

Novel implants to protect Australia's wildlife from feral cats

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The PPIs present no danger to tolerant native mammals. Credit: UniSA

New technology developed by the University of South Australia may put

an end to predatory cat behaviors in native environments and help control Australia's feral felines.

Using polymer chemistry principles, researchers at UniSA's Applied Chemistry and Translational Biomaterials Group have created novel Population Protecting Implants (PPIs) to provide a targeted method for controlling invasive and problem feral cats.

The rice-sized implants are injected just under the skin of native animals, where they remain inert, only activating when digested by a feral predator. The result is deadly.

UniSA Ph.D. student and 2021 recipient of an Australian Wildlife Society research grant, Kyle Brewer, says the PPIs could save hundreds of [native animals](#) that have been decimated by feral cats.

"Feral cats present a catastrophic threat for Australia's wildlife as they occur across more than 99 per cent of Australia's land area and kill more than 815 million mammals each year, the majority of which are native species," Brewer says.

"Smaller, 'meal size' mammals are most at risk, especially ground-dwellers such as the bilby, bettong and quoll.

"Efforts to remove feral cats from a native landscape have had limited success, making it near impossible to re-establish threatened native populations outside a fenced area. Invariably, when native mammal reintroduction schemes are activated, they're swiftly wiped out by an incursive feral cat.

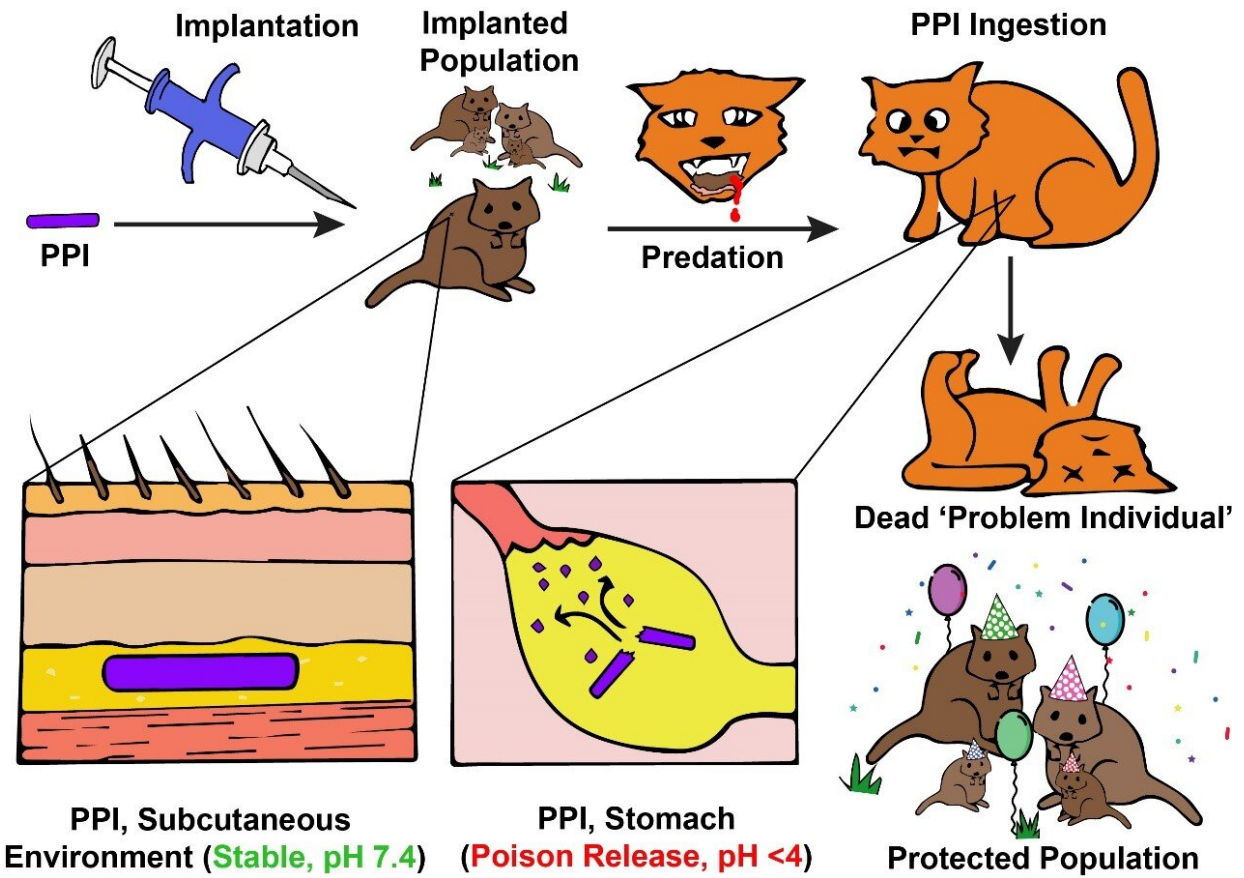
"By injecting native species with the PPI before they are reintroduced to their natural environment, we're providing a protective buffer that aims to take out the feral invader in one stroke.

"If a [feral](#) cat successfully preys upon one of the PPI-injected mammals, it eats the implant, which activates in the cat's gastric system causing poison release and death. Ultimately, this protects the remaining native animal population."

The PPIs are covered by a protective coating and contain a toxin derived from a natural poison in native plants. They present no danger to tolerant native mammals but are deadly once the toxin is activated in the introduced predator's stomach.

Brewer's project is a [collaborative effort](#), with researchers from local ecology groups, Ecological Horizons and Peacock Biosciences, and the University of Adelaide, already trialing PPIs in South Australia.

Currently, 30 bilbies have been implanted with PPIs at Arid Recovery, a 123 km² wildlife reserve in South Australia's north. Results from this trial are expected to demonstrate the effectiveness of the technology and lead to its commercialisation.



The PPIs are deadly once the toxin is activated in the introduced predator's stomach. Credit: UniSA



Feral cats kill more than 815 million mammals each year. Credit: UniSA

Feral cats threaten the survival of more than 100 native species in Australia and have caused the extinction of many ground-dwelling birds and small to medium-sized [mammal](#) species.

"We need to pounce on any opportunity to protect our [native species](#).
Nine lives no more for [feral cats](#)."

Provided by University of South Australia

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