New DNA test on roo poo identifies species

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(Phys.org) —University of Adelaide researchers have developed a simple and cost-effective DNA test to identify kangaroo species from their droppings which will boost the ability to manage and conserve kangaroo populations.

The researchers developed the test using hundreds of collected droppings across north-eastern Australia and extracting DNA from the samples, published in the conservation journal *Wildlife Research*.

A unique pattern of DNA fragmentation was established for each species, eliminating the need for gene sequencing which is costly, much more time-consuming and requires sophisticated laboratory equipment.

The test has already identified a number of species of kangaroo occurring well outside their known range which has important implications for population management and conservation.

"The more information on the distribution of species, the better management decisions can be made, particularly in gauging potential land-use and climate change impacts on biodiversity," says PhD student and lead author Jessica Wadley.

"Despite their large size, kangaroos and wallabies are surprisingly difficult to see and count reliably. Collecting droppings, or scats, provides a relatively simple and easy way to estimate the presence or absence of a species. But in this area of Queensland, where there were eight possible kangaroos and wallaby species with overlapping ranges,

it's difficult to correctly identify which species is leaving which scat."

This project, by the University of Adelaide's Australian Centre for Ancient DNA (ACAD) and Environment Institute, is part of a broader ecological study.

They found five species outside of their known range with one - the Eastern Grey Kangaroo - 400km outside of its range.

Co-author Dr Damien Fordham, Postdoctoral Fellow in the Environment Institute, says: "The test also allowed us to identify samples from the antilopine wallaroo, a species that is threatened by climate change. We're carrying out more detailed genetic studies relating to the factors that influence its distribution."

Co-author Associate Professor Jeremy Austin, Deputy Director of ACAD, says: "The test could also be used to rapidly and cheaply identify the source of kangaroo meat and products to detect illegal hunting of protected species."

Provided by University of Adelaide