

Cycads in central Australia are not ancient relics

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Cycadophyta. Image: Wikipedia

(Phys.org) -- An ancient plant isolated in the heart of Australia, more than 1200km from its coastal cousins, is now believed to have arrived inland far more recently than initially thought.

Researchers from The University of Queensland (UQ), the Queensland Herbarium and The Australian National University have found that *Macrozamia*, a [genus](#) of cycad found only in Australia, arrived in central Australia millions of years earlier than the 30 million years initially believed.

The research team found this [species](#) known as the MacDonnell Ranges cycad (*Macrozamia macdonellii*) was too similar to its [relatives](#) more than 1200 km away in eastern and coastal Australia to have been isolated in central Australia for 30 million years.

James Ingham of UQ, a PhD candidate on the team, said comparisons between the plants revealed little difference.

“Some of the central Australian plants have chloroplast DNA with an identical sequence to those in eastern Australia,” said Mr Ingham.

“This is much too similar for the plants to have been isolated in central Australia since the Eocene period, instead suggesting that *Macrozamia* in central Australia has only become isolated sometime in the past couple million years.”

“In contrast, plants from Western Australia have been isolated from plants in eastern Australia for much longer, possibly for as long as ten million years or more.”

Macrozamia cycads occur in south-west Western Australia, central Australia and along the east coast, including Queensland and New South Wales, but nowhere in between those three regions.

The MacDonnell Ranges cycad is a species unique to central Australia and is the only cycad in the region.

Mr Ingham says, until now, researchers have generally believed that the MacDonnell Ranges cycad has survived in central Australia since the Eocene period, more than 30 million years ago when Australia's climate was much wetter and rainforest much more widespread.

Because cycad fossils from the Jurassic period look very similar to

cycads living today, it was previously assumed that cycads have remained more or less unchanged for millions of years.

Overall, the study supports two other recent studies indicating that living cycad groups have been around for only the past 10-20 million years, much younger than during the Jurassic when cycads served as dinosaur food.

James Ingham is a UQ PhD candidate whose research focuses on the evolution of Macrozamia. He has a strong interest in the conservation of threatened species, and nearly a third of Macrozamia species are threatened.

Cycads are a group of non-flowering plants that look like palms but reproduce with cones and have existed as a group since about 270 million years ago.

Provided by University of Queensland

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