

# みんなくりポジトリ

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## Preface

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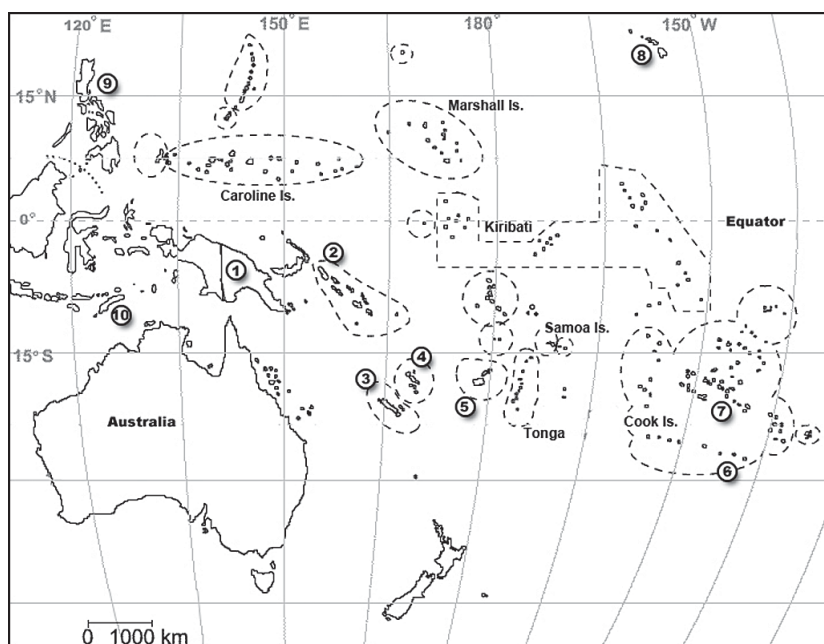
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The present volume is based on a session held at the 19<sup>th</sup> Congress of the Indo-Pacific Prehistory Association (IPPA), Hanoi, Vietnam, 29<sup>th</sup> Nov. to 5<sup>th</sup> Dec. 2009, and titled ‘Wet Cultivation of *Colocasia esculenta* in the Indo-Pacific: archaeological, technological, social and biological perspectives’. David Addison (American Samoa Community College, Pago Pago) and Matthew Spriggs (The Australian National University, Canberra) organised and chaired the session, and Peter Matthews (National Museum of Ethnology, Osaka) later joined the editorial team. Together we found reviewers for every paper submitted, before compilation of the volume for publication (see Acknowledgments). Revised versions of the papers given at the Congress by Acabado, Bayliss-Smith and Hviding, Blench, Bollt, Caillon, Chazine, King, McCoy and Graves, McElroy, Matthews *et al.*, Sand, and Spriggs are included here. A further presentation by Dana Lepofsky and Jennifer Kahn was published elsewhere, and is not included here (Lepofsky and Kahn 2011). Other session presenters included David Addison, Julie Field, and Nancy Pollock (see IPPA website: [arts.anu.edu.au/arcworld/ipa/ipa.htm](http://arts.anu.edu.au/arcworld/ipa/ipa.htm)).

After the Congress, further authors working in the Pacific were invited to contribute to this volume to extend its coverage, resulting in papers here by Bourke, Earle, Oliveira, Walter and Tzerikiantz (translation of an already-published paper), and Huang (translation of a historical treatise, the *Yu Jing*). Our approach to possible contributors, and the selection of papers, was limited by the relatively small number of researchers conducting research in areas where taro is historically important as an irrigated crop. Nevertheless, the volume brings together an impressive array of work on taro in the disciplines of archaeology, ethnobotany, history, linguistics, geography, and social anthropology. The geographic scope of the volume is also broad, ranging from the Eastern and Western Pacific, through Southeast Asia, to China (Fig. 1). The original abstract for the IPPA session explains our main focus within this broad range: ‘Wet cultivation of taro (*Colocasia esculenta*) is among the most productive traditional agricultural techniques in the world, rivalled only by the homologous systems based on rice (*Oryza sativa*). Some of the largest stone constructions in the Pacific relate to wet taro cultivation. Research on wet taro in Oceania has focused on: the role of agricultural intensification in development of political and social complexity; aggression and territoriality; risk management; and initial island colonization’. Taro is also one of the main staples of vegetational production systems in Oceania, and the present volume can be seen as a sequel to an earlier volume published by the National Museum of Ethnology: *Vegeticulture in Eastern Asia and Oceania* (Yoshida and Matthews 2002).

