

Contents

Part 1: Foreword	
Susan Denyer	3
Part 2: Context for the Thematic Study	
Anita Smith	5
- <i>Purpose of the thematic study</i>	5
- <i>Background to the thematic study</i>	6
- <i>ICOMOS 2005 “Filling the Gaps - An Action Plan for the Future”</i>	10
- <i>Pacific Island Cultural Landscapes: making use of this study</i>	13
Part 3: Thematic Essay: The Cultural Landscapes of the Pacific Islands	
Anita Smith	17
The Pacific Islands: a Geo-Cultural Region	17
- <i>The environments and sub-regions of the Pacific</i>	18
- <i>Colonization of the Pacific Islands and the development of Pacific Island societies</i>	22
- <i>European contact, the colonial era and decolonisation</i>	25
- <i>The “transported landscapes” of the Pacific</i>	28
- <i>Principle factors contributing to the diversity of cultural Landscapes in the Pacific Islands</i>	30
Organically Evolved Cultural Landscapes of the Pacific	31
- <i>Pacific systems of horticulture – continuing cultural landscapes</i>	32
- <i>Change through time in horticultural systems - relict horticultural and agricultural cultural landscapes</i>	37
- <i>Arboriculture in the Pacific Islands</i>	40
- <i>Land tenure and settlement patterns</i>	40
- <i>Social systems and village structures</i>	45
- <i>Social, ceremonial and burial places</i>	47
- <i>Relict landscapes of war in the Pacific Islands</i>	51
- <i>Organically evolved cultural landscapes in the Pacific Islands: in conclusion</i>	54
Cultural Landscapes of the Colonial Era	54
Associative Cultural Landscapes and Seascapes	57
- <i>Storied landscapes and seascapes</i>	58
- <i>Traditional knowledge: associations with the land and sea</i>	60

Part 4: Cultural Landscape Portfolio	
Kevin L. Jones	63
Part 5: The Way Forward	
Susan Denyer, Kevin L. Jones and Anita Smith	117
- <i>Findings of the study</i>	117
- <i>Protection, conservation and management</i>	119
- <i>Recording and documentation</i>	121
- <i>Recommendations for future work</i>	121
Annexes	
Annex I - References	123
Annex II - Illustrations	131

PART 1: Foreword

Cultural landscapes have the capacity to be read as living records of the way societies have interacted with their environment over time. This record may present highly distinctive settlement patterns, or it may present landscapes that reflect common approaches widely scattered in space and time.

Both of these are true for the Pacific where the study of cultural landscapes is opening a large window on particularly distinctive interactions found in the Pacific Islands, which also have strong associations with collective memories of migrations, stories of origins and sacred rituals.

The compilation of this study coincided with the first meeting of the World Heritage Committee in the Pacific Islands Region in Christchurch, New Zealand, in June/July 2007. A draft version was presented on that occasion and elicited strong interest and support from Committee members.

ICOMOS thematic studies are produced to support possible nominations for World Heritage status through summarising available evidence in a specific theme (original research or survey work is not undertaken), and highlighting the potential of regions to contribute to the World Heritage List. They do not aim to identify outstanding universal value in individual sites – as this could compromise the subsequent assessment process – but provide material that could help States Parties identify potential sites and undertake comparative assessments to show how the value of the sites might be justified and the World Heritage criteria met. World Heritage sites are inscribed if they can demonstrate outstanding universal value and have in some way been, and still are, influential in a wider than local or national arena.

Susan Denyer
World Heritage Adviser, ICOMOS

Acknowledgements

Many people have contributed ideas and data for this study, particularly representatives of the State Parties covered by this study* through workshops that highlighted the need for this work. The study has made use of both published and unpublished material and we are grateful to authors acknowledged in footnotes for their permissions. In particular, the authors wish to acknowledge the help of the following: Matthew Campbell, Tim Denham, Paul Dingwall, Julie Field, Helen Gardner, Ian Lilley, Bronek Kazmierow, Matiu Prebble, Nigel Prickett, Christophe Sand, Matthew Spriggs, Glen Summerhayes, Ariihau Tuheia, Albert Vaea, Richard Walter, Marshall Weisler, the Alliance Française (Wellington) and the Auckland Museum.

The study was supported by the UNESCO World Heritage Centre.

**States Parties covered by this study:*

Aotearoa/New Zealand, Chile, Cook Islands, Federated States of Micronesia, Fiji Islands, France, Great Britain, Papua New Guinea, Solomon Islands, Kingdom of Tonga, Kiribati, Niue, Palau, Republic of Marshall Islands, Samoa, United States of America, and Vanuatu.

The authors:

Dr Anita Smith is an archaeologist who has worked in the Pacific Islands since the early 1990s. Since 2002, she has worked closely with Pacific Island State Parties and the World Heritage Centre to increase capacity in the identification and management of cultural heritage in the Pacific region, and since 2004 on programs associated with the World Heritage Pacific 2009 program. From 2005 – 2007, Anita was the convenor of the Australia ICOMOS World Heritage reference group and she is currently a member of the Australian delegation on the World Heritage Committee.

Kevin L. Jones has worked in Thailand and has published many papers and books on aerial photography and the field archaeology of New Zealand, including the recent Penguin Field Guide to New Zealand Archaeology. He currently works for the Department of Conservation Te Papa Atawhai, New Zealand.

In preparing this Thematic Study, ICOMOS would especially like to acknowledge the contribution of Anita Smith and Kevin L. Jones who wrote the text, Susan Denyer for her important insights and the International Secretariat (Joan Domicelj and Regina Durighello) who coordinated and edited the study.

PART 2: Context for the Thematic Study

Anita Smith

Purpose of Thematic Study

The Pacific Island region spans a quarter of the globe and contains the cultural heritage of more than a two thousand islands ranging from the continental islands of New Zealand and Papua New Guinea to the tiny remote atolls of the central and east Pacific Ocean. This Oceanic world has given rise to traditional indigenous ways of life that are unique to the region and expressed through outstanding cultural landscapes and seascapes, settlements and monuments and in the intangible heritage of traditions, knowledge, stories, song, music and dance. This heritage reflects the common origin and interaction of many Pacific Island societies and the distinct traditional ways of life that have developed in each archipelago. Pacific Island societies include the linguistically diverse communities of Melanesia, those of Polynesia where histories tell of a single homeland and the Micronesians, some of the world's most isolated communities that attest to the great navigational and seafaring skills of their ancestors.

The Pacific Island region is currently one of the most underrepresented regions on the World Heritage List. The reasons for this are many, but central is that few of the Pacific Island countries or territories have documented their cultural heritage places or have legislation to protect them. The character and diversity of cultural heritage places in the region is therefore not well known.

This Thematic Study of Pacific Island cultural landscapes is the first regional study of cultural heritage properties in the Pacific Islands to be undertaken in the context of providing comparative data to support the selection of cultural properties for nomination to the World Heritage List. It is an important landmark in the recognition of cultural heritage places in the Pacific Islands, their regional and international significance and the need for heritage conservation policies and programs at national and regional levels to protect and sustain the values these places reflect.

The study is an over-view of cultural landscapes in the Pacific Islands, and the various defining characteristics that account for their commonalities as well as their diversity. As such, the study is essentially introductory, a broad analysis of cultural landscapes, from the information that is available, rather than a detailed assessment of possible individual nominations to the World Heritage List.

The broad aims of the Thematic Study are to:

- a) Provide a general understanding of the attributes that characterise cultural landscapes in the Pacific Island, their diversity, the cultural, social and economic processes that have shaped these landscapes, their genesis and their associations;
- b) Illustrate by means of a portfolio of examples of various types of cultural landscapes found across the region;
- c) Identify gaps in current knowledge of particular kinds of cultural landscapes and/or sub-regions in order to set priorities for further detailed studies.

Background to the thematic study

The Pacific Islands are among the least represented regions on the World Heritage List. As part of the World Heritage Committee's initiatives towards a credible, balanced and representative World Heritage List in 1997, the Third UNESCO World Heritage Global Strategy meeting was held in Suva, Fiji. Representatives of Pacific Island nations noted an inseparable connection between the outstanding seascapes and landscapes of the Pacific Islands region and the rich histories, oral and life traditions of the Pacific Island peoples. The cultural landscapes of the region, while diverse, are nevertheless bound through common voyaging, kinship, trade and other relationships¹.

The Suva meeting focused on four main themes for the region:

- Places of origin or mythological origin, navigation routes and places related to navigation;
- Archaeological and historical sites of human settlements;
- Places of traditional economic and ceremonial exchange;
- From the past to the present, continuity and change in the Pacific.

In 1997, only Aotearoa/New Zealand, Fiji, Solomon Islands and Papua New Guinea were signatories to the World Heritage Convention and Aotearoa/New Zealand was the only Pacific nation represented on the World Heritage List. Tongariro National Park had been inscribed on natural values in 1990 and re-inscribed as the first World Heritage cultural landscape in 1993. Several other properties within the Pacific Islands had been inscribed on the List, but all by geographically non-local States Parties. These were the Rapa Nui National Park, inscribed as a Chilean property in 1995; the Hawaiian Island Volcanoes National Park inscribed as part of the United States of America (1987); and the United Kingdom property of Henderson Island (1988).

A year later, in 1998, the Fourth World Heritage Global Strategy meeting held in Amsterdam formulated the following definition of outstanding universal value, highlighting the need to identify themes as well as taking into account regional and historical specificities of cultural properties:

*The requirement of outstanding universal value characterising cultural and natural heritage should be interpreted as an outstanding response to issues of universal nature common to or addressed by all human cultures. In relation to natural heritage, such issues are seen in bio-geographical diversity; in relation to culture in human creativity and resulting cultural diversity.*²

The same year, 1998, the site of East Rennell Island in the Solomon Islands became the first World Heritage area in the small island nations of the Pacific to be inscribed on the World Heritage List. The property, the largest raised coral atoll in the world, was inscribed for its natural values and set a precedent in being the first World Heritage site inscribed which respected customary ownership and management by the native inhabitants. In 2007, East Rennell is still the only World Heritage property in the small Pacific Island nations.

¹ UNESCO 1997 Report of the 3rd Global Strategy Meeting «Identification of World Heritage properties in the Pacific» Suva, Fiji, 15-18 July 1997. (WHC-97/CON F.208/INF.8)

² WHC-98/CON F.201/INF.9

A second regional World Heritage Global Strategy meeting in Vanuatu in 1999, sought to promote the *World Heritage Convention* (1972) in the Pacific Island region. Participants noted that it was essential that future nominations of properties for inclusion in the World Heritage List in the Pacific be prepared by communities, through Governments, to ensure the full agreement of communities in all issues relating to their land and traditions. It also stressed the importance of recognizing that cultural issues and values are important in both cultural and natural sites in the region³.

In 2003 the World Heritage Committee adopted the program “World Heritage Pacific 2009”. Although by 2003 membership of the World Heritage Convention had substantially increased with eleven Pacific Island nations being signatories to the Convention, implementation levels remained low, with few Pacific Island States having submitted Tentative Lists and, with the exception of East Rennell Island no nominations had been submitted. In 2004 expert representatives from Pacific Island states and territories met at the World Heritage Pacific 2009 Workshop at Tongariro, Aotearoa/New Zealand to develop an Action Plan to guide Pacific Island states and territories in the implementation of the World Heritage Convention over a 5 year period until 2009.

The Pacific 2009 Action Plan includes strategies which recognize that the Pacific Island states face a number of challenges in implementing the Convention. Pacific Island nations and territories generally have very small land areas and populations and their heritage agencies are small and have limited resources. Many communities in the region are relatively isolated and have poor communication infrastructure. The high level of traditional land tenure in the region means that extensive consultation is required prior to inclusion of a site on a country’s Tentative List. While this strengthens the protection of heritage places in the long term, it may substantially lengthen the time taken for Tentative Lists and nominations to be submitted.

The Action Plan seeks to address some of these issues through capacity building. A workshop for representatives of the West Polynesian nations of Samoa, the Kingdom of Tonga and Niue held in Apia, Samoa in early 2006 provided practical guidance in the identification of outstanding universal values for inclusion of sites on Tentative Lists and in the writing of nominations and management plans. This followed a regional meeting in Vanuatu in October 2005 to develop a Thematic Framework for World Cultural Heritage in the Pacific (discussed below).

Today in 2007, implementation of the *Convention* in the region has improved dramatically. Nine of the Pacific Island States Parties (including Aotearoa/New Zealand) have submitted Tentative Lists of potential World Heritage properties. Properties included on the Tentative Lists reflect both the regional identity and local diversity of Pacific Island communities.

Also identified in the *Pacific 2009 Action Plan* under Activity 2.5 - “Undertake thematic and comparative studies for cultural heritage values” - was the Sub-activity 2.5.1 to hold a workshop to:

- Gain a consensus from Pacific Island Countries (PICs) on appropriate regional themes for nomination of sites of cultural value;
- Agree on the methodologies to be used to undertake these studies;

³ UNESCO 1999 Report of the Second World Heritage Global Strategy Meeting for the Pacific Islands region, Port Villa, Vanuatu 24-27 August 1999.

- Identify those who will take responsibility for the studies;
- Undertake the studies.

A workshop specifically addressing this Activity took place in Port Vila, Vanuatu, in September 2005, where expert representatives of Pacific Island nations and territories met to identify regional themes for which Thematic Studies were needed to aid the identification of sites of potential outstanding universal value in the region and potential transnational serial site nominations. Participants at the Vanuatu meeting agreed on the following three Thematic Studies as priorities for the region:

1) Associative Cultural Landscapes of stories that explain the origin and development of social structures in the Pacific

All Pacific societies have traditions and stories which relate to discovery and/or origins. These can sometimes be related to particular historical figures who have achieved epic deeds in particular districts and seas. Traditions not only give accounts of where people originated, but also they show how particular individuals reformed and governed their societies in such ways that are recognizable today, through Pacific social structures and associated traditional ceremonies. The association of the landscape with these deeds and places creates associative cultural landscapes, which could have the potential to demonstrate outstanding universal value.

2) Cultural Landscapes related to cultivation in the Pacific

There are remarkable achievements of Pacific societies in adapting natural resources such as plant materials and the manipulation of environments to enable survival of human society in restrictive small areas. Not only were many tree crops adapted to island environment, but root crops were developed and used in highly varied and sometimes restricted land settings. This has resulted in cultural landscapes such as the irrigated Taro landscape, with remarkable achievements in using scarce fresh water resources that might be of outstanding universal value.

3) Lapita expansion

The settlement of the Pacific involved the settlement of one third of the surface of the globe. The ancestors of the modern Pacific peoples progressively invented and practiced remarkable ocean voyaging and navigation skills. These enabled the oldest Oceanians (over forty thousand years ago) to cross the water barriers between island south east Asia (Indonesia), west to New Guinea and then the Solomon Islands. The particular sub-theme listed here covers the Austronesian settlement of near Oceania and the discovery of western remote Oceania (the region from northern Papua New Guinea through the Solomons to New Caledonia, Fiji and West Polynesia, 3 500-2 900 B.P.).

Few Pacific Island States have inventories of their cultural heritage places and in particular the associative values of places. Where these have been, or are being developed, they are sometimes limited in scope and often reflect the interests of foreign researchers rather than being a systematic survey of places and their heritage values. Following the Vanuatu meeting it was recognised that this lack of data would limit the depth and usefulness of a desktop thematic study of sites focused on either theme 1) or 2) alone.

Along with this, it was recognised that there is often no clear distinction between places that could be considered under theme 1) or 2), both themes, along with many others, being reflected in the island landscapes and seascapes. This is especially true for organically evolved continuing cultural landscapes where communities maintain traditional social and cultural practices often interwoven with stories of origin.

