

Paper No. 135-8

Presentation Time: 10:00 AM-10:15 AM

# **A COMPARISON OF GRADIENTS IN REEF CORAL COMMUNITY COMPOSITION BETWEEN LATE PLEISTOCENE AND MODERN CORAL REEFS OF WESTERN AUSTRALIA**

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In coastal Western Australia, Late Pleistocene reef coral assemblages are exposed landward of the modern reef system over a latitudinal gradient of approximately 11 degrees. Hence the modern and Pleistocene reef systems in the region provide a natural laboratory for comparative studies of reef coral communities between modern and Late Pleistocene time and over an extended geographic range.

Published data on modern reef coral communities adjacent to Western Australia have revealed clear relationships between geographic regions and coral species occurrences in response to the Leeuwin Current. A gradient in reef coral community composition exists and is correlated with latitude. Low latitude, high diversity coral reefs are distinguished clearly from the less diverse reefs at higher latitudes.

A systematic census of Late Pleistocene fossil reefs exposed in the regions of Cape Range (S 21° 48.329'; E 114°07.890') and Cape Cuvier/Lake Macleod (S 24°28.014'; E 113°29.203') and on Rottnest Island (S 32°00.917'; E 115°30.908') has also revealed relationships between geographic regions and the occurrences of fossil coral taxa. However, gradients in Late Pleistocene reef coral composition show greater overlap between regions and a weaker correlation with latitude. A great deal of independent evidence has suggested that the Leeuwin Current was stronger during Late Pleistocene time. Here we document the response of reef coral communities in coastal Western Australia to putative changes in the veracity of the Leeuwin Current since Late Pleistocene time.

[2004 Denver Annual Meeting \(November 7–10, 2004\)](#)

[General Information for this Meeting](#)

Session No. 135

[Paleontology V: Fossil Gradients and Ecological Landscapes](#)

Colorado Convention Center: 108/110/112

8:00 AM-12:00 PM, Tuesday, November 9, 2004

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