

Koala sperm could be the insurance policy that saves the species from extinction

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Supplied: University of Newcastle

A biobank of koala sperm could future-proof the species against extinction and make breeding programs cheaper and more successful, according to new research from the University of Newcastle.

Koalas were this year listed as endangered across most of Australia's east coast and are predicted to face extinction by 2050. While there has been some research conducted on assisted koala breeding, to date there has been no dedicated investment towards developing the large-scale collection and storage of koala reproductive material. "We have no insurance policy against natural disasters like the 2019–20 bushfires that threaten to wipe out large numbers of animals at the one time," conservation scientist Ryan Witt said.

"If the koala population dies in these kind of fire events, there is no way to bring them back or preserve their genetics."

Dr Witt co-authored the research, which was published today in the international journal *Animals*. Assisted reproductive techniques have been used for decades to treat human fertility and breed animals for agriculture, but its use for wildlife conservation has lagged behind. Dr Witt said their modelling demonstrated that techniques such as artificial insemination in koala breeding programs could deliver a 5 to 12-fold reduction in costs.

"Captive breeding programs require larger koala colony sizes to prevent inbreeding, but by integrating assisted reproduction we can reduce the number of koalas needing to be in captivity, lower costs, and improve

genetic diversity," Dr Witt said. "This would free up valuable conservation funding to support a greater number of species, or to support other koala conservation efforts such as habitat restoration."

Scientists have successfully used fresh and chilled sperm to breed koalas, but there remains a knowledge-gap in developing the technique and technology for using frozen sperm. Lead author Lachlan Howell said it should not stop the collection of koala sperm now. "We would get started as soon as we could with the banking down of reproductive material and that buys you time to invest in the research and develop the tools," Dr Howell said.

"Time is of the essence."

Port Stephens Koala Hospital president Ron Land said the hospital, in collaboration with the University of Newcastle and Taronga Conservation Society, put forward a detailed biobanking proposal to the state government two months ago but had had no response. "We're able to start the project immediately, if we got the funding to do so," he said. "We're bemused that the government is making these statements about how it wants to double the number of koalas in NSW by 2050, yet the silence is deafening in regards to the funding. "Unless this type of technology is proven and deployed, they haven't got a chance in hell of doubling the amount of koalas in 30 years."