

# Mapping human activity in the last glacial maximum

October 17 2013, by Geoff Vivian

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Well-watered places without caves, such as Lake Gregory in the south-east Kimberley may have been refuges against the last Glacial Maximum. Credit: yaruman5

A series of reviews of Australian archaeological studies is helping to formulate a theory of how and when people occupied various parts of the continent, including WA's Kimberley region.

"We've basically pulled in radiocarbon data from every site in Australia I can get my hands on, so we've got about five and a half thousand dates," Archaeologist Alan Williams from Australian National University says.

"We are using those as a proxy for human activity.

"Every time we find a date it's usually in the cooking pit or a burial or a midden or something that's got humans there doing something at that point."

In a [paper just published](#), he says certain well-watered locations acted as refugia during the last Glacial Maximum, when cold arid conditions caused people to vacate large parts of Australia about 21,000 years ago.

"We found a similar sort of response through the Antarctic cold reversal which is a period in time between 14,500 and 12,500 years ago," he says.

He admits that the list of refugia is not exhaustive, as many parts of the country are poorly studied.

As radio carbon dating has been 20th Century archaeologists' preferred dating method, documented refugia tend to contain landforms that preserve carboniferous relics, such as the limestone caves in the central Kimberley and the South West.

'Crypto-refugia' may include well-watered places without caves, such as Lake Gregory in the south-east Kimberley.

The inland lake is a drainage sump for large stretches of land, and ancient occupation has been proven by the presence of a stone core dated by optically stimulated luminescence to at least 45,000 ago.

Ready water supplies make it a likely refuge, but periodic flooding and the presence of spinifex termites is likely to have destroyed any traces of Antarctic cold reversal carbon.

"We didn't really demonstrate it in this paper because the data isn't available," he says.

"But I think there's enough evidence archaeologically that the Pilbara is also an area that people fell back into and survived during that period."

This is not the first theory of glacial refugia.

Mr Williams differs from previous theorists in that, having established human presence in a bio-region during glacial periods, he regards the entire bio-region as a refuge.

He also views theories of desert 'barriers' to occupation with scepticism.

"In many cases these apparent barriers more likely reflect an absence of archaeological fieldwork rather than a true barrier to human mobility," he says.

Provided by Science Network WA

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