Cockatoos' family history revealed through DNA

April 6 2011

Gang-gang Cockatoos. Photo copyright: Rick Dawson (Department of Environment and Conservation, WA)

Murdoch University researchers have used new DNA sequencing techniques to help give them a better understanding of how cockatoo species have evolved and how they fit together in a family tree.

Nicole White, who carried out the research, said some of the findings were surprising. For example, some species of cockatoo which look quite different were actually closely related.

“A large black cockatoo known as the palm cockatoo was found to cluster on the family tree with the white cockatoos, rather than with the other blacks. Likewise the relationship between the gang-gang (which

has a red head and a black body) and galah (pink head and body with grey wings) was shown to be closer than previously thought," said Nicole.

"So just because some cockatoos might look similar, this doesn't necessarily mean they are closely related.

"This will enhance our understanding of the relationships between cockatoo species and how they have evolved together with the Australian landscape."

DNA changes, or mutates, over time. When the speed of each change is known, estimates of when species last shared an ancestor can be determined.

Nicole's research showed that cockatoos and parrots branched away from each other approximately 40 million years ago, and the 21 different cockatoo species we see today began to appear about 10-20 million years ago as the vegetation changed across Australia.

"When arid-adapted trees and grasslands started to expand, so did the cockatoos who favoured those foods found in those habitats," added Nicole.

The DNA technology used in the study involved piecing together the DNA code of the cockatoo mitochondrial genome. This process has been used in the study of other species but never before in cockatoos.

Nicole said that the research will aid in the conservation management of endangered cockatoos and assist in the forensic identification of cockatoo species involved in illegal shooting and egg smuggling.

The research has been published online in the journal *Molecular*

PHYS.ORG

Phylogenetics and Evolution.

More information: The evolutionary history of cockatoos (Aves: Psittaciformes: Cacatuidae) dx.doi.org/10.1016/j.ympev.2011.03.011

Provided by Murdoch University

Citation: Cockatoos' family history revealed through DNA (2011, April 6) retrieved 23 April 2024 from https://phys.org/news/2011-04-cockatoos-family-history-revealed-dna.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.