

Aboriginal DNA study reveals 50,000-year story of sacred ties to land

Analysis of 100 hair samples sheds light on population movement around Australia and depth of links to regions



DNA collected from hair samples in the 1900s has revealed a continuous connection to regions of Australia going back thousands of years. Photograph: Richard T'Anson/Getty Images/Lonely Planet Images

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A study of ancient Aboriginal hair samples has revealed distinct Aboriginal populations were present in Australia with little geographical movement for up to 50,000 years.

The discovery of such a long, continuous presence in the those regions emphasised why land was so sacred to Aboriginal people, researchers said.

The results emerged after researchers led by the University of Adelaide's Australian centre for ancient DNA analysed the mitochondrial DNA from 111 hair samples collected during anthropological expeditions in the early to mid-1900s. The samples are stored at the South Australian Museum.

Mitochondrial DNA is the powerhouse that drives the conversion of food into energy, and is useful to researchers because it carries genetic material passed exclusively between a mother and her children, allowing maternal ancestry to be traced.

Despite the age of the hair samples and the fact that they were collected under harsh environmental conditions, the researchers were surprised to find high concentrations of good quality mitochondrial DNA.

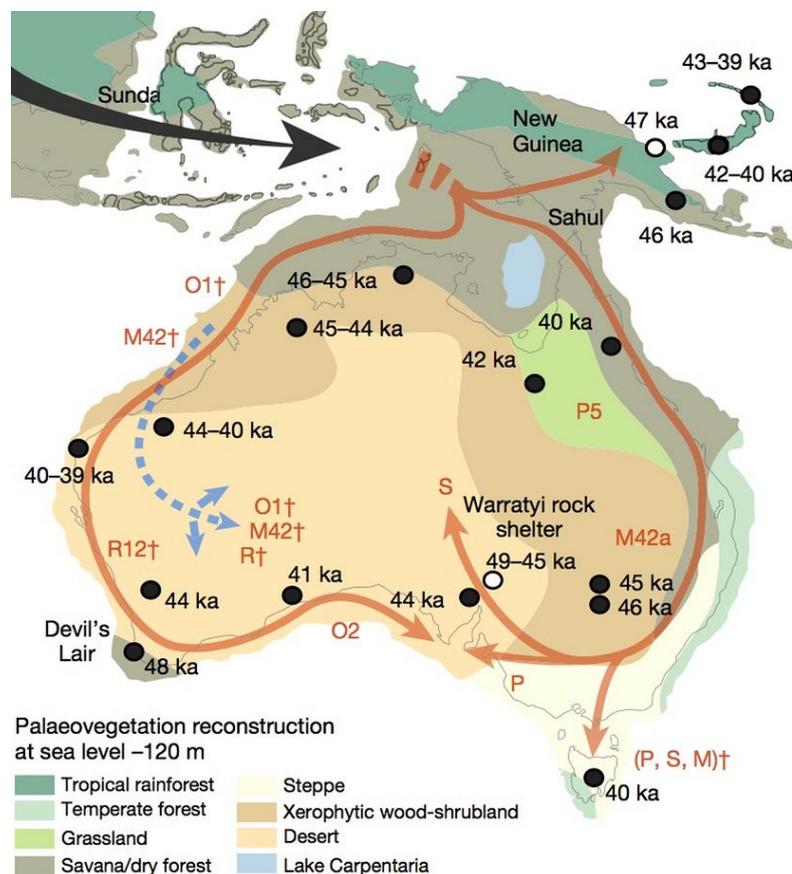
Their analysis found Aboriginal Australians are the descendants of a single founding population that arrived in Australia 50,000 years ago, while Australia was still connected to New Guinea. Populations then spread rapidly – within 1,500 to 2,000 years – around the east and west coasts of Australia, meeting somewhere in South Australia.

One of the researchers, the geneticist Dr Ray Tobler, said the samples meant Aboriginal ancestry could now be genetically traced back in time to a point that predated European colonisation, when Aboriginal people were still living in their traditional areas, supporting what the archeological evidence already shows.

Having the genetic information was crucial because after colonisation Aboriginal people were forced off country or forcibly removed from their families and scattered all over Australia, Tobler said. “If you want to do historical research on the connection between people and land you can’t do it using modern Aboriginal people because of that disconnection,” he said.

“I have Aboriginal ancestry through my granddad but he never spoke about it because he was removed from his family. A lot of people in my situation interested in recording their history can do so through this project.”

The hair samples identified four main distinct types of maternal DNA, which they labeled “P”, “O”, “S” and “M”. Those in the O group were overwhelmingly found on the west and south coast of Australia, the researchers found. Those with the other three types mainly stuck to the east coast.



A map of Australia combining genetic and archaeological data to show the movements of Aboriginal populations going back tens of thousands of years. Photograph: University of Adelaide

The researchers know this because the sample collectors kept detailed information about birthplaces, family history and family trees, and this – combined with film, audio and written records – allowed the researchers to create a map of movement and reconstruct history.

The project leader, Prof Alan Cooper, said it was “amazing” that the team had found Aboriginal communities have remained in discrete geographical regions. “This is unlike people anywhere else in the world and provides compelling support for the remarkable Aboriginal cultural connection to country,” he said.

“During that period of time, with massive climate changes and massive environmental shifts, you might therefore have expected people to respond by moving all over the place.

“Clearly the environment did change significantly but nevertheless they were able to survive in one area with a fixed set of resources for up to 50,000 years. Nowhere else in world have humans been able to demonstrate an ability to do that. We don’t have a great record of living in balance with anything.”

It illustrated the enormous amount of respect, knowledge and affinity Aboriginal people must have had with the land, and to specific areas of land, to survive, Cooper said.

“That’s not news to Aboriginal people,” he said. “But it may help non-Aboriginal people appreciate the sheer scale and importance of that longevity. If you can try and imagine your own family history being present for 50,000 years and how important that would be to you, you can start to understand the cultural gulf apparent when Aboriginal people are talking to politicians or non-Aboriginal people about the importance of land ownership.”

Cooper believes that the absence of farming might have been the key to different groups of Aboriginal people living harmoniously for so long. No wars or conflict prompting mass movements had occurred during those early thousands of years in Australia.

“When you farm and grow large amounts of food, cheap nasty food, the population grows very rapidly and when that happens you have a huge pressure to keep supplying the food and you start building up large amounts of assets,” he said. “That produces war, where people are after those assets. Aboriginal people were able to survive [without war]. How have they managed to do that?

“Aboriginal history has some remarkably positive things to say.”

A Kurna elder, Lewis O’Brien, who is on the advisory group for the study, said Aboriginal people were well aware of how unique their history was and how much their identity was tied to certain locations. But he added that it was important to have the science to show that to the rest of the world.

“This is an exciting project and we hope it will help assist those of our people from the stolen generation and others to reunite with their families,” he said.

The findings were published in the prestigious international journal, *Nature*, on Thursday.