Given these issues, it was decided that for an initial study of the cultural landscapes of the region it was most appropriate to take a broad approach, reviewing Pacific cultural landscapes in general rather than specific themes, in order to characterise the core elements and characteristics of cultural landscapes across the region and to identify gaps in our knowledge which may be prioritised for future more detailed studies.

Cultural landscapes are a specific type of property defined in Article 1 of the UNESCO *World Heritage Convention* (1972) as representing the “combined works of nature and of man”, being:

illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

Cultural landscapes have been identified in a number of forums and workshops in the Pacific as being a highly appropriate way to recognizing the unique heritage of the region, because they reflect the ways in which Pacific Island communities have interacted with the Oceanic environment through time. The maintenance of traditional knowledge, land tenure and land-use systems across much of the region is expressed in land and seascapes that speak of the inseparable relationship between Pacific Island people and their environments, their distinctive social and cultural systems, and their unique and shared histories.

Annex 3 of the *Operational Guidelines for the implementation of the World Heritage Convention* defines three types of cultural landscapes for consideration in World Heritage nominations:

(i) *A **clearly defined landscape designed and created** intentionally by man. This embraces garden and parkland landscapes constructed for aesthetic reasons which are often (but not always) associated with religious or other monumental buildings and ensembles.*

(ii) *The **organically evolved landscape**. This results from an initial social, economic, administrative and/or religious imperative and has developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub- types:*

*- A **relict (or fossil) landscape** is one in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are however, still visible in material form.*

*- A **continuing landscape** is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in*

which the evolutionary process is still in progress. At the same time, it exhibits significant material evidence of this evolution over time.

*(iii) The **associative cultural landscapes** are those cultural landscapes where the interaction between people and the landscape is strongly linked to ideas or beliefs.*

As with other rural areas of the world, the great majority of Pacific Island cultural landscapes belong to (ii) and (iii) although landscapes that could be considered under type (i), that is, “clearly defined landscape designed and created intentionally by man” are also present in the region, for example the 19th century Thurston Gardens in Suva, Fiji, or the many parks and gardens of New Zealand.

Overall landscapes of type (i) are small in number and, importantly in terms of this being an initial study of the cultural landscapes of the region, they are not representative of the societies and places of the Pacific Islands. Far more representative are the organically evolved and associative cultural landscapes as described in the previous section. These reflect traditional continuing land uses and social and spiritual relationships to landforms and seascapes of the region. For this reason, the present study considers only those cultural landscapes that fall within types (ii) and (iii). And for many properties these two types are both present as social and cultural associations and ways of managing the land are inextricably interlinked.

ICOMOS 2005 “Filling the Gaps - An Action Plan for the Future”

In 2005, ICOMOS published a report titled “*The World Heritage List: Filling the Gaps – An Action Plan for the Future*”. This review of cultural sites on the World Heritage List was undertaken by ICOMOS at the invitation of the World Heritage Committee in 2000, the objective being to analyse cultural sites inscribed on the World Heritage List and Tentative Lists using regional, chronological, geographical and thematic frameworks. The aim was to provide States Parties with a clear overview of the current representation of sites according to these categories, and likely trends in the short- to medium- term so as to identify the categories that are under-represented categories on the List.

The study and its findings have a number of implications for the present study of Pacific Island cultural landscapes.

The ICOMOS study was based on three complementary approaches to the analysis of the World Heritage List:

- Typological Framework Analysis
- Chronological-Regional Framework Analysis
- Thematic Framework Analysis

Although the study recognized that the cultural regions do not necessarily correspond to political boundaries and it is therefore not possible to aim for a “balance” in the World Heritage List at State Party or national level⁴, the large cultural regions used by UNESCO -

⁴ ICOMOS 2005 *The World Heritage List: Filling the Gaps – An Action Plan for the Future* Paris: ICOMOS, p.19.

Africa, the Arab States, Asia Pacific, Europe/North America and Latin America/Caribbean - were used as the units of analysis in the typological analysis.

Unfortunately, this limits the usefulness of the findings of this analysis in relation to sites in the Pacific Islands. The use of the cultural region “Asia Pacific” as a unit of analysis masks the extent to which the Pacific Islands are under-represented on the World Heritage List and submerges the unique cultures of the Pacific Islands within those of the much larger and more populous Asia.

Although 18% or 104 cultural sites on the World Heritage List are said to be in the “Asia Pacific” region, in reality, only one of these, Rapa Nui National Park on Easter Island is in a Pacific Island. However, this is not recognised in the regional breakdown of sites because Rapa Nui, as an External Territory of Chile, is therefore considered in the region of Latin America/Caribbean.

When the study was completed in 2004, very few Pacific Island States Parties had submitted their tentative lists. Of those that had, only the Fiji Islands had submitted a tentative list that included a cultural property (The Old Capital of Levuka) and a mixed property (Sigatoka Sand Dunes).

Despite this, several of the general findings of the typological analysis, especially in relation to gaps identified in the World Heritage and tentative lists have relevance for future World Heritage nominations from the Pacific Island states, namely:

- Agricultural landscapes relating to staple or other economic crops have few inscriptions. Sites or landscapes that reflect the unique agriculture and horticulture of the Pacific Islands are an important site type in the region.
- Traditional techniques for the production of crops are only represented by a handful of single inscriptions for rice (Philippines), coffee (Cuba), and tobacco (Cuba). There is as yet no representation of specific traditional production of crops such tuber or root crops or tree crops which form the basis of traditional Pacific Island horticulture.
- Traditional agricultural landscapes that illustrate earlier stages in farming practice or land tenure or adaptations to specific topographical and/or climatic constraints, including the garden agriculture of the islands of Oceania, are lacking.
- The sacred and/or symbolic significance of natural features such as mountains, volcanoes, forests, etc is acknowledged by only a few States Parties including Australia and New Zealand. Associative cultural landscapes are common throughout the Pacific region.

Analysis of the World Heritage List using a Chronological-Regional framework used “Australasia and Oceania” as a unit of analysis, Asia being considered as a separate category. Separating Oceania from Asia makes clear major differences in the representation on the World Heritage and Tentative Lists of sites in Oceania when compared to the other major cultural regions.

The findings of the Chronological-Regional analysis identified:

the region of Oceania and Australia has relatively few cultural Properties[...] In New Zealand, the mountain of Tongariro has been recognized as an associated cultural landscape[...]. However, in Melanesia and Micronesia no cultural properties have been inscribed so far⁵[...]. There are large parts of Asia and the Pacific, especially the Pacific Islands that are hardly represented on the List⁶.

The Chronological-Regional analysis attempts to identify significant cultures and civilisations that have emerged and developed in the different parts of the globe. In Asia, Africa, Europe and the Americas, the chronological framework developed in the study recognises that throughout history various “cultures”, “empires” or “civilisations” have existed. However, an equivalent chronological framework is not used in the analysis of sites from Australasia and the Pacific. This fails to recognize that there has been substantial change through time in the Indigenous cultures of Oceania and Australasia in their social formations and use of the landscape and its resources.

It is clear that for the World Heritage List to be more balanced and representative, the diversity and change through time in or evolution of the Pacific Island societies and their landscapes must be recognized.

The Thematic Framework analyses the representation of sites according to seven main themes, further defined in sub-themes. These are:

- Expressions of Society
- Creative Responses and Continuity (monuments, groups of buildings and sites)
- Spiritual responses (religions)
- Utilising natural resources
- Movement of peoples
- Developing technologies

Of these, the most common theme was found to be “creative response and continuity”, which refers to the categories of monuments, groups of buildings and sites, as defined by the *World Heritage Convention*.

The ICOMOS study also identified several fundamental issues underlying the lack of representation of regions such as the Pacific Islands on the World Heritage List that will need to be addressed to achieve a truly representative and balanced and credible List. In countries such as the Pacific Island States and Territories, the range and extent of cultural heritage is unknown and at best partially recorded. At present, there is no scientific documentation or inventories of cultural heritage places that can be used to identify cultural properties of outstanding universal value. Many Pacific Island States also lack legislation and policy for the protection of cultural heritage.

⁵ ICOMOS 2005 *The World Heritage List: Filling the Gaps – An Action Plan for the Future*, Paris: ICOMOS, p.69.

⁶ Ibid, p.71.

The incomplete register of cultural heritage in many regions of the world and the lack of an effective system of protection as requested by the *Operational Guidelines for the implementation of the World Heritage Convention* when a property is nominated for inscription, are two of the main reasons for the existing imbalance of the World Heritage List.⁷

Finally, the study found that in many regions of the world the gaps identified in the World Heritage List reflect the need for better international understanding of the cultural values of potential World Heritage properties that reflect very particular cultural responses to the environments of the under-represented areas.⁸

This is of particular relevance to the Pacific Islands where the organically evolved cultural landscapes – relic and continuing – are a response to the opportunities and constraints of the Oceanic environment from the time of initial human to the present.

Pacific Island Cultural Landscapes: making use of this study

Sites included in State Party tentative lists and nominated for inscription on the World Heritage List must be able to demonstrate that they are of Outstanding Universal Value, that is, they are of:

*cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.*⁹

In addition to this, the *Operational Guidelines for the implementation of the World Heritage Convention* state that cultural landscapes should be selected not only on the basis of their outstanding universal values but also

*their representivity in terms of a clearly defined geo-cultural region and for their capacity to illustrate the essential and distinct cultural elements of such regions.*¹⁰

In other words, the heritage values of cultural landscapes should be assessed as being representative of the geo-cultural region in which they are found. This recognises that because cultural landscapes are a reflection of the interaction between humans and their environments they are likely to have a shared character and to reflect social and cultural responses to the opportunities and constraints of the environments of a particular geo-cultural or bio-geographic region. For the Pacific Island states, the geo-cultural region is Oceania - a “continent of islands” that covers nearly a third of the Earth’s surface and from the perspectives of the environment and culture, is unlike any other geo-cultural region.

⁷ ICOMOS 2005 *The World Heritage List: Filling the Gaps – An Action Plan for the Future*, Paris: ICOMOS, p.13.

⁸ Ibid, p.108

⁹ UNESCO 2005 *Operational Guidelines for the Implementation of the World Heritage Convention*, Paris: UNESCO, Paragraph 49.

¹⁰ Ibid, Annex 3, Paragraph 7.

The study will contribute to the identification and recognition of Pacific Island cultural landscapes by:

- a) defining the geo-cultural region of the Pacific;
- b) reviewing the unique environments, cultures and histories of the region;
- c) illustrating through examples how these unique characteristics are expressed in the cultural landscapes of the region.

Cultural landscapes are at the interface between nature and culture, tangible and intangible heritage, biological and cultural diversity; they represent a tightly woven net of relationships that are the essence of culture and people's identity.¹¹

Within the World Heritage system, cultural landscapes are a category of cultural sites that not only celebrates and recognises the interaction of humans and the environment but provides an opportunity to recognise the unique imprint that a human society leaves in the landscape. Cultural landscapes reflect our social and economic systems and how these have changed over time.

Of critical concern in the analysis, significance assessment and management of cultural landscapes is their "living" character – whether they are continuing or relict cultural landscapes, all cultural landscapes are constantly changing. In continuing cultural landscapes this dynamic character is a crucial aspect of their significance, underpinned by the processes that give rise to their character in the present.

Organically evolved landscapes are primarily identified on the basis of land use. A particular type of land use activity is evident in human modification of the landscape – whether this is past land use in a relict landscape or current land use practices – traditional or modern - in a continuing cultural landscape. Land use practices are almost always specific to particular environments or environmental zones whether this be defined by geology such as mining landscape; by altitude, gradient or soil in agricultural landscapes; by the presence of natural resources such as water in a desert landscape; or by climatic conditions. A combination of these primarily natural characteristics in association with cultural factors such as land tenure systems, kin and social structures as well as factors such as proximity to settlements, transport or markets together elicit unique human responses to environments, creating the diversity of the world's cultural landscapes. The identification of the geographic extent of particular cultural landscapes and the recording of the tangible evidence relies on identifying all the factors that have combined to create a particular cultural and social interaction with the natural environment.

This study of cultural landscapes has several aims:

- To establish the basis for identification of the Pacific Islands as a distinct geo-cultural region for the purposes of World Heritage nominations;
- To provide an overview of the common elements and diversity of cultural landscapes within this geo-cultural region and provide a framework to begin to characterise and identify cultural landscapes in the Pacific Islands;

¹¹ Rössler, M. 2001. "World Heritage Cultural Landscapes in the Pacific Region" In: *World Heritage Cultural Landscapes: a global perspective* ICOMOS-UK, pp.38-45.

- To provide comparative data on cultural landscapes across the region to assist in the selection of sites for tentative lists and nominations;
- To provide comparative data to support the selection of Pacific Island cultural landscapes for nomination to the World Heritage List.

The study is introductory, a broad analysis of cultural landscapes based on published information, rather than a detailed assessment of individual cultural landscapes or potential nominations to the World Heritage List.

Although as cultural heritage properties cultural landscapes should be envisaged as a whole rather than as discrete sites or buildings, storied sacred or spiritual places, in describing a cultural landscape, in understanding the cultural meaning of the various tangible and intangible elements of the landscape, we need to divide it into component parts – the features that reflect various elements of the overall culture and social system.

All landscapes hold a cumulative record of human behaviour. It is the unique record of human behaviour, thought and action – social, cultural and economic – in the landscapes of the Pacific Islands that is the subject of this study.

Cultural landscapes are often large in scale and contain many different kinds of features and evidence. This means the recording process is long and complex requiring many different kinds of expertise to identify and understand all the elements of a landscape that contribute to the patterning we see in the present. For Pacific Island communities and governments seeking to identify and record their cultural landscapes and perhaps to include them on their Tentative Lists this study may provide a useful framework or model for the description and categorisation of elements of the landscape and the social and cultural system or systems which have created the cultural landscapes of the present.

PART 3: Thematic Essay: The Cultural Landscapes of the Pacific Islands

Anita Smith

THE PACIFIC ISLANDS: A GEO-CULTURAL REGION

In this study, the Pacific Island region is defined as the Island nations and territories of the Southwest and Eastern Pacific, from Papua New Guinea in the west to Rapa Nui (Easter Island) in the east, from Hawai'i and tiny far flung islands of Micronesia in the North to the sub-Antarctic islands of New Zealand in the south, the most southerly extent of Polynesian colonisation (Figure 3.1).

This area encompasses those countries commonly identified as the Pacific Island Nations¹² along with French Polynesia, New Caledonia and Wallis and Futuna which are an Overseas Land, Territorial Collectivity and Overseas Territory respectively of France; Hawai'i, American Samoa, Guam, the Northern Marianas Islands and several Central Pacific atolls which are a state, territories or in political union with the United States of America; the Pitcairn Islands which are overseas territories of the United Kingdom and Norfolk Island which is a territory of Australia.

The boundaries of the study area are both political and geographic but also cultural, although at different points in history and in reference to specific social and cultural characteristics, these boundaries, like all boundaries are to an extent artificial, fluid and generalising. Mainland Australia, while recognised as a Pacific Island nation has not been included because Australian indigenous people are on the whole quite cultural distinct from people of the Pacific Islands, having been essentially hunter-gatherers rather than the sedentary or semi-sedentary village-based communities of the Pacific Islands. A fundamental element of Pacific Island societies and which enabled their ancestors to successfully colonise the entire Pacific region is their horticultural subsistence base. This does not mean that there are no similar or shared social and cultural practices between indigenous Australia and Pacific Island communities, but especially in regard to the focus of this study, the cultural landscapes of much of the Australian continent and the small islands of the Pacific differ markedly.

