

Ancient penguin DNA is key to conservation

February 27 2012, By Louise Durack

Conservation of the King Penguin is proving successful following research showing that the species has recovered past genetic diversity in just 80 years despite a prior threat of extinction.

This is according to Griffith University's Environmental Futures Centre. Research used tissue samples of the penguins from [Macquarie Island](#) and compared the DNA of individuals from an ancient penguin population with DNA from modern-day birds.

The research presents significant findings for conservationists seeking to monitor genetic diversity within the animal kingdom.

Set to be published in the prestigious [biological science](#) journal *Biology Letters* this week, the findings are important in showing how conservation scientists can use [ancient DNA](#) methodology.

"This methodology has proven to be very effective in monitoring the diversity of animals over time and also allows us to improve the decision making around [conservation strategies](#) and the monitoring of their success," said lead researcher and PhD candidate Tim Heupink, who worked on this study in collaboration with John van den Hoff from the Australian Antarctic Division.

"For example, we show that halting exploitation and controlling fishing and pests is effective in recovering the genetic diversity of this species."

Historically, King Penguin populations on Macquarie Island suffered

greatly from human exploitation. Two large colonies on the island were drastically reduced to a single small colony as a result of harvesting for the blubber oil industry from 1889 onwards.

However recent [conservation efforts](#) have resulted in the King Penguin population expanding in numbers and range to recolonise previous as well as new sites.

"The ancient DNA methods implemented in this research reveal that the modern population is closely related and shows a similar level of genetic diversity to that recorded in the ancient population, prior to exploitation," said Mr. Heupink.

"This study shows that the [genetic diversity](#) of a historically exploited population can recover to pre-human contact levels and exemplifies how ancient DNA studies can help evaluate the effectiveness of conservation efforts and therefore potentially the effects of other human impacts on wildlife."

Provided by Griffith University

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