The first section of the present volume provides historical context for the geographically organised studies in the next three sections. The concluding chapter by the editors attempts



**Figure 1** Areas mentioned by our chapter authors. China is not shown on the map (see Huang, this volume). The chapters by Blench and Spriggs have a wide regional focus (within and beyond the map area)

- (1) Papua New Guinea (Bourke).
- (2) Solomon Islands (Bayliss-Smith and Hviding).
- (3) New Caledonia (Sand).
- (4) Vanuatu (Caillon; Walter and Tzerikiantz).
- (5) Fiji (King).
- (6) Austral Islands (Isles Tubuai) (Bollt).
- (7) Tuamoto Islands (Chazine).
- (8) Hawai'i (Earle; McCoy and Graves; McElroy).
- (9) Philippines (Acabado; Matthews *et al.*).
- (10) Timor Leste (Oliviera).

to draw out some common themes among the papers and areas for further research.

In recent years, there has been considerable interest among agricultural scientists in the potential of taro as a basic food plant for future agricultural development. Genetic studies have confirmed what has long been evident from morphology—that this crop includes a huge diversity of cultivated forms—but the genetic and geographic origins of cultivated taro remain a mystery. The present volume treats taro as something of academic and deeply historical interest. The authors discuss how systems of taro production have altered landscapes, supported social development, and have provided cultural links with ancestors and the past.

The spread of cultivated taro across Asia and the Pacific has left an archaeological trail that is only slowly being uncovered. The association of taro with water is fundamental in the ecology of the plant, since wild (and apparently wildtype) taros growing in lowland tropical regions of Southeast Asia and the Western Pacific are invariably found in wet natural or modi-

fied habitats (Matthews 1991; Matthews and Naing 2005). The purpose of irrigation is to maintain high moisture, rather than to create a 'dryland' environment by drainage. These two very different aims are often confused in general references to Pacific agriculture. Hans Damm (1951) described three main categories of irrigation in the Pacific: swampland, pit cultivation and true irrigation.

Swampland irrigation is the management by ditching of freshwater swamps to keep the water table within fixed limits. It is a widespread practice. Pit cultivation is mainly, but not exclusively, practiced on atolls. Pits are dug to tap the freshwater lens beneath the ground surface. True irrigation refers to the diversion of water from source to fields and has two components: a water transport system of canals or pipes, and a system of water application to the crop. The methods of water application in the Pacific, where true irrigation is widespread, include simple flooding, pondfields (akin to rice paddies in appearance), island beds or 'raised fields' and furrow irrigation (Spriggs 1990). In simple flooding, water circulates down from the upper end of the garden, often with wood or stone barriers to slow down the flow. A variant is when rough terraces are constructed directly in small stream-beds. In pondfield systems, water flows through artificial planted ponds to down-slope ponds that are usually terraced. In the island bed systems, water is led round the perimeter of raised beds (usually-rectangular) similar to those found in many swampland irrigation systems. In some parts of the Pacific there can be a succession of pondfield construction, use, fertility decline, fallow period, and then reactivation of the field with island beds. In furrow irrigation, so far only reported for Aneityum Island in Vanuatu, water is led in small, shallow furrows among the taro plants where it soaks laterally through the soil.

As an agricultural technique, irrigation of taro and other crops marks a clear move towards intentional control of environments and plant productivity, while the production of 'surplus' food through irrigation has long been implicated in the emergence of hierarchical or complex societies. Food, including taro, has cultural values and social consequences that extend far beyond the mere supply of nutrition. Food is not just food. These matters are all touched upon here.

As to future agricultural development, the present volume illustrates the potential of taro not only in food terms, but also in terms of landscape use and social role. Its vulnerability to disease and to changing economic imperatives, however, shows that taro's potential is also a hostage to circumstance. The significance of culture in agriculture is apparent throughout this volume.

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