The study does not explicitly include the western half of the island of New Guinea, the region known as Irian Jaya or West Papua, now part of Indonesia. However characteristics of the cultural landscapes of the Papuan peoples are recognised as being continuous across the border between Papua New Guinea and Indonesia.

The region has historically been divided into three main geo-cultural sub-regions, along linguistic and geographical lines – Melanesia, Polynesia and Micronesia (discussed further below). In this study, the three sub-regions have not been used as units of analysis as they are only of limited value in understanding the diversity of Pacific Island cultural landscapes.

¹² The 16 independent and self-governing states in the Pacific that are members of the Pacific Island Forum Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Republic of Marshall Islands, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu and Australia. See: <http://www.forumsec.org/pages.cfm/about-us/>

Central to the identification and characterisation of cultural landscapes is the interaction between humans and their environments and the patterns in the landscape that were and are being created as a consequence of this interaction. Within each sub-region, but in particular Melanesia, there is considerable diversity in the environment and with the exception of some of the environments on the continental islands of Melanesia specific kinds of island environment are not limited to one sub-region. It is also the case that traditional subsistence practices – terrestrial and marine are not limited to one sub-region. Throughout history, Pacific Islanders have voyaged across these sub-regional boundaries, interacting with communities elsewhere in the region.

In World Heritage terms, the area of concern for this study includes those Pacific Island nations and territories which constitute the most under-represented region on the World Heritage List. Reasons for this under-representation, especially in relation to lack of human and financial resources, have been discussed above.

There is a sense of shared regional identity in the Pacific Islands which is both a product of the shared histories Pacific societies and a response to the special character of the region. The region has one of the highest proportions of Indigenous peoples within national populations in any region of the world and has amongst the highest proportion of people living within traditional governance systems and amongst the highest proportion of land and sea remaining under traditional management of any region of the world.

Overall the region has very small populations but close and continuing genealogical connections between peoples across vast tracts of ocean coupled with an enormous wealth of cultural diversity within this commonality. Together these qualities underpin the uniqueness of cultural landscapes in the region.

The environments and sub-regions of the Pacific

The Pacific Ocean extends over a third of the earth's surface covering an area larger than all the land on Earth combined. The thousands of islands of the Pacific have a combined land area of less than 1,300,000 sq km of which roughly 85% is in the continental islands of New Guinea, New Zealand and the much smaller but still relatively large islands of Hawai'i.

The environments of the Pacific Islands are diverse in their geology, topography, ecology and rainfall. As a general rule, as one travels eastward from the Island Southeast Asia, the islands are generally smaller in size and the distances between them are greater and island biota become increasingly depauperate, that is, the diversity of plant and animal species diminishes markedly with distance eastward. Although prior to human colonization the pristine islands of Oceania were covered with vegetation, commonly home to large populations of birds and in some cases reptiles and were nesting grounds for turtles, all of which provided a rich food supply for the initial colonizers, the biodiversity of the islands, especially that of the small islands of Remote Oceania was extremely low.

The diversity of Pacific Island cultural landscapes is intimately linked to the geology of the region and resultant landforms of the Oceanic world.

The geography of the continental island of New Guinea is diverse and, in places, extremely rugged. A spine of mountains runs the length of the island, forming a populous highlands region composed of a long string of fertile valleys, each separated from its neighbours by

imposing mountains, the highest of which is Mount Wilhelm at around 5000 metres. The headwaters of several large rivers including the Sepik that flows along the northern lowlands rise in the valleys of the highlands. Dense rainforests cover much the lowland and some coastal areas.

In a line from the Marianas Islands to the north, immediately north of New Guinea and running along the north coast of New Britain, Bougainville and the Solomon Islands and south to Tonga and New Zealand the continental plates of the earth crust collide with the Pacific plate creating a subduction zone of great volcanic activity that is part of the “Pacific Rim of Fire”, an area of frequent earthquakes and volcanic eruptions that encircles the basin of the Pacific Ocean. Along the Rim of Fire, along which 90% of the world's earthquakes occur. As a consequence there are active volcanoes in every Island Melanesian archipelago except New Caledonia.

Paralleling the subduction zone and deep oceanic trenches around the Pacific basin is the “Andesite Line”, the most significant regional geologic distinction in the Pacific Ocean basin. It separates the basaltic volcanic rocks of the Central Pacific Basin from the partially submerged continental areas of more andesitic volcanic rock on its margins. Within the closed loop of the Andesite Line are most of the submerged volcanic mountains, and oceanic volcanic islands that characterise the landforms of Oceania. These are commonly identified as one being of three forms:

- *high islands*, the peaks of volcanoes have a narrow continuous coastal plain in turn surrounded by a fringing reef enclosing a shallow lagoon behind which steep hillsides rise to the centre of the island such as Rapa in French Polynesia or to the high central spine of the islands such as ‘Upolu and Savai’i in Samoa;
- *atolls* are a string of small, low lying islets that have formed on the fringing reef around the rim of a now submerged former volcano. The shape of the atoll reflects the original shape of the barrier reef. In the centre is the lagoon which may be as large as Kwajalein, the world’s largest atoll with lagoon area of 2,174 km² but only 16.4 km² combined landmass¹³ or small such as the numerous atolls of Ha’apai Group in Tonga;
- *makatea* or raised coral limestone islands, where tectonic activity has resulted in the slow uplifting of a formerly submerged volcano on which coral reef has been forming. These islands are often surrounded by steep limestone cliffs containing many caves such as the island of Niue or Mangaia in the Cook Islands.

Unlike the rest of the Pacific, Aotearoa/New Zealand has a complex geology and climate with a total land area is 270,535 sq km. The country consists of two large islands, North Island and South Island separated by the Cook Strait, and several smaller islands, the largest of which Stewart Island to the south of the South Island. The North Island is volcanically active with a central plateau while the South Island has high snow covered mountain peaks and glaciers in a range running almost 500km north-south along the Island. The mountain chains extending the length of both islands provide a barrier for the prevailing westerly winds and dividing the country into dramatically different climate regions.

The different geologies of the islands produce a range of landforms and soil and vegetation types each with their own characteristics hindering or encouraging various forms of

¹³ Spennemann, D. 2006. Freshwater Lens, settlement patterns, resources and connectivity in the Marshall Islands. *Transforming Cultures Journal* 1(2):4-63.

horticulture and other resource exploitation. Along with natural resources, availability of freshwater and extent of land suitable for gardens and settlements varies markedly on these different types of islands. Atolls have no permanent ground water while the valleys of high islands are deeply incised by the flow of freshwater rivers and streams. The different geology, hydrology, and ecosystems of these islands required different kinds of adaptations of the basic social and subsistence strategies brought by people who settled these island environments.

Rainfall regimes differ across the Pacific giving rise to different vegetation regimes, variously affecting the ability of people to survive on small and isolated pieces of land. There is little seasonality in rainfall and temperature near the Equator but as one moves south or north seasonality becomes quite marked with distinctive wet and dry seasons. On high volcanic islands rain falls orographically so that most of the rain falls on the windward (wet) sides of the islands windward (wet) rather than the leeward (dry) sides of the islands. This is important for agricultural production. The generalized annual rainfall in the tropical Pacific decreases from west to east. A distinct dry season occurs throughout central Polynesia and to an extent dictates the agricultural calendar.

The region is commonly divided into three geo-cultural sub-regions, Melanesia, Micronesia and Polynesia. Early European explorers made these distinctions based not only on geographical but cultural, anatomical and linguistic differences they perceived in the Pacific Island peoples. Polynesia, the Polynesian triangle with its points of Hawai'i in the north, Rapanui/Easter Island in the southeast and Aotearoa/New Zealand in the southwest encompasses most of the islands where a Polynesian language was spoken at the time of sustained early European contact from the late 18th century. A number of other Polynesian speaking communities are found on small offshore islands in the Island Melanesian chain and in Micronesia. These "Polynesian outliers" are discussed further below. The islands of Melanesia are generally larger, and includes the continental island of New Guinea, the arc of Island Melanesia stretching from the Bismarck Archipelago east of New Guinea, southeast along the chain of islands that make up the Solomon Islands, south to Vanuatu and to New Caledonia, made up of the large island of Grande Terre and smaller off-shore islands including the Loyalty Group and the Isle of Pines. This Island Melanesian arc follows roughly the line of convergence where the Indo-Australian plate meets the Pacific plate creating one of the most volcanically active regions of the world. The Fiji Islands lie at the eastern extreme of Melanesia. The Fiji Islands consist of 322 islands, of which 106 are inhabited, and 522 smaller islets. The two largest islands Viti Levu and Vanua Levu are mountainous, with peaks up to 1,300 metres covered with tropical forests. The most eastern group of Fiji Islands, the Lau Group, a widely dispersed chain of atolls and small islands in which the influence of Tonga to the east is strong in the language and social structures. The Kingdom of Tonga together with the Samoan archipelago of independent Samoa and the US Territory of American Samoa and the isolated raised coral limestone island of Niue are collectively known as West Polynesia. Tonga consists of several far flung island groups that include high volcanic islands, atolls and raised coral limestone island. The Samoan archipelago, 210 km north east of the northern group of the Tongan Islands and east of the Andesite Line is a chain of volcanic basalt high islands of truly Oceanic geology, stretching over 520 kilometres. West Polynesia was the furthest extent of human colonization eastward into the Pacific until around 1200 years ago.

To the east and south east of Samoa are the archipelagos East Polynesia – the low islands, the tiny low lying islands of the Northern Cook Islands and the larger group of the Southern Cook Islands located between the Society Islands of French Polynesia to the east and Tonga to the

west. In this group of nine islands, Rarotonga is the only high island the rest having been heavily eroded into hilly *makatea* or low coral islands and atolls. The Society Islands (Archipel de la Société) comprise two groups of islands, the Windward Islands (Îles du Vent) and the Leeward Islands (Îles Sous le Vent) with a total land area of 1,680 km². The group is a mix of mountainous islands and coral atolls spread over 720 km of the central South Pacific. The Tuamotu Archipelago to the east stretches over across 2,000 km and is also part of French Polynesia. The archipelago consists of 74 atolls, the world's largest cluster, three low coral islands, one raised coral island and one large island-barrier-reef complex. The entire archipelago has a total land area of 850 km². At the southern end of the archipelago is the remote Pitcairn Islands including the World Heritage property of Henderson Island. Directly north of the Tuamotos are the Marquesas Islands of French Polynesia. A group of predominantly rugged high islands, their mountains descending sharply to the sea and there are no protective fringing reefs. The Hawaiian Islands lie far to the north, an isolated chain of eight main islands, all of which are high islands, many surrounded by steep and rugged cliffs.

Micronesia, located predominantly north of the Equator in the north western tropical Pacific Ocean, contains 2373 islands, a few high volcanic, a mix of geology and raised limestone islands to hundreds of sand and rubble coral islets in low coral atolls. Guam is the largest at 544 sq km, some atolls are less than a sq km in total. The islands occupy an area larger than the United States of America but with a total land area of only approx. 2700 sq km.

Mariana Islands in the northwest run north south along the rim of fire and are related geologically to the uplift of the earth's continental crust at the point where the Pacific plate pushes under the Philippine Plate, a subduction zone. To the east and southeast, the Caroline islands include the high island of the Palau Archipelago and Yap of mixed geology. The eastern Carolines, across the Andesite Line are high islands – Chuuk, Pohnpei and Kosrae with raised limestone islands and atolls in between. The Marshalls are two archipelagos of low islands. Kiribati to the south is also low islands.

The geographic and geological distinctions between the three sub-regions are to some extent mirrored by linguistic differences, however in linguistic terms this is principally created by the unity of Polynesian languages in opposition to the immense diversity of languages spoken in Melanesia. Polynesian islands are essentially defined as such because the communities living there speak a Polynesian language, a sub-group of the family of Austronesian languages. In Melanesia over 1000 distinct languages are spoken, around 700 of these are non-Austronesian (Papuan) languages and about 400 Austronesian languages are spoken. This remarkable diversity of languages is paralleled by a similar diversity in cultural practices in contrast to relative homogeneity of the Polynesian languages and cultures.

This linguistic patterning contributes to and reflects the unique character of the Pacific region. On the one hand, Polynesia and parts of Micronesia is peopled by Polynesian speaking communities whose languages could be understood by communities living thousands of kilometres away in other island groups. On the other hand, Melanesia is the most linguistically diverse region of the world where people living in adjacent valleys speak completely different languages.

These geo-cultural sub-divisions continue to have some use when discussing regional similarities and differences, especially in the Polynesian islands, however many characteristics of Pacific Ocean peoples and places, their languages, their social structures, gardening and fishing – past and present – and their experience of colonialism are shared

across these boundaries. At the same time there is great diversity in cultural and social practices within each sub-region, and in particular, in Melanesia and Micronesia.

Colonization of the Pacific Islands and the development of Pacific Island societies

The human colonisation of the Pacific Islands is a unique episode and outstanding story in human history. Oceania – the “marine continent” - was the last great region of the world to be settled by humans, made possible only by extraordinary seafaring and navigational skills of the ancestors of Pacific Island peoples. The story of the colonization of the Pacific Islands is central to understanding the cultural landscapes of the region. It was sophisticated knowledge of the sea and navigation, coupled with a highly adaptable resource strategy, that enable people to colonise the region, the legacy of which is the visible in the patterned relationships of various features of islands and seas across the region.

Present evidence suggests colonization of Melanesia and Polynesia took place in three distinct phases, the earliest being the late Pleistocene. By at least 40,000 years ago human groups travelled to Australia and New Guinea, which together then formed the larger continent of Sahul, from Island South East Asia and within a few thousand years had systematically colonised almost every type of environment from Tasmania to the Solomon Islands.

The earliest archaeological evidence in the Bismarck Archipelago, from the islands of New Britain and New Ireland to the east of New Guinea has been dated to around 35 000 years ago.¹⁴ The evidence of this great time depth for human occupation of the islands comes from several open and cave sites in New Britain and New Ireland in the Bismarck Archipelago that contain outstanding archaeological sequences reflecting the human occupation interspersed with the evidence of major volcanic eruptions on New Britain. In the New Ireland sequences as early as 20 000 years ago there is evidence that people were return voyaging over 100km across the open sea from New Britain to New Ireland. This evidence comes in the form of obsidian or volcanic glass, sourced to the volcanoes of the Talasea Peninsula on New Britain. These people were most likely hunter-gatherers and from initial colonisation they began to modify the island landscapes. There is evidence of forest clearance in New Guinea from around 30 000 years ago and in New Ireland, evidence of the humanly introduced animal and food plant species between around 10-20,000 BP. Several species of Phalanger occur naturally in New Guinea but those found in the New Ireland sequences were not indigenous to the island and were intentionally translocated by people. Evidence of several fruit and nut tree species of Southeast Asian origin also appear in the archaeological record of the Bismarck Archipelago and Solomon Islands from around 12 – 14 000 years ago.¹⁵

In this earliest phase in the colonization of the Pacific Islands, humans settled New Guinea, the Bismarck Archipelago and Solomon Islands. This region, known as ***Near Oceania***, represents the limit of human colonization of Oceania until the late Holocene. Near Oceania and westward mainland to Southeast Asia presented an easy “voyaging corridor” for the colonizers of the region and their descendents in which seasonal and often sheltered conditions and the inter-visibility of islands enabled the use of simple water craft.

