

Environmental change on Tikopia, Temotu Province, Solomon Islands



Project outline:

Tikopia (12°16'S, 168°49'E) in the Solomon Islands is one of the most remote inhabited islands in the Western Pacific. Tikopia is a small (4.6 km²) isolated island around 360 km southeast of Santa Cruz in the Solomon Islands (Temotu Province). The nearest islands are Anuta (also in the Temotu Province) and Banks Island (Vanuatu), 137 km northeast and 210 km southwest respectively. In 1976, the island supported a population of around 1,856 people who are mostly speakers of the Tikopian-Malayo-Polynesian language (Grimes, 1996).

The island is interesting for two main reasons:

- Biogeographically, it is situated at the edge of the continental and tropical floral and faunal region of Malesia where it is assumed that due the large ocean barrier between the nearby western islands of the Solomons and Vanuatu, species diversity has been considerably reduced on Tikopia.
- Culturally, Tikopia has received much attention from anthropologists and archaeologists, namely Raymond Firth and Patrick Kirch, primarily out of interest in the capacity of this remote Pacific Island community, to establish diverse agricultural systems and survive in times of environmental adversity since it was initially colonised around 3500 yrs BP.

Recent attention placed on the island by such popular authors such as Jared Diamond (2005), who put forward Tikopia as an example of a society that has employed effective protective measures against deforestation, despite having an equally 'susceptible' environment, whereas on other islands such as Easter Island social measures were ineffective. Diamond's picture of environmental change on Tikopia is interesting but based on minimal palaeoenvironmental data. As yet the only palaeoenvironmental research conducted on the island was gleaned from archaeological excavations of Kirch and Yen (1982) in their archaeological field season in 1976. Clearly, the island society of Tikopia is capable of

A more detailed assessment of palaeoenvironmental change on Tikopia, particularly for the period of human occupation, is required. Some of the key questions we propose for such a research exercise include:

- What impact has this social 'success' had on the biodiversity of Tikopia?
- How much of an influence has human impact had on the biogeographical status of the island? Is the attenuated flora of Tikopia due to limitations on species dispersal or human impact post-colonisation?
- What is the status of introduced tree crop plants such as *Canarium harveyi* and *Areca catechu* in the palaeoenvironmental record? How important were these species in the early phase of colonisation?
- How are environmental changes such as those resulting from the recent impacts of Cyclone Zoe (2002) reflected in the palaeoenvironmental record?

In combination with other ongoing projects and confluent with the main research themes of the Department we would like to:

- Examine the role of multiple interacting pressures, including abrupt climatic change, and human activity on vegetation change/stability through time.
- Develop measures of past biodiversity from palaeoenvironmental data,
- Devise approaches for the incorporation of palaeoecological data into environmental management models and the implications for conservation and management.

For further information this project and a copy of a working paper (pdf) on the environmental history of Tikopia please email Simon Haberle or myself.

References:

- Diamond, J. (2005). *Collapse: how societies choose to fail or survive*. London, Allen Lane.
- Kirch, P. V. and D. E. Yen (1982). *Tikopia: the prehistory and ecology of a Polynesian outlier*. Honolulu, Hawaii, Bishop Museum Press.

STUDENT INFORMATION

Resources and associations:

You will join a vibrant palaeoecological and archaeological group at ANU where you will be based in the Department of Archaeology and Natural History, College of the Asia Pacific. Funding is currently being sort from the Asia Pacific Science Foundation and other major funding bodies to support this project. The successful candidate will be expected to conduct fieldwork on Tikopia in conjunction with other team members

Background of candidates:

We are seeking enthusiastic students with a background in Quaternary science, geography, botany, or similar. Some field experience would be an advantage. A first class honours or research masters in a relevant field is required.

Applications and closing dates for international (IPRS) and local (APA) scholarships:

Interested applicants should submit an application for a graduate scholarship to ANU. The deadline for receipt of IPRS applications from international students is 31st August 2005; for APA/ANU/GSS scholarships for Australian and New Zealand students the deadline is 31st October 2005. The College of the Asia Pacific also has funding available for tuition and full scholarships for outstanding students. The successful candidate will be expected to commence between 2nd Jan and 31st Mar 2007. Application forms for both international (IPRS) and local (APA) scholarships are available at <http://www.anu.edu.au/sas/forms/>

For further information about this project please contact:

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Relevant web links:

PalaeoWorks <http://palaeoworks.anu.edu.au/>

Department of Archaeology and Natural History <http://rspas.anu.edu.au/anh/>

Australian National University Graduate School

<http://www.anu.edu.au/graduate/scholarships/>