas against *Chlamydia pecorum* results in significant protection against chlamydial disease and mortality, *npj Vaccines* (2024). [DOI: 10.1038/s41541-024-00938-5](#)

Provided by University of the Sunshine Coast

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