¹⁴ Allen, J.1997. The impact of Pleistocene Hunter Gatherers on the Ecosystems of Australia and Melanesia. In: P. Kirch and T. Hunt (eds). *Historical Ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven: Yale University Press, pp.23-50.

¹⁵ Latinis, D. Kyle. 2000. The development of subsistence system models for Island Southeast Asia and Near Oceania: the nature and role of arboriculture and arboreal-based economies. *World Archaeology* 32(1): 41–67.

The southern tip of the main Solomon Islands chain marks the divide between *Near Oceania* and *Remote Oceania*. This is a navigational and seafaring divide across which the islands are much further apart and much smaller in size. We know that colonisation of Remote Oceania was deliberate because people took with them the plants and other resources necessary to survive and establish settlements on newly discovered islands. It is likely that a period of exploration took place in which islands were discovered followed shortly thereafter by settlement. However the safe exploration and colonization of Remote Oceania required developments in seafaring that probably included the use of an outrigger or double hulled canoe skills and in navigational skills that permitted people to safely sail out of sight of land and did not take place until around 3500 years ago.¹⁶

This second phase in this eastward movement is known as the “Lapita colonization” of *Remote Oceania*. That is, colonization of the islands beyond the main southern Solomon Island chain now known as the Reef Santa Cruz Islands, Vanuatu, New Caledonia, Fiji, Tonga and Samoa by the makers of a distinctive decorated ceramic known as “Lapita” after the site in New Caledonia at which the pottery was first identified. Archaeological sites containing Lapita ceramics form an archaeological trail from the Bismarck Archipelago across the Near/Remote Oceania divide as far as Samoa. Nowhere else in the world has the initial settlement of so vast an area been identified by such a clear archaeological signature nor has it taken place so swiftly. Early dates from Lapita sites suggests that they all date to within a 500 year period, and within Remote Oceania to possibly 200 years or less. A large number of radiocarbon dates from Tonga indicate initial Lapita colonization of West Polynesia around 2800 years ago.¹⁷

Sites containing the decorated Lapita ceramics also contain large amounts of undecorated pottery, shell and shell artefacts including fish hooks, plant remains, bird, fish and other bone and stone artefacts. This suite of archaeological material is distinctive in both its composition and relative uniformity across the vast area in which the sites are found, giving rise to the interpretation of the sites as representing a distinct cultural group first appearing archaeologically in the Bismarcks but ultimately with an island south east Asian origin. Current archaeological evidence for the specific origin of Lapita ceramics and their makers is inconclusive. There are no known Lapita sites west of the Bismarck Archipelago and no known earlier sites in the Bismarck Archipelago that could be said to be precursors of Lapita. There is scant evidence for Lapita style decoration on earlier ceramics from island south east Asia. The Polynesian languages are a sub-group of the large family of Austronesian languages and it has been assumed that as the initial colonizers of Remote Oceania, the makers of Lapita ceramics were Austronesian speakers. However, the geographic origin of the ceramic technology and the decorative style of Lapita remains unclear.

The third phase of colonization, is that of Eastern Polynesia including Aotearoa/New Zealand and many remote outlying islands in the Pacific began more than a 1000 years after Lapita colonization. No navigational or seafaring skills beyond that required to colonise beyond Near Oceania were necessary for people to continue to explore and colonise east of Samoa, the eastern extent of Lapita colonization, and yet East Polynesia appears to have remained

¹⁶ Irwin, G. 1992. *The prehistoric exploration and colonization of the Pacific*. Cambridge: Cambridge University Press.

¹⁷ The archaeology and various interpretations of Lapita sites is not discussed in detail here. Numerous publications around the topic are available. Kirch, P.V. *The Lapita Peoples* (Cambridge Mass: Blackwell Publishers 1997) provides a general overview of evidence.

unknown until perhaps as recently as 1200 years ago.¹⁸ From around this time there was a major episode of exploration with people reaching Hawai'i, Rapa Nui (Easter Island) and Aotearoa/New Zealand within a few hundred years and certainly by 800 years ago. From an archaeological perspective this is not unlike Lapita in both the extent and speed with which this episode of colonization takes place and like Lapita, there is no apparent change in archaeological evidence immediately prior in the "homeland" region, in this case West Polynesia that would suggest a motive for this colonization event.¹⁹ The artefacts from early archaeological sites in East Polynesia reflect sophisticated fishing technologies and highly adaptable horticultural and other resource strategies that enabled people to successfully exploit environments from the equator to the sub-Antarctic.²⁰ Over the next few centuries people from Polynesia also voyaged westward, establishing a series of communities in offshore islands in Melanesia and Micronesia, known as the "Polynesian Outliers". There is now sufficient evidence to suggest that during the colonization period and perhaps continuing as late as the early period of sustained European contact in the 18th century, Polynesian peoples continued to voyage between the islands and island groups, certainly maintaining some interaction within the core of East Polynesia and possibly West Polynesia.

The colonization of the Micronesian Islands appears, at least in its initial phase to be quite distinct from that of the Melanesia and West Polynesia. Four phases of colonization have been identified the first being from the west, possibly the Philippines, to the Marianas Islands by 3500 year ago, pre-dating Lapita colonization of Remote Oceania but also associated with sites containing finely decorated ceramics. A second phase of colonization from the west is suggested for the colonization of the western Caroline Islands, Palau possibly by 3000 and Yap by 2000 years ago. The atolls of the eastern Caroline Islands and the Marshall Islands were likely colonized from Island Melanesia around 2000 years ago. The final fourth phase is the colonization of the "Polynesian Outliers" of Kapingamarangi and Nukuoro Atoll by Polynesian speaking people during the last millennium.²¹

By around 500 years ago almost every island in the Pacific Ocean had been visited by people. In the more that 30 000 years since people first crossed the sea barrier to New Ireland and the 2000 years since the makers of Lapita ceramics first ventured into Remote Oceania people had settled the islands and in many areas continued to voyage and interact with other island communities; populations had increased; tropical horticultural practices had been adapted to all but the most marginal of environments; distinctive and diverse systems of land tenure, settlement patterns and architecture had developed; and in some areas competition for resources had led to war. There is currently little evidence of how this regional diversity developed in the centuries immediately following the colonization but it is clear through archaeological evidence, oral histories and genealogies throughout the Pacific Islands that the millennium prior to European colonization, certainly from around 1000 years ago, was a period great social change that saw the development of the very distinctive Pacific Island societies and systems of traditional governance encountered by Europeans from the 16th century on.

¹⁸ Anderson, A. and Y. Sinoto. 2002. New radiocarbon ages of colonization sites in East Polynesia. *Asian Perspectives* 41(2):242-257.

¹⁹ Smith A. 2002. *An Archaeology of West Polynesian Prehistory* Canberra: Panadanus Books.

²⁰ Anderson, A. 2005. Subpolar settlement in South Polynesia. *Antiquity* 79:791-800.

²¹ For further detail see P. Rainbird. 2004. *The Archaeology of Micronesia* Cambridge: Cambridge University Press.

It is beyond the scope of this review to detail this evidence or the social change it implies although some of the tangible evidence is discussed later in this report. However, in general the last 1000 years period saw the development of more intensive systems of horticulture which in some island groups led to the creation of surplus on underpinned that development of highly stratified complex chiefdoms of the kind seen in the Hawai'i and the development of a chiefly aristocracy such as that of Tonga at European contact. Elsewhere, in East Polynesia, in Micronesia and Samoa the appearance of chiefly societies is associated with the appearance of an array of stone monuments. In Melanesia, where at least 1000 languages reflect the highly diverse cultures of the region, complex trade and exchange systems emerged that enabled social interaction and alliances across small and large distances and access of communities to the widely distributed resources of the large and diverse island environments.

European contact, the colonial era and decolonisation²²

European contact with Pacific Island societies was a process that began around 400 years ago with the Spanish in Micronesia in the early to mid 17th century and continued until the mid-20th century when Europeans first ventured into remote areas of the highlands of New Guinea. In some parts of the region such as the Solomon Islands and Vanuatu this contact was intermittent over a very long period of time, in other areas especially the Society Islands and Hawai'i trading and then whaling ships made regular visits from within a decade or two of initial European contact. In the late 18th and early 19th century Europeans and Americans exploited the natural resources of the region – pearl shell, sandalwood, beche-de-mer, whale oil, establishing small trading ports such as Levuka in Fiji, Kororareka (Russell) Aotearoa/New Zealand and Noumea in New Caledonia. This was often done through negotiated trading arrangements with local Indigenous leaders. Active colonization and annexation of Pacific Island archipelagos by European nations was, with the exception of the Spanish colonies in Micronesia, a relatively recent mid-late 19th century phenomenon, the French annexing New Caledonia, the Society Islands, Marquesas, Uvea and Futuna and along with the British, Vanuatu. The British also annexed Fiji Islands, Solomon Islands and several small islands including the Pitcairn Group. Germany had colonies in New Guinea and the Bismarck Archipelago and many small Micronesian Islands. Australian Territories included New Guinea and Norfolk Island and those of New Zealand included the Cook Islands and Samoa. Throughout the colonial period the Kingdom of Tonga retained Indigenous sovereignty.

The small size and remote location of some islands and island groups, the resistance of Indigenous peoples to foreign invaders and the presence of malaria in Melanesia limited substantial European settlement in some areas including much of Melanesia until the very late 19th and early 20th century. The exceptions were the larger islands - New Zealand and the Hawaiian Islands and from the 1860s, the penal settlement of New Caledonia – that became “settler” societies.

Over the late 19th and into the mid-20th century, the colonial rule of many of the colonies “changed hands” in some cases three or four times as a consequence of the outcomes of wars involving the colonial powers including the Spanish American Civil War, World War I and World War II. Notably, the United States, which had annexed the Hawaiian Islands and

²² This short summary should be read in conjunction with one or more of the authoritative histories of the Pacific Islands. These include: Campbell, I.C. 2003. *Worlds Apart: A History of the Pacific Islands*. Christchurch N.Z.: University of Canterbury Press; Fischer, S. 2002. *A history of the Pacific Islands*. New York: Palgrave.

American Samoa at the turn of the 20th century, after World War II added much of Micronesia, previously territories of Japan and before that Germany.

The nature and impact of early European contact varied across the region as did the patterns of European and American colonization. Although the extent of the impact especially on Indigenous population size has been much debated, there is no doubt that the introduction of foreign diseases including chickenpox, measles, the flu and venereal diseases had a disastrous impact in the Pacific Islands not just in the early contact period throughout the 19th century and early twentieth century. Only the relatively late epidemics such as the measles epidemic in Fiji in the 1870s and the “Spanish” flu epidemic in Samoa in 1918 are well documented although archaeological evidence for highly intensive systems of cultivation in places such as New Caledonia suggest much higher populations on the islands at or immediately prior to sustained European contact. This has been explained as indicative of a sudden and catastrophic decline in population accompanied by the abandonment of these agricultural systems following the introduction of European diseases.

The impacts of European and American colonisation on traditional society, governance and land tenure systems varied markedly across the region. In some islands, such as the atolls of Kiribati, much of the Solomon Islands, Papua New Guinea, and Vanuatu, traditional land tenure and land use practices continued through the colonial era and continue into the present alongside colonial plantation economies and extractive industries including mining and logging. In New Zealand, Hawai’i and New Caledonia the arrival of large numbers of settlers disrupted traditional land tenure and issues of traditional rights to land are still being resolved. In New Zealand the negotiation of traditional land rights is underpinned by the Treaty of Waitangi, signed in 1840 between Maori and the British Crown. In the Fiji Islands, traditional land tenure continued across most of the islands under British colonial policies aimed at protecting Indigenous people from the negative impacts of European colonisation witnessed elsewhere. However, the leasing of large areas of land for sugar plantations and the associated transport of indentured Indian labourers to work in the cane fields dramatically altered land use practices in the plantation areas along with the cultural, social and political profile of the nation as a whole.

In the early 19th century, European and American voyaging in the Pacific was stimulated by the particular resources the region offered – sandalwood, especially from the forests of Island Melanesia and Fiji, pearl shell from the atolls of Eastern Polynesia and whale oil. By 1825, there were 25 British ships and along with American and French ships hunting whale in the South Pacific.²³ In this early phase of contact with Pacific Island communities, the nature of the resources and their extraction did not require large scale permanent settlement of the islands, rather this period saw the establishment of a string of small trading ports across the region servicing the ships and their crews usually alongside, and in a negotiated arrangement with, an Indigenous village.

The opening up of the Pacific trade routes also brought Christian missionaries to the region, from as early as 1796, thirty years after the discovery of Tahiti by Wallis, the first missionaries landed on the island, sent by the London Missionary Society. The missionaries had a profound effect on Pacific Island cultures, who in many areas rapidly embraced Christianity. The construction of churches, mission schools and associated structures forever changed the cultural landscapes of Polynesia and much of Melanesia.

²³ Mawar, Granville (1999). *Ahab's Trade: The Saga of South Seas Whaling*. St. Martin's Press New York.

It was not until the late 19th century in association with the widespread and rapid annexation of Pacific Island territories by European and American powers that plantations were established in the Pacific Islands. Cotton, sugar and copra plantations were established commonly with non-local labour, either from elsewhere in the Pacific, from southern China or India. These plantation economies were limited in their success by the small size of many of the islands and the great distances from the markets for their produce and each followed a cycles of boom and bust largely as a result of changing political and economic circumstances elsewhere in the world.

With the exception of the Kingdom of Tonga, the Pacific Islands remained colonies or territories of foreign powers until after World War II. Western Samoa, a former New Zealand territory was the first Polynesian state to gain independence in 1962. Subsequently in 1970 Fiji and in 1978 the Solomon Islands ended 96 years and 80 years of British rule respectively. The Australian territory of Papua New Guinea gained independence in 1975. In 1970 Kiribati and in 1978 Tuvalu became sovereign states.

Prior to World War II the Japanese has been heavily fortified their Trust Territories in Micronesia, former German colonies mandated to the Japanese by the League of Nations at the end of World War I. At the end of World War II the United States armed forces occupied these territories and in Marshall Islands, increased their military presence and infrastructure with the coming of the “Cold War”. Through this presence in Micronesia the United States were able to carry out tests of nuclear weapons on the small remote atolls of the northern Marshall Islands, the best known of which is Bikini Atoll.

Between 1986 and 1993 the Micronesian territories of the United States - Palau, the Federated States of Micronesia and the Marshall Islands gained political independence although the region continues to be highly militarised. Guam and the northern Marianas Islands remain United States territories.

A number of other atolls, islands and island groups remain colonies, states or external territories of foreign nations, notably the French territories of French Polynesia including the Society Islands, Tuamotu Archipelago and the Marquesas Islands; New Caledonia; and Futuna/Uvea; American Samoa and the British territory of the Pitcairn Group. Norfolk Island continues to be an Australian territory but with some political autonomy.

Overall, in the independent Pacific Island nations around 90% of land continues to be held in traditional ownership the highest proportion in any geo-cultural region in the world. This has meant continuation of traditional systems of authority have continued in many areas alongside Western style democratic governments established during the decolonisation period. This has several implications for the present study:

- Most Pacific Islanders retain as strong traditional social, economic and cultural associations with the landscape;
- Oral traditions remain authoritative sources of information about place, the history, development and traditional use of the landscape;
- Intergenerational transfer of traditional stories associated with the origin of the land and sea and landscape features continues;
- The evolving cultural landscapes are continuing landscapes.

The “transported landscapes” of the Pacific

Almost all the islands of the Pacific are organically evolved cultural landscapes and/or associative cultural landscapes and very few of the island environments of Remote Oceania can be said to be “natural”, that is similar to those that existed prior to human colonization. With the exception of New Zealand, only a small number of the settled islands in Remote Oceania have areas of land where the diversity of indigenous plant and animal species survives relatively intact. Those islands where endemic plants and terrestrial fauna continue to flourish are at the margins of human settlement such as the World Heritage site of Henderson Island, one of the remote Pitcairn Group, a British Territory in southeast Polynesia. However, even here there is evidence of Polynesian visitation to the island. Recent archaeological evidence has demonstrated that Polynesian voyagers from New Zealand reached even the sub-Antarctic Auckland Islands around 600 years ago leaving behind traces of their brief visit over what appears to be several seasons in stone tools, shell fish and the bones of nesting birds and seals.²⁴

Small Pacific Island environments were and are fragile and their equilibrium was easily destabilized by the arrival of people. Despite this there are islands where endemic and migratory bird populations continue to flourish such as the Central Line Islands, low-lying, extremely remote, coral islands, atolls and reefs straddling the equator in the central Pacific Ocean and stretching over 2,000 km, and some of the northern atolls of the Marshall Islands in Micronesia such as Alinginae. The traditional owners of these islands continue to occasionally visit them to exploit the natural resources but this is not sufficient to have a negative impact in the islands ecosystems. This has not been the case for most of the islands of the Pacific. There is now widespread evidence of the extinction or extirpation bird species, especially ground dwelling species, and other terrestrial fauna that followed initial human settlement throughout Remote Oceania.²⁵

Given this, and the subsequent human modification of the landscape through activities including forest clearance for gardens, construction of permanent features, manipulation of fresh water resources and the resulting soil erosion, loss of soil fertility and biodiversity, as well as through the introduction of plant and animal species, most landscapes in the Pacific Islands are essentially “anthropogenic”. They have been created directly or indirectly through human action. We know through archaeological and genetic evidence that the iconic plant staples of the Pacific such as the coconut, banana, taro, yam, cassava, paw paw, breadfruit and sweet potato were all introduced to the islands by people as were the pig, dog and chicken which at various times and places have played central roles in the traditional economies of Pacific Island societies. The date at which various plant and animal species were first brought to the Pacific Islands is still contentious but current evidence indicates that these introductions all pre-date European contact in the region and with the exception of the sweet potato, the origin of which remains enigmatic, many would have been part of a suite of resources introduced as part of initial colonization strategy.

The planning and intent evident in the introduction of not just these plants and animals but methods and technologies of cultivation to generate food supply on small and isolated pieces of land has led to the term “**transported landscapes**” being used to describe traditional Pacific Island landscapes. As people moved out across the Ocean they transport with them the

²⁴ Anderson, A. 2005. Sub-polar Settlement in South Polynesia. *Antiquity* 79:791-800.

²⁵ Steadman, D. G. Pregill and D. Burley. 2002. Rapid prehistoric extinction of iguanas and birds in Polynesia. *Proceedings of the National Academy of Sciences* 99(6):3673-3677.

basic elements of a subsistence system that can be adapted to the various island environments they encountered. This strategy involved not only the transporting of cultigens and domesticated animals, but also agricultural practices and social systems that supported them, excellent navigational and seafaring skills, and knowledge of fishing and shell fishing that as a package maximized chances of survival in increasingly remote islands.

There is considerable evidence that this process of manipulating island ecosystems to suit human colonizers began in the region with the first movements of people from the continental island of New Guinea to the islands of the Bismarck Archipelago. *Phalangers*, a medium to large-sized arboreal marsupial, are among the earliest recorded terrestrial animal subsistence items in the region, appear in archaeological assemblages from cave sites in New Ireland around 10 - 20,000 BP and in the Solomon Islands by 6600 years ago. Several species of *Phalanger* occur naturally in New Guinea but not in the Bismarck Archipelago and those found in island areas were intentionally translocated to the islands presumably as a food source.²⁶ Various tree species including candlenut (*Aleurites moluccana*) and *Canarium* were also taken to the islands soon after initial human colonization. Obsidian or volcanic glass, used for making blades, was also be carried by people from New Britain to New Ireland from at least 20 000 years ago.²⁷ This process of modification of landscape through importing of plants and animals, the exploitation of local marine and terrestrial resources and the clearance of forests to establish gardens in the region continued through the early Holocene and mid-Holocene probably in association with the establishment of trade and exchange networks throughout the voyaging corridor of Island southeast Asia, New Guinea, the Bismarck Archipelago and the Solomon Islands.

Sites containing Lapita ceramics first appear throughout the Bismarck Archipelago around 3500 year ago and shortly thereafter across the Near Oceania/Remote Oceania divide in Eastern Melanesia, Fiji, Tonga and Samoa. In Remote Oceania the suites of artefacts, faunal and plant remains clearly demonstrate the process of island colonisation and settlement by transportation of the components of a resource strategy that would enable survival on previously uninhabited islands by targeting abundant indigenous marine and terrestrial fauna while clearing land and establishing gardens, in essence imposing a “transported landscape” on the island ecology. Along with a distinctive and flexible strategy for exploiting indigenous resources of newly discovered islands and establishing longer term resource base through introduced species, the initial colonizers of the region brought with them a social system visible archaeologically in the movement of materials over very long distance through voyaging, interaction and possibly exchange networks from the initial colonization of Remote Oceania. Two thousand years later, similar pattern of strategic, planned colonisation is seen in the earliest archaeological sites throughout East Polynesia.

The Pacific Island region and in particular Remote Oceania, appear to be one of very few places in the world where extant cultural landscapes can be interpreted in terms of initial human use of a geographic region or environment and changes through time in those founding societies from colonization until the present. The traditional landscapes of Remote Oceania reflect both the unique geography of the region and the movement of people and their ideas

²⁶ Allen, J. 1997. The impact of Pleistocene Hunter Gatherers on the Ecosystems of Australia and Melanesia. In: P. Kirch and T. Hunt (eds). *Historical Ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven: Yale University Press, pp.23-50.

²⁷ Allen, J. 1997. The impact of Pleistocene Hunter Gatherers on the Ecosystems of Australia and Melanesia. In: P. Kirch and T. Hunt (eds). *Historical Ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven: Yale University Press, pp.23-50.

and skills from Island Southeast Asia to Melanesia and beyond into the Oceanic world, process of colonization that began as early as 40,000 years ago and continued until the recent past. The concept of “**transported landscapes**” therefore provides a starting point from which to identify characteristics common to Pacific cultural landscapes and the interconnectedness of Pacific peoples. These “**transported landscapes**” are the essence of the organically evolved, continuing cultural landscapes of the Pacific Islands. They do however also provide a baseline from which to investigate how Pacific societies have diversified over time and how these differences are now reflected in the landscapes of the region.

Principle factors contributing to the diversity of cultural landscapes in the Pacific Islands

The definition of a cultural landscape in Article 1 of the World Heritage Convention specifically refers to the interaction of humans and their environments as underpinning the site type. The Oceanic environment presented a number of major challenges for human settlement which were successfully overcome through knowledge and skills in navigation and seafaring and exploitation of the rich marine resources and through modification of island ecosystems to provide a stable resource base. For these reasons, the Pacific Island landscapes are essentially complete cultural landscapes.

The above brief review of the history and geography of the Pacific Islands indicates a number of primary factors that contribute the common attributes of Pacific Island cultural landscapes in the present, as well as their regional diversity. The list of factors is not exhaustive and the relevance of particular factors in the development or evolution of a given landscape will vary but they should provide a basis for interpreting particular landscapes and identifying comparable landscapes in a regional context:

Natural:

- Island size and type
- Topography
- Volcanic activity – past and present
- Climate, especially temperature and rainfall
- Availability of freshwater

Pre-European contact:

- Relative distance from other islands
- Chronology of settlement
- Extent of pre-European forest clearance
- Horticultural staples and practices
- Traditional social organization, especially systems of governance
- Intensity of land use
- Extent and nature of inter-island interaction

Post-European contact:

- Chronology and extent of European contact
- Colonial economies, especially establishment of plantation economies

- Extent of continuation of traditional land tenure and land use practices
- Extent and character of non-Indigenous settlement
- Impact of World War II
- Post-colonial system of governance
- Development pressures, especially tourism along coastal areas

ORGANICALLY EVOLVED CULTURAL LANDSCAPES OF THE PACIFIC

To identify and characterise the diversity of Pacific Island cultural landscapes, this study begins from the perspective of recognising that many of the histories and social and cultural practices of the region are shared and have given rise to recognisably similar elements or common characteristics in the island landscapes. There is however great regional diversity in the expression of these traits or characteristics that reflects for example a specific local, island or an archipelago-wide, social practices or specific social responses to particular environmental constraints or opportunities...

The term “social landscape”²⁸ is often used to describe traditional Pacific Island landscapes in recognition that they are the result of actions planned, organized and carried out by local communities. The readily identifiable components of the organically evolving landscapes of the Pacific Islands such as gardens and villages reflect different aspects of an integrated cultural or social system.

By way of illustrating the interrelationships of people, their cultural and social practices and the landscape, and of intangible and tangible heritage, the following is a description of Tikopia, a small island in the Solomon Islands. The island is a “Polynesian Outlier”, that is, the island community speaks a Polynesian language and has identifiably Polynesian cultural practices, people probably having settled the island from Polynesia around 800 years ago.

Like the inhabitants of all Polynesian Islands, the Tikopia have a proper name for every minor garden or orchid division of the land, for house sites, for natural promontories, springs, swamps and features of the reef. They further divide the land into three major districts, which serve as useful points of reference. On the northwest is Faea, including the broad flat expanse of Rotoaia. This district is the domain of the Ariki Tafua, head of the Tafua clan, who also exercises considerable authority over all who reside on Faea lands. The western shore of Te Roto and the southern tombolo constitute Ravenga, the province of the three chiefs – the Ariki Kafika, Ariki Taumako, and Ariki Fangarere – which dwell there. Hemmed in along the northern lake shore is Uta, the sacred district, site of the clan known collectively as Nga Ariki. According to tradition, Nga Ariki took over the lands of Faea and Ravenga some generations ago from the autochthonous Nga Faea and Nga Ravenga. This eastern portion of Tikopia, consisting of the massive volcanic crater rim, is not inhabited, though most of it is extensively cultivated. Here are the Maunga Faea and Maunga Lasi, falling away to Tufenua, “back of the land”.

²⁸ Gosden, C. 1994. *Social Being and Time*. Oxford: Blackwell Publishers.

The settlements of the Tikopia are densely concentrated on coastal dunes along the northwestern and southern coasts. Conveniently situated at the interface of land and sea these settlements reflect the dual economic orientation of the Tikopia – landward production of staples and industrial needs, seaward for the extraction of animal protein from the fringing reef and the ocean beyond. Settlements are organized to a certain degree according to the social structure of the lineage and clan; each lineage or paito has its own named section of the village, with dwellings, cookhouse, and canoe shed. Linked to each house are also one or more tofi (orchards), distributed here and there over the lowlands and on the hilly portions of the island. Various house sites are loosely grouped into villages; the names of many begin with the term potu, followed by the name of a lineage or clan as in Potu so Taumako. A major feature of the settlement of Matautu, the seat of the Ariki Tafua is the Te Amrae Lasi, the great dart pitch where inter-district contests are held several times a year. The dart pitch consists of an elongate, excavated trough, about 10 metres wide and 255 metres long. Upright stone slabs at one end can attest to record throws of the javelin-like tika dart.

The lowlands of Rotaia and the volcanic hilly portions of the island are laid out in patchwork mosaics of orchards and larger open cultivated fields (vao). Major pathways (ara matua) closed in on both sides by hedges of croton and other plants connect the settlements of Faea and Ravenga. Smaller paths lead off in all directions to the individual garden plots and orchards.²⁹

Many other cultural landscapes in the Pacific could be similarly described, and individually are best understood as an integrated whole.

To provide a framework in which the similarity and diversity of Pacific cultural landscapes can be meaningfully identified and characterised, the following sections introduce key social and cultural practices that are primary factors influencing the creation and patterning of Pacific cultural landscapes in the past and present, namely, traditional horticulture and agriculture, systems of land tenure and associated settlements.

Pacific systems of horticulture - continuing cultural landscapes

All Pacific Island communities practiced, and most continue to practice, horticulture as the basis of their subsistence economy. In association with natural land features, horticultural practices account for much of the patterning evident in the region's organically evolved continuing cultural landscapes. In those places or islands where traditional horticulture is no longer the primary food source there are substantial relict landscapes that reflect pre-European horticulture and agriculture.

These horticultural systems and their expression in the landscape appear to be unique to the Pacific. Although, as discussed previously, the principle cultigens of Pacific horticulture were brought to the islands from elsewhere, once in the islands, horticultural practices were adapted and developed by people in response to the unique constraints of the Oceanic environment. As people voyaged eastward from island South East Asia colonizing first Melanesia, Micronesia and then the islands of Polynesia they encountered for the first time the Oceanic environments

²⁹ Kirch, P.V. and D. Yen. 1982. *Tikopia: The prehistory and ecology of a Polynesian Outlier*. Honolulu: Bernice P. Bishop Museum Bulletin 238, pp.22-24.

of atolls, high islands and upraised coral islands, each requiring different adaptations of the basic horticultural components. This has given rise to the diversity of horticultural landscapes across the region. The pattern of these adaptations is an inseparable element of the larger Pacific story of people successfully exploring and settling the Oceanic world.

When the makers of Lapita ceramics first cross the navigational and seafaring divide between the southern tip of the Solomon Islands and Northern Vanuatu, to colonise the islands of Eastern Melanesia, Fiji and Western Polynesia, they took with them a suite of cultigens and tree species and the knowledge of how to propagate and cultivate them and how to process them. These cultigens include edible tubers, nut and fruit species, medicinal plants along with those used in building, basketry and for clothing. These have been demonstrated to have diverse geographic origins, some such taro, yam and breadfruit reflecting earlier southeast Asian horticulture (discussed below) while others such as banana (*Australimusa sp*) originate in New Guinea and may reflect the independent development of horticulture or agriculture in Melanesia that has been demonstrated on archaeological evidence from the Kuk site in to date to at least 6000 B.P..³⁰

Most of the cultigens grown in the region prior to European contact continue to be cultivated in many parts of the Pacific today. These also include the South American sweet potato (*Ipomoea batatas*), which entered the Pacific Islands initially around 1000 years ago possibly through direct contact between communities in Eastern Polynesia and South America. Sweet potato is found in archaeological deposits in Hawai'i dated as early as 600 years ago, was the staple crop of Aotearoa/New Zealand at European contact, and entered the New Guinea Highlands only in the last few hundred years to become intensively cultivated throughout the region by the early 20th century.³¹

Although since European contact many further cultigens have been readily adopted into the gardens and traditional horticultural practices of Pacific Islanders the taro-yam complex of south east Asia continues to be the mainstay of most Pacific food production systems and underpins most traditional horticulture in the Pacific today.

The taro, *Colocasia esculenta*, is the most widespread of the aroids cultivated in Pacific Island gardens but others including *Alocasia macrorrhiza* and the giant swamp taro, *Cyrtosperma chamissonis* are also common. All are hydrophilic and have a natural habitat of damp areas near streams or in open swamps. This has meant that in many parts of the Pacific where such habitats are not found, the cultivation of taro required the development of water control systems.

In contrast to the taro, yams (*Disocorea spp.*) are tropophytic, that is, adapted to climatic conditions in which periods of heavy rainfall alternate with periods of drought, having a growing period in the wet season and but dormant in the dry. Yams are vines and usually grown on stakes. They do not thrive in the damp and cultivation requires simple drainage systems of simple mounds and/or ditches. The different habitat and characteristics of taro and

³⁰ Golson, J. 1997. From Horticulture to Agriculture in the New Guinea Highlands. A Case Study of People and their Environments. In: P.V. Kirch and T. L. Hunt (eds). *Historical ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven: Yale University Press.

³¹ Ballard, C. 2005. Still good to think with: the sweet potato in Oceania. In: C. Ballard, P. Brown, R.M. Bourke and T. Harwood (eds). *The Sweet Potato in Oceania: a reappraisal*. Ethnology Monographs 19, Oceania Monograph 56. pp.1-5.

yam have been characterised as a dichotomy of wet *versus* dry and irrigation *versus* dry swidden gardening.

Shifting or swidden cultivation is the most widespread type of cropping system throughout Oceania. In areas where dry swidden gardening is practiced the landscape reflects a patchwork of active swidden gardens, recently abandoned gardens in stages of re growth, and primary forest.

Swiddens may also contain a great variety of other cultigens including bananas and minor crops of sugar cane pineapple, turmeric, kava *etcetera*. In swiddens such as the gardens of the people of the Arawe Islands on the nearby southern coast of New Britain, PNG or those on Apolima Island in Samoa (Figure 3.2) the layout may appear chaotic and the planting random but there is an underlying order in the selection of plants, their location in the garden and in the spatial relationships within and between various plant species that is part of a traditional knowledge of best practice in horticulture.

In all Pacific Island communities where traditional horticultural practices continue there is an intense pride in gardening, in maintaining yields and the quality of produce and there is often a considerable attention paid to the aesthetics of gardens. There is various social patterning reflected in swidden clearance and cropping. Swiddens may be prepared and used by individual households or be large communal gardens involving entire villages in their preparation.

Dry swidden farming is practiced in a range of islands environments, even where water supply and soil fertility are not ideal such as the *makatea* or raised coral limestone islands and even atolls. In these more marginal environments, the density of planting and the variety of species within a single garden is likely to be less than for more fertile well watered areas. The location of gardens will be dictated by soil fertility. On *makatea* or raised coral islands such as Mangaia in the Southern Cook Islands, Tiga in the Loyalty Islands of New Caledonia and Niue, the deepest soils and swampy ground are found in the centre of the island.

Not all swidden gardens consist of multiple cultigens in a single garden. In some cases, especially on high islands, cultigens are planted at varying elevations that suit their best growing conditions. This pattern of cropping at distinct elevations can be clearly seen in the gardens surrounding Fangaloa Bay, on the Island of Upolu in Samoa where the land rises steeply behind a narrow coastal strip and patches of various individual crops including bananas and kava can be seen amongst the forest at intervals up the slope (Figure 3.3).

The cultivation of taro in particular is constrained by lack of water. In areas where environmental conditions limit or exclude taro cultivation in dry swidden gardens, specialised systems for accessing and controlling water supply are used.

The cultivation of taro ultimately takes place in a wet pondfield environment provided either by a naturally swampy site or through irrigation technology. Infrastructure often involves diversion dams, aqueducts and terracing using logs or stone-faced walls. Unlike terraces in other parts of the world which may be built to retard soil erosion or simply to provide level planting area, the irrigated taro terraces of the Pacific are designed to control the flow of water. This pondfield environment provides the ultimate medium for growth of taro. Water must never be allowed to stagnate, but must always flow slowly through the gardens . . . [this]

*regulates the temperature of the garden. Cooling the taro stalks and helping to prevent corm rot. The rich saturated soil layer is constantly nourished by the nutrients delivered in the flowing water. In low lying ground, saturated soils necessitate the construction of raised beds. These landforms may be found throughout Oceania from New Guinea to East Polynesia [and in Micronesia] and range in design from simple to elaborate.*³² (Figure 3.4).

On atolls, the very limited availability of freshwater coupled with the extremely calcareous soils make them unsuitable for swidden or pondfield cultivation of taro. However freshwater from rainfall seeps through the calcareous soils and accumulates in a small lens beneath the islets of atolls. By tapping into this lens aroids that tolerate water of relatively high salinity can be cultivated. Taro pits are dug in the centre of the islet and organic matter added as mulch and to maintain soil fertility so as to permit continuous cultivation in the calcareous soils. The giant swamp taro, (*Cyrtosperma chamissonis*), is the most common variety (Figure 3.5).

The large scale use of these taro pits in the past is known from archaeological evidence from the atoll of Ouvéa in Loyalty Islands of New Caledonia, where excavations have identified taro pits dug into dunes sometimes covering hectares spread over kilometres. These indicate the intensive occupation of the atoll prior to the arrival of Europeans.³³

The most intensive traditional monocropping in the Pacific region is found in the New Guinea Highlands. The highlands stretch across the central spine of Papua New Guinea and the West Papua (Irian Jaya) where:

*large populations and their numerous pigs live in open landscapes at locally high densities on the produce of orderly plantations dominated by a food plant of tropical American origin, the sweet potato (*Ipomoea batatas*).*³⁴

Current evidence suggests that tropical sweet potato appears in New Guinea only a few hundred years ago, causing major economic and social change in the Highlands, known as the “Sweet Potato Revolution”.³⁵ The pathway/s by which sweet potato reached New Guinea remains enigmatic but increasing evidence from East Polynesia suggests the introduction of Sweet Potato into the Pacific directly from the Americas prior to European contact in the region. Following introduction, sweet potato very rapidly became the staple food crop across the highlands due to its having a greater edaphic and /or altitudinal tolerances and for its marked attractiveness as pig food. Prior to this the yam (*Dioscorea sp.*), taro (*Colocasia esculenta*) and bananas (*Australimusa spp.*) had been the dominant food crops in the highlands.

Today sweet potato is intensively cultivated across many of Papua New Guinea’s environmental zones and in a range of climatic conditions, in particular rainfall. Cultivation is most intensive and widespread in the valleys of the Highlands region. Sweet potato is

³² Kulken, R. 2002. Intensive Agricultural Landscapes of Oceania. *Journal of Cultural Geography* 19(2):167.

³³ Sand, C. 1996. Recent developments in the study of New Caledonia’s prehistory. *Archaeology in Oceania* 31:41-71 p.60.

³⁴ Golson, J. 1997. From Horticulture to Agriculture in the New Guinea Highlands. A Case Study of People and their Environments. In: P.V. Kirch and T. L. Hunt (eds.) *Historical ecology in the Pacific Islands : prehistoric environmental and landscape change*. New Haven: Yale University Press. p.39.

³⁵ Ballard, C. et al. (ed) 2006. *The sweet potato in Oceania : a reappraisal* Pittsburgh, Pa.: University of Pittsburgh; Sydney : University of Sydney.

especially vulnerable to excessive soil moisture and is therefore not cultivated in swampy or damp conditions. To control moisture content in the soil sweet potato is commonly planted on sloping land or in mounds or in fields with drainage ditches. Larger mounds for planting, 1 – 4 metres across may also be constructed to cover organic matter to fertilize the soil and maintain productivity. Fallow periods or rotational planting with nitrogen rich crops may also be used to maintain fertility. In areas of high altitude severe frost may reduce or destroy the crop villages maintain social networks with people living at lower altitudes so that in the event of a devastating frost they can migrate to these areas until they have re-established their crop.³⁶

The intensive cultivation of sweet potato is intimately associated with pig husbandry which has to be supported by fodder from agriculture. Pigs are very important throughout the highlands where they are locally produced for trade, marriage and family payments, compensation and feasts. The date of the initial introduction of pig to the highlands is also unclear and archaeological evidence for pig earlier than 1000 years ago is sparse.

The introduction of pig therefore pre-dates that of sweet potato but the intensification of pig husbandry was made possible only with the fodder provided by sweet potato,

*[extending] the possibility for successful pig keeping and offered the opportunity for more men through the labour of their wives to enter previously restricted systems of exchange in which pigs were the central item.*³⁷

These exchange systems are continuing to evolve and to pattern the highland cultural landscapes.

Large scale monocropping is also practiced in the dry cultivation of large fields of yams (*Dioscorea* spp) on the plains and hillsides of Grand Terre, the large island of New Caledonia where it was and is the main part of the traditional Kanak diet “defining the horticultural and social calendar of traditional [Kanak] society”.³⁸

At European contact, intensive dry land cultivation of yams (*Dioscorea* spp.) also provided the staple food of the Tongan Islands where yams, which may be stored and surplus accumulated, were given as tribute to the Tu’i Tonga (Paramount Chief) on Tongatapu at the annual first fruits ceremony. The intensively cultivated flat landscape of Tongatapu was noted during Cook’s visit to the island in 1773 as having

*not an inch of waste ground, the roads occupied no more space than was absolutely necessary[...] in many fences were planted fruit trees and the cloth plant these served as support for them.*³⁹

Tongatapu continues to be a richly cultivated and orderly landscape of fields and orchards.

³⁶ Bourke, R.M. 2005. In: Ballard et al. *The Sweet Potato in Oceania: a reappraisal*. Ethnology Monographs 19, Oceania Monographs 56, pp.15-24.

³⁷ Golson, J. 1997. From Horticulture to Agriculture in the New Guinea Highlands. A Case Study of People and their Environments. In: P.V. Kirch and T. L. Hunt (eds). *Historical ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven : Yale University Press, p.49.

³⁸ Sand, C. 1996. Recent developments in the study of New Caledonia’s prehistory. *Archaeology in Oceania* 31:41-71 p.61.

³⁹ Beaglehole, J.C (ed) 1969. *The Journals of Captain James Cook on his voyages of discovery*. Cambridge: Cambridge University Press, Book II:252.

Change through time in horticultural systems – relict horticultural and agricultural cultural landscapes

Swidden gardens are considered the original form of horticulture in the Pacific Islands, the system of horticulture brought to the islands of Remote Oceania around 3000 years ago. However earliest evidence for horticulture or agriculture in the Pacific comes from the Kuk Swamp archaeological sites in the Upper Whagi Valley of the highlands of Papua New Guinea.⁴⁰ The evidence from Kuk Swamp and elsewhere in the highlands indicates that after the last glacial maximum climatic amelioration had proceeded enough by 9000 years ago for an early form of horticulture to move up from the lower altitudes to the highlands.⁴¹ The Kuk Swamp archaeological evidence indicates that people were using ditches to drain the swamp, presumably for cultivating tuber species, as early as 7000 years ago. This evidence demonstrates that New Guinea was one of the few places in the world where early and independent agriculture developed.

Although dry swidden farming and small scale taro pond construction continue to be the most common traditional horticultural practices in the Pacific today, the continuation of these practices belies changes in horticultural practices in the past, visible in large scale landscape modifications in the relict cultural landscapes of a number of Pacific Islands.

Over time, in some islands horticultural practices became more complex and labor intensive with the development of water control systems or irrigation and intensive dry field cropping systems. The explanation for this *intensification* of food production is twofold, that it reflects a response to particular environmental conditions and/or increasing island populations following settlement and associated environmental degradation and diminishing of soil fertility. Archaeological evidence associated with intensification of food production includes terracing, canals, or other forms of water control in several islands and archipelagos.⁴² Many such systems were in operation at European contact.

In Fiji the largest set of agricultural terraces was built along the contours of open hillsides in Nakauvadra, in the north of the main island of Viti Levu in the early 19th century are a sophisticated design involving canals and aqueducts. Elsewhere in Fiji on the island of Kadavu a small number of terraces are still in use and provide a rare opportunity to examine their formation and maintenance.⁴³

The district of Rivitaki is located along the south coast of western Kadavu. The village proper is known as Namanusa, but it is locally referred to by the district name and Namanusa villagers are known as kai Ravitaki. The village is situated directly on the water's edge along the western shores of Yauravu Bay which is part of a collapsed caldera of Votuvotu volcano. Nearby are shallow mangrove flats. Dryland gardens in various stages of the swidden cycle are evident on cleared slopes to nearly the top of the ridgeline that forms the district's northern boundary. Irrigated taro terraces are found in several locations: small family gardens sited

⁴⁰ Papua New Guinea's Tentative List. Nomination submitted to the World Heritage Centre in January 2006.

⁴¹ Golson, J. 1997. From Horticulture to Agriculture in the New Guinea Highlands. A Case Study of People and their Environments. In: P.V. Kirch and T. L. Hunt (eds). *Historical ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven: Yale University Press, p.40.

⁴² Kirch and Lepofsky 1993. Polynesian irrigation: archaeological and linguistic evidence for origins and development. *Asian Perspectives* 32:183-204.

⁴³ This landscape, its maintenance and planting cycle is described in excellent detail by Robert Kulken 2002. Intensive Agricultural Landscapes of Oceania. *Journal of Cultural Geography*, 19(2):161-195.

*here and there along the streams and the large village owned system that is situated behind the school buildings near the confluence of the Nabaka and Nacoroga Creeks. As elsewhere in pre-colonial Fiji, food gardens would have been located in close proximity to defensible and often fortified habitation areas and the village terrace system probably dates to this time. Informants believe these irrigated taro fields are at least a hundred years old. The land where these gardens are located was once under the ownership of a single mataqali (extended kin group). Following the 1874 Cession to Great Britain this land was formally presented by the mataqali to the whole village.*⁴⁴

Captain Vancouver with the *Discovery* visited Hawai'i in 1792 and described the O'ahu landscape:

*The whole [valley] was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to supply the most distant fields at pleasure, and the soil seems to repay the labour and industry of these people by the luxuriance of its production.*⁴⁵

In the well-watered valleys of Hawai'i intensification took the form of increasingly complex pond systems for taro cultivation. On the drier leeward coasts intensification involved the conversion of swidden into permanent field systems with stone field boundaries for yam and sweet potato.⁴⁶ These relict field systems are clearly visible in the landscape of Kohala on the Island of Hawai'i (Figure 3.6).

Polynesian agricultural intensification, especially in East Polynesia, has been associated with the increasing social complexity in classic anthropological models explaining the rise of hierarchical societies and chiefdoms such that agricultural intensification and the production of surplus has been considered a prerequisite to supporting chiefly societies.⁴⁷ However the relict landscapes of some islands in Melanesia, where societies at least in the ethnographic period have not been considered by anthropologists to be hierarchical,⁴⁸ also bear testimony to the past investment of much time by organized labour in large scale horticultural production.

*[In New Caledonia] 3000 years of pre-European Oceanian populations modelled and shaped the very depths of inhabitable valleys, scattering house mounds along the ridges and petroglyph sites beside the creeks, taro pond fields as far as the eye can see across the valleys as well as frequently renewed occupancy along the beaches.*⁴⁹

The progressive colonization of ecological zones on Le Grande Terre, New Caledonia's large island, suggest rapid population increase and need to utilize more marginal land to support the population and, in response, the development of intensive modes of agriculture using terraced taro ponds and irrigation (Figure 3.7). These very large-scale relict landscapes were

⁴⁴ Robert Kulken 2002. Intensive Agricultural Landscapes of Oceania. *Journal of Cultural Geography* 19(2):161-195.

⁴⁵ Quoted in Kirch 1994. *Wet and Dry: Irrigation and Agricultural Intensification in Polynesia*. Chicago: University of Chicago Press, p.2.

⁴⁶ Ibid.

⁴⁷ Kirch, P.V. 1984 *The Evolution of the Polynesian Chiefdoms*. Cambridge: Cambridge University Press.

⁴⁸ Sand 2002. Melanesian Tribes vs. Polynesian Chiefdoms: Recent Archaeological Assessment of a Classic Model of Sociopolitical Types in Oceania. *Asian Perspectives*, 41(2):285-29.

⁴⁹ Sand 1996. Recent developments in the study of New Caledonia's prehistory. *Archaeology in Oceania*. 31:45-71.

abandoned by the early ethnographic period. In the mid-19th century people were living in smaller scale, household or village based agricultural systems, much as we see in Island Melanesia today. These relict landscapes therefore indicate that in the past agricultural practices on Le Grande Terre were substantially more intensive and suggestive of higher populations and a very different form of social organization from that recorded in historical accounts. One explanation of the apparent disparity between the evidence in the landscape of New Caledonia and that of early ethnographies is that the introduction of European diseases at first contact, substantially early than the ethnographic accounts, was catastrophic and resulting in a massive population decline and associated cessation of intensive agricultural practices by the ethnographic period.⁵⁰

At Anaura Bay on the North Island of Aotearoa/New Zealand, Captain James Cook in 1769 described

*large plantations, several acres in extent, of sweet potatoes, yams and taro with gourds planted both in the cultivation and around the houses.*⁵¹

Joseph Banks reported that these gardens ranged from 1–2 acres to 8–10 acres. In the Bay of Islands, a garden of 40-50 acres was seen planted around a village on Moturua Island.⁵²

The Māori horticultural tradition saw the acclimatization of five tropical species to temperate climatic conditions, expansion of the genetic diversity of the original planting material by selection of large area of gardens soils to improve yields, selection for the fastest maturing sweet potato varieties known, an attainment of high standards of garden care in keeping with the horticulturalist's spiritual and aesthetic concerns for their plants.⁵³ During the early 19th Māori cultivators adopted a number of introduced cultigens including the *Solanum* potato, maize, watermelon, pumpkins and squash, new varieties of taro and various leafy vegetables such as cabbage. In many districts this adoption preceded direct contact with Europeans and the cultigens were classified and cultivated according to traditional techniques and classificatory systems.

A great deal of evidence for the intensive cultivation of sweet potato or *kumara* can be seen in the landscapes of Aotearoa (Figure 3.8) especially in the form of *kumara* storage pits. As elsewhere in Polynesia this pattern of intensive land use is associated with a rapidly increasing population and resource stress caused by environmental degradation. In association with the evidence of intensive horticulture, Māori defensive systems known as *pā*, pattern the landscape and attest to the competition for resources.

The main archaeological features associated with traditional Māori horticulture evident in the Aotearoa/New Zealand landscape are:

- Stone structures, where surface stone has been used to construct rows, alignments, mounds and heaps for cultivation of sweet potato and other cultigens;
- Ditches and channels, both as shallow parallel lines on hill slopes and as regular series of interconnecting ditches or channels in swampy areas;

⁵⁰ Ibid.

⁵¹ Leach, H. 1999. Intensification in the Pacific. *Current Anthropology* 40: 323-324. p.138

⁵² Salmund, A. 1991. *Two worlds. First meetings between Maori and Europeans 1642-1772*. Viking, Auckland. pp. 164, 230.

⁵³ Ibid 143.

- Borrow pits, where coarse sand or gravel has been removed for inclusion in nearby gardens;
- Garden soils that have had other materials such as sand, gravel or shell added, or where the natural soil profile has been altered through mixing or artificial deepening;
- Other stone structures, such as stone-faced terraces, which were often terraces specifically constructed as gardens to retain soil on steep slopes or where soils were thin;
- Taro locations where wild remnant populations exist.⁵⁴

Arboriculture in the Pacific Islands

Perennial arboriculture (the practice of cultivating wild and/or domesticated arboreal species) was and is an essential component of Pacific Island food production and many varieties of productive tree species are found throughout the region, in villages, gardens and in the forest. Many, like the cultigens discussed above, were introduced by the first humans to colonise the region and they include important food species such as the breadfruit (*Artocarpus altilis*), tahitian chestnut (*Inocarpus sp.*) and *Canarium spp.*, species with multiple uses such as the pandanas, both a building material and food and especially important as an emergency food.

There is now considerable evidence in New Oceania (New Guinea and the Solomon Islands) of the transfer of a number of these species during the Late Pleistocene and early Holocene. *Aleurites moluccana* (candlenut), a useful illuminant and minor food item, appears around 13,000 B.P. *Canarium spp.*, an important storable food item high in calories, fat and protein, appears at 14,000 B.P. in New Guinea, 12,000 B.P. in the Admiralty Islands, *Pandanus*, also an important food item, appears about 12,000 B.P. in New Guinea. *Alocasia* and possibly *Colocasia* residues appear around 28,000 B.P. and 9,000 B.P. in Near Oceania and may be related to arboreal-based economies as they are often cultivated in forest understory and forest gap locations.⁵⁵

Most productive and famous of the tree species are the coconut (*Cocos sp.*), the fruit of which is a drink and food staple and the leaves are woven into baskets and thatch, and the breadfruit (*Artocarpus altilis*) (Figure 3.9) cultivated throughout the Pacific and intensively in the Marquesas Islands, East Polynesia, where in pre-European times breadfruit supported large populations through the fermentation and storage of breadfruit paste in large underground silos.

Land tenure and settlement patterns

Like the traditional systems of horticulture, unique patterns of settlement – past and present - characterise the cultural landscapes of the Pacific Islands. Settlement patterns are at the heart of the social landscape and they reflect the interaction between people and their environment in both self-evident and unexpected ways.

A unique and defining element of the Pacific Island region is the high percentage of land that continues to be held in traditional ownership. The Pacific Island land tenure systems are intimately tied to traditional systems of governance and social structures which in turn are

⁵⁴ Furey, Louise 2006. *Maori Gardening. An archaeological perspective*. Wellington: Science & Technical Publishing Department of Conservation. p.23.

⁵⁵ Latinis, D. Kyle. 2000. The development of subsistence system models for Island Southeast Asia and Near Oceania: the nature and role of arboriculture and arboreal-based economies. *World Archaeology* 32(1): 41–67.

reflected in the ways in which people organize themselves in the landscape. Traditional land tenure and governance systems in the region have been the subject of much research and much debate, especially in relation to whether they are a hindrance to economic development or an asset in underpinning traditional subsistence economies. From a cultural heritage perspective, they are an inseparable component of many Pacific Island cultures and their traditional knowledge, customs and language. For example, as is common in the region, the Cook Island word *vaka* means both a social and a territorial unit, in the latter sense referring to the area or district inhabited by the tribe.⁵⁶ In terms of tangible heritage, land tenure systems have created the patterning of features – structures, fences, roadways, gardens, burial places – within the cultural landscape and any interpretation of the organically evolved relict cultural landscapes of the region will necessarily include consideration of local land tenure and governance systems.

The description of the island of Tikopia (above) provides an excellent example of the interrelationships between traditional systems of governance, traditional land tenure, the social structure in which the family, clan or village is the core economic unit and the physical landscape of a small Pacific Island. All features or elements of the Tikopian landscape are named and the land is divided into districts along clan lines and each district has one or more *Ariki* (chief or head of a clan). The settlements of the Tikopia are densely concentrated on coastal dunes along the northwestern and southern coasts, described as “conveniently situated at the interface of land and sea these settlements reflect the dual economic orientation of the Tikopia”. Settlements are organized according to the social structure of the lineage and clan, each with its own named section of the village, with dwellings, cookhouse, and canoe shed. Various house sites are loosely grouped into villages; the names of many begin with the term *potu*, followed by the name of a lineage or clan.⁵⁷

Systems of land tenure in the Pacific are often referred to as traditional. However, there has been substantial change in these systems throughout the pre-European history of the region and under European colonial rule. They are perhaps better described as indigenous systems of land tenure. To varying degrees, everywhere in the Pacific there is now a dual system in which the traditional communally-oriented system persists alongside a western individually-inclined system especially in the urban and commercial farming areas.⁵⁸ In many Pacific nations indigenous systems of land tenure were codified under colonial rule through administrative authorities such as the Land Court in the Cook Islands or the Native Land Commissions in Fiji, through the consolidation of the hierarchical social structures and the power of the chiefs such as took place in the Marshall Islands, Micronesia under the German colonial administration or simply through the introduction of a cash economy. Despite this, indigenous land tenure systems exist throughout the region, and particularly in Melanesia, and can be seen as a continuously evolving from the pre-colonial era to the present.

⁵⁶ Crocombe R. 1961. Land Tenure in the Cook Islands. Unpublished PhD thesis. Canberra: Australian National University.

⁵⁷ Kirch, P.V. and D. Yen 1982. *Tikopia: The prehistory and ecology of a Polynesian Outlier*. Honolulu: Bernice P. Bishop Museum Bulletin 238.

⁵⁸ Mele, E. I. Rakai, C. Ezigbalike and I. P. Williamson 1995 Traditional Land Tenure Issues for LIS in Fiji *Survey Review* 33(258): 247-262.

There are a number of shared characteristics in indigenous Pacific systems of land tenure, especially amongst Polynesian peoples, and region wide in the social or kin systems that enable access of individual families or clans to communally owned land for gardening and other resources. However, these are highly diverse systems not only because they reflect the diversity of Pacific Island cultures and social responses to the Oceanic environment but also the various impacts of European colonization on islands and island groups and the different local and regional responses to these impacts.

There is a wealth of oral tradition and historical documentation including records of the missionaries, reports, diaries and publications of naval officers, traders and travellers and records of the colonial governments that are useful in reconstructing the pre-colonial land tenure systems. However the landscape itself provides the tangible heritage of these systems and their substantial change through time from initial colonization of the islands until the present.

Some characteristics of Pacific Island settlement patterns appear to have remained constant over a long period of time, but on the whole there has been time substantial change through time in the number, location, size and layout of settlements known through oral traditions and visible in the archaeological record of the region. The reasons behind these changes are probably many and varied but they have been attributed to population increase, war, the influence or the arrival of people from elsewhere and environmental changes including changes in weather patterns and rising sea levels. In a number of islands this has left a distinctive pattern of archaeological sites and structures in the landscape – old village sites, stone and earth monuments and fortifications. In some places triggers for change are unknown and may simply reflect the local evolution of social structures and practices over a long period of time especially in Melanesia given the antiquity of human occupation in the region.

As discussed previously there was a major change in the archaeological record of Island Melanesia around 3 500 years ago with the appearance of the Lapita ceramics in the Bismarck Archipelago. Sites containing Lapita ceramics not only have distinctive artefacts but they are consistently found in similar locales. In the Bismarck Archipelago Lapita sites are found on the coast and on small offshore islands. No Lapita sites have been located in inland locations. In the islands of the Reef Santa Cruz Islands, Vanuatu, New Caledonia, Fiji, Tonga and Samoa where Lapita sites represent the initial colonization of Remote Oceania sites containing decorated Lapita ceramics are almost exclusively found on former beaches, commonly on small offshore islands and often opposite a break in the reef or in association with another landscape feature that permitted easy access to and from the open sea. This pattern along with the artefactual assemblages suggests a mobile seafaring population, adapted to the marine environment, using easily exploited natural resources and who maintained social networks over long distances between islands and island groups.

When the first people reached an island, it was probably covered in dense vegetation which until clearing and the establishment of swidden gardens would have limited settlement away from the coast. In Tonga people continued to make ceramics until around 1500 years ago or perhaps more recently and the ceramic sites there provide an archaeological record of the gradual increase in the number of sites and presumably people and gradual movement of people inland from the coast, possibly reflecting the establishment of, and increasing reliance on gardens associated with a more sedentary lifestyle.⁵⁹ A similar pattern of an increasing

⁵⁹ Burley, D. 1999. Tongan archaeology and the Tongan past 2850-150 BP. *Journal of World Prehistory* 12(3):337-92.

density of sites over and the movement of people has been noted on other islands where Lapita represents initial colonisation and following the much more recent colonisation of East Polynesia.

Over time the distinctive land tenure and social systems of the Pacific developed, however, with the exception of the highly visible sites containing ceramics, archaeological evidence identifying the development of village structures and settlement patterns is very limited until the last thousand years of history in the region during which time a range of new and distinctive structures appear across the region, some of which take on a monumental form. These are discussed in more detail below.

The Pacific land tenure systems provided families directly or, in the larger islands of Melanesia indirectly through exchange systems, with access to the different resources found in the various ecosystems of the islands. In the islands of remote Oceania in particular but also in the smaller islands of near Oceania, the patterned distribution of natural resources is reflected in the social landscape of land tenure units. This is clearly seen in the high islands and *makatea* or raised coral limestone islands of Polynesia and in the atolls of Micronesia.

The settlement pattern of Rarotonga in the Cook Islands is typical of Polynesian high islands characterized by deeply incised valleys and a narrow coastal plain a fringing reef and lagoon.

The tapere system of landholding develops out of the concentric resource pattern. Tapere are radial land units, centred on the inland valleys, each containing a mountain, coastal plain, lagoon and reef resources. But the tapere system is as much culturally constructed as it is environmentally conditioned. The tapere was the home of the matakeinanga, the corporate land holding community group. At the core of the matakeinanga was the ngati, or local descent group, the central political unit. The (usually) male member of the ngati, the man genealogically closest to the founding ancestor was the mata'iapo, the chief.⁶⁰

This radial pattern of landscape segments enables each family unit to have access to the various resources offered by each environmental zone. This is a pattern repeated throughout the high islands of Polynesia.

The *makatea* or raised coral limestone islands such as Niue and Ma'auke and Mangaia in the Cook Islands also have a concentric settlement pattern dictated by resource zones. In these islands an elevated coral limestone ring (*makatea*), the edge of the former lagoon, forms an outer circle of relatively infertile land and very shallow soils while the gardening lands are all located inland. Here the soils fed by radial stream drainage and swampy areas for taro cultivation in the low lying areas at the base of the inland edge of the elevated coral limestone escarpment. Like the Polynesian high islands, unit of land holdings are segments running from the centre of the island to the coast, containing each major resource zone. Old village sites tended to be located inland at the inner edge of the makatea close to gardens. On Ma'auke, paved tracks, of coral limestone slabs were laid across the often sharp and jagged *makatea* in the pre- or early-European contact period allowing easy access from the inland to the coast. Many are in use today and are periodically maintained.

⁶⁰ Campbell, M. 2006. Memory and monumentality in the Rarotongan landscape. *Antiquity* 80, p.103.

*The status of paved tracks as communal property is reinforced by oral traditions which refer to their being constructed [...] to provide warning to the community in case of attack. This was done by positioning paving-stones so that they would rock when trodden on and emit a hollow ringing sound.*⁶¹

East Rennell, in the Solomon Islands is also a *makatea* island inscribed on the World Heritage List on natural values in 1998. Rather than gardens in the centre of the island, there is Lake Tegano, the largest lake in the insular Pacific. The island's four villages are clustered around the western end of the lake but in the past were more dispersed and associated directly with land tenure units which continue to be identified in a number of ways, through trees, ridge lines, special stones or rocks and by tracks.

A patterned relationship of resources to land tenure units is also evident on atolls. Continuing human settlement on atolls is dependent on the presence of potable fresh water and is constantly threatened by inundation of the low-lying islands. The small, flat and low lying islets around the edge of the lagoon offer little variation in environmental zones but what variation exists is carefully utilised in locating settlements, horticultural areas and ritual sites, such as cemeteries, to maximize resource use and survival on these marginal and often isolated places. Principal factors underlying this are the availability of freshwater, gardenable/arable land, a protected anchorage for boats and a protected area for housing. Of these the availability of freshwater is paramount because there is no horticulture and arboriculture on atolls utilize the lens of freshwater that forms beneath the atoll and to make the best use of this, the garden zone is located in the centre of the islet where the lens is thickest and soils are most developed.

On atolls of the Marshall Islands in Micronesia

*the traditional land divisions, the wato, were laid out as strips of land running from the ocean side of the islet to its lagoon side, thereby ensuring that each household had access to all environmental zones. House sites are concentrated on the larger islands [where] settlements in the past were located on both sides of the breadfruit zone, with the main settlements on the lagoonal side. The habitation sites begin some 30-50m inland from the present lagoonal edge, well above the storm high tide mark and behind a small natural strand wall. Going inland, these gravel spreads would gradually change to shell middens, indicating cooking facilities and associated rubbish dumps on the inland, the "backward" side of the houses. Inland of these rubbish heaps an area of burials is encountered, located between the houses and the gardening centre. In the fertile middle of the island the breadfruit trees and a dense zone of taro patches are found.*⁶²

In New Guinea and the archipelagos of Island Melanesia, systems of land tenure are highly diverse and complex they cannot be generalized for the region or within island groups although like land tenure systems throughout the Pacific they are structured according to kin groups, kin relationships and marriage. The classic model of a Melanesian Big-Man society has been defined as one in which the leaders build on long-term family and group involvement, to achieve wealth and surplus (social) production, allowing the leader to pass

⁶¹ Walter, R. 1993. The community in Ma'auke prehistory. In M. Graves and R. Green (eds). *The evolution and organization of prehistoric society in Polynesia*. Auckland: New Zealand Archaeological Association .pp.73-80.

⁶² Spennemann, D. 2006. Freshwater Lens, settlement patterns, resources and connectivity in the Marshall Islands. *Transforming Cultures Journal* 1(2):4-63.

different social grades. Political positions are not hereditary, and community level decision making is supposed to dominate the tribal political system. No large-scale territorial units were presumed to have been present, and the control of the leaders over only part of the social group meant that no large-scale working force could be assembled for large constructions of any kind.⁶³

In the large islands of Melanesia particular environmental zones extend across far greater areas than on the small off shore islands or the islands of Polynesia and Micronesia. Coastal and inland communities exist and within each there are a great many factors that influence how people have chosen to socialise particular landscapes. There is a rich anthropology of Melanesia and especially the highland area of New Guinea because of the relatively recent sustained interaction between communities of the highlands and Europeans. This has also meant that traditional systems of land tenure are still very much in place.

The husbandry practices can be seen in relation to settlement patterns on the highlands. For example in eastern Chimbu (Simbu) Valley settlement was in villages and women often had pig houses at a distance requiring daily travel or overnight stay for pig care. In central Chimbu, as in the Western Highlands, houses for women and pigs were located adjacent to the foraging areas, pigs came to the houses at night for feeding on cultivated sweet potato and for sleeping.⁶⁴

Social systems and village structures

Like other elements of the cultural landscape discussed thus far, the location, layout and fabric of villages or settlements, both those known archaeologically and those of the present, reflects the social system or systems that have created the patterning of the cultural landscape in general. In particular, the location of villages commonly reflects traditional land tenure, each village being located on land owned by the community and in proximity to gardens and other resources – the sea and the forest. In many parts of the Pacific the household and village continue to be basic social units, and in their diverse structure and layout, express various kin systems across the region.

Few places in the Pacific continue to use, or to exclusively use, traditional building materials however the designs and functions of dwellings, communal spaces and ceremonial places and the layout of the village continue to reflect traditional social relationships and hierarchies and cultural practices (Figure 3.10).

Political organisation in Polynesia was based on ties of kinship and of locality. In political action the rights and obligations deriving from these two sets of ties were inextricably interwoven.⁶⁵

In Samoa most people still live in villages or *nu'u* each comprising a number of 'aiga or extended families. Samoan society is based on a chieftain or *matai* system of hereditary rank. Traditionally villages were nucleated and surrounded by gardens. The *fale* (house) of the chief

⁶³ Sand, C. 2002. Melanesian Tribes vs. Polynesian Chiefdoms: Recent Archaeological Assessment of a Classic Model of Sociopolitical Types in Oceania. *Asian Perspectives* 41(2):285-296.

⁶⁴ Brown, P. and H. Brookfield. 2005. Sweet potato and the Chimbu of the Papua New Guinea Highlands. In C. Ballard, P. Brown, R.M. Bourke and T. Harwood (eds). *The Sweet Potato in Oceania: a reappraisal*. Ethnology Monographs 19, Oceania Monograph 56 pp.131-136.

⁶⁵ Davidson, J.W. 1967. *Samoa ma Samoa*. Melbourne: Oxford University Press, p.16.

matai was at the centre of the village with the other *fale* arranged around the central lawn or *malae*. All families in the village build their houses in the same basic pattern. At the front of each family's holding is the family's *fale tele* or guest house. The *fale tele* was traditionally always round. Just behind the guest house is the *fale afolau* (long house) in which the *matai* and his immediate family live. Only highly specialized carpenters are normally used in the construction of these *fales*. Traditionally they are built from a variety of selected timbers, decorated and elevated on stone platforms.⁶⁶ Many more recent *fale* are constructed with concrete bases and iron roofs but the form and traditional functions of the *fale* continue.⁶⁷ (Figure 3.11)

The early period of European contact in New Caledonia had a dramatic impact on the Indigenous Kanak population and their settlement patterns and village structures. The archaeological evidence for pre-European village structures indicates that prior to European contact clusters of houses were scattered amongst large areas of garden and consisted of house structures built on elevated mounds that were organised along a central alleyway. Today these old village sites and especially those found in association with and historically related to relict taro terraces (discussed above) are often visible in the landscape through the presence of distinctive pine trees and that house mounds at the old village site.⁶⁸

Melanesian societies and their village social structures are highly culturally diverse but in general they are characterised as “Melanesian Big-Man societies” defined as one in which the leaders build on long-term family and group involvement, to achieve wealth and surplus (social) production, allowing the leader to pass different social grades. A big man or *bikpela man* is a person of repute and influence who has achieved status rather than that status having been inherited in these societies where community level decision making is supposed to dominate the tribal political system. In the past, no large-scale territorial units were presumed to have been present, and the control of the leaders over only part of the social group meant that no large-scale working force could be assembled for large constructions of any kind.⁶⁹

This *bikpela* social structure and the very distinct gender roles of Melanesian societies are most obviously reflected at a village level in the presence of a Men's House that will often dominate the layout of the village. Traditionally the Men's House was the dwelling place of the initiated men and of the spirits.

Those of the Middle Sepik River [Papua New Guinea] are [...] known as tambaran, constructions [of timber] that can reach 25 metres in length and exceed 18 metres in height. They occupy a central position in the villages and are built in the area reserved for ceremonies. The Men's House is usually built on two levels. On the ground floor it is surrounded by large sculpted poles, decorated with totem symbols, and it is divided into spaces with hearths, each of which is assigned to a single clan. Here also are the huge slit drums, the small stools and the hooks sculpted and painted with anthropomorphic illustrations, which are hung from the beams to hold the food baskets. Access to the upper floor is by stairs with heavily decorated posts. One or two seated figures with open legs support the roof beams. The entrance to the

⁶⁶ UNESCO 1992. *The Samoan Fale*. Apia: UNESCO Office for the Pacific States.

⁶⁷ Davidson, J.M. 1967 *Samoa ma Samoa* Melbourne: Oxford University Press.p.18-22.

⁶⁸ Sand, C. 1996. Recent developments in the study of New Caledonia's prehistory. *Archaeology in Oceania* 31:p.65.

⁶⁹ Sand C. 2002 Melanesian Tribes vs. Polynesian Chiefdoms: Recent Archaeological Assessment of a Classic Model of Sociopolitical Types in Oceania. *Asian Perspectives* 41(2):285-296.

*upper floor is between the legs of the figure portraying the female or male ancestor in which the mythical theme of the transmutation of a human being into crocodile is iconographically portrayed. This second level of the house is also divided among the clans and sometimes it contains a space reserved for the initiated. The treasures of the clans are preserved on this floor: the great sacred flutes used during ceremonies and the skulls of the ancestors and of the enemies which are exhibited on painted panels or hung from the beams with the anthropomorphic hooks. As a whole the Men's House represents primordial woman. The façade is her face and the building represents her body. In this way, all that belongs to men, that is to say the public, cultural and ceremonial sphere, is placed inside the body of a woman, so that the male/female conflict is overcome by a more profound integration between the two sexes.*⁷⁰

In the Arawe Islands of West New Britain Province, PNG, as in many other parts of the Pacific, the location of villages has changed substantially over the past century due to the influence of missionaries. In this group of small raised coral limestone islands, people now live in villages along the beaches in close proximity to the sea (Figure 3.12). However in the early contact period prior to the arrival of missionaries, warfare was common and the villages were located on the tops of the islands for protection. The houses are now constructed on stilts rather than resting on the ground and this form of construction appears to have been introduced in the missionary period as it was considered healthier to have air circulating beneath the hut.

Social, ceremonial and burial places

Pacific Island social systems and the structures and settlement patterns that reflect them have changed significantly over time. One indication of this is the presence of large or monumental structures in the landscapes of a significant number of Pacific Islands that all appear to date within the last 1000 years and suggest region-wide social change. These are highly visible in the landscape and are commonly interpreted as markers of significant changes in social organization whether as a consequence of internal strife and resource depletion or the influence of and interaction with communities elsewhere. All Pacific island communities have stories of social interaction for trade, for marriage and in war with communities from elsewhere – from other valley and from other islands and island groups, sometimes over vast distances. This interaction may have been intermittent or sustained over very long periods of time and has undoubtedly influenced the social structures and settlement patterns of those communities.

The specific functions of many of the monumental structures of coral limestone, basalt or other stone and earthworks is unclear but they are variously argued to have a defensive function and/or a ceremonial or religious function and in some cases are associated with burials. The traditional functions associated with some of these structures continues into the present while in other cases, local communities have no knowledge of the origin of the structures or their functions in the past. In some instances the construction of these monuments can be associated with other significant changes in the landscape, especially evidence for intensification of horticultural production.

⁷⁰ http://mv.vatican.va/3_EN/pages/MET/MET_Sala02_02.html

These structures have been the subject of archaeological investigation, especially aimed to date their construction. In some cases their relationship to other cultural and natural features in the landscape has been recorded but they have not commonly been interpreted within an overall cultural landscape framework. There are notable exceptions such as the landscapes of Rapa Nui/Easter Island that have been the subject of long-term intensive research but in general much more work is needed to locate these structures in the evolving landscape context.

Given the organized communal labour the construction of many of these features required, they are commonly associated with the appearance of hierarchical societies and the consolidation of chiefly power especially in Polynesia and parts of Micronesia. In other places they are recognized as defining land tenure units and/or having a ceremonial or religious role. The most famous of the Pacific Island monumental structures are the *ahu* of Rapa Nui/Easter Island, but these are just one form of the *marae* complex found throughout Eastern Polynesia (discussed below).

The best documented example of social change prior to European colonisation and of the impact of this on surrounding island groups is the consolidation of power throughout the Tongan archipelago under the Tu'i Tonga (High Chief or King of Tonga) beginning around the 900 years ago and the subsequent emergence of the Tongan Maritime Empire or Chiefdom that had a wide sphere of influence into the European contact period. The Royal Tombs of Mu'a at Lapaha about 10 kilometres from Nuku'alofa, the modern capital of the Kingdom of Tonga, bear testimony to the continuation and evolution of the Tongan political system. The tombs are burial sites of the Tu'i Tonga from around 1200 A.D. to 1500 A.D., when the Tongan maritime chiefdom was at its height. The *langi* continue to be used for burial as part of a continuing tradition of caring for the tombs and holding the knowledge of who is buried in them that is vested in local families at Lapaha. The landscape contains twenty eight large tomb structures or *langi* faced with enormous coral limestone blocks (Figure 3.13) some of which were transported from the Island of 'Uvea, 500 km to the north along with fortification ditches, other stone features and an artificial harbour and canoe dock.⁷¹

In Samoa large basalt mounds are located at strategic points around the narrow coastal strip of Savai'i, high on ridge lines on the southeast coast of 'Upolu and in the mountainous area of the north west coast. The purpose or purposes of these is unclear but they may signify territorial units and may have a defensive role perhaps in response to the increasing power of neighbouring Tonga during the last millennium. The largest stone mound structure anywhere in Polynesia is Pulemelei Mound on the island of Savai'i, Samoa (Figure 3.14) which is 60 x 65 metres and 5 – 12 metres high.⁷² Associated with Pulemelei are the stone remains of an enormous number of smaller mounds, wall, paths and house platforms stretching to the coast over obviously reflecting a nucleated, dense settlement in the past that is very different from that of the historical period. A specific form of mound found only in Samoa is the star mound or *tia'ave*, a rock or earthen mounds (*tia*) with one to eleven ray-like projections (*'ave*), generally between 10 – 15 metres across and up to 3 metres in height. They are generally found on ridge, tops or in forested areas and their postulated functions include burial features,

⁷¹ Kingdom of Tonga Tentative List 2006.

⁷² Wallin, P., G. Clark and H. Martinsson-Wallin. 2002. Test Investigations at the Pulemelei Mound Site, Vaitoa, Samoa. Kon-Tiki Museum Field Report Series No.6.

house platforms, boundary markers, defensive structures, pigeon-catching mounds and ritual platforms.⁷³

Unique to the Marianas Islands in Micronesia are *latte* stones. During the last 1000 years the Marianas people begin to construct groups of enormous paired quarried limestone, sandstone or basalt pillars each supporting its own hemispherical cap stone, known as *latte* stones. These were arranged in pairs of between three and seven pairs and probably supported a wooden and roofed superstructure for a dwelling. The smallest were a metre or so tall and the largest *latte* still standing is 5m tall. Most *latte* stones are found on low lying sandy areas of the narrow coastal strip of the islands with their orientation aligned to natural features.⁷⁴

Best known of the stone structures in Micronesia is Nan Madol a very large settlement site on the tiny island of Ponape in the Federated States of Micronesia (Figure 3.15), Pohnpeian oral tradition relates that Nan Madol was the residential, religious, and administrative centre of the Saudeleur dynasty of rulers. Often described as the “Venice of the Pacific”, Nan Madol is a stone complex of over 150 acres covering 92 islets, constructed from basalt blocks and thought to have been in use between 1500 and 500 years ago.

Large stone structures are also found in Melanesia. In the northern Massim Islands in Papua New Guinea on each inhabited island, there are stone markers located in key positions the island. On Muyuw (Woodlark Island) the stone arrangements range from single stones to larger complex arrangements. Many mark out simple rectangular enclosures some up to 15 m on the side however some are large and complex with multiple “rooms” and their construction would have required significant organizational skills and resources. The size of the limestone blocks varies, the largest being over 3 metres high and in most cases they appear to have been obtained from the nearby bush although a small number have been transported from their source up to 150 – 200 km by canoe. In part, they appear to have been used for burying the dead although local people today have little knowledge of the monuments except their location. The concentration of megaliths in particular parts of the island probably indicates some pattern of hierarchy between different areas within each island group. On Woodlark the monuments are thought to date from c.1200 – 600 B.P. although this is not secure.⁷⁵

Elsewhere in Melanesia,

*multidisciplinary work undertaken in the Roviana lagoon region of the western Solomons (by Sheppard et al.: 2000) has shown the existence of complex shrines, some in the form of large stone-faced platforms, with diverse uses as sites for prayers to ancestors, fishing shrines, or war shrines. These religious sites are distributed in the settlements in patterned ways that are as meaningful as sets of marae in East Polynesian contexts.*⁷⁶

In Vanuatu on the island Ureparapara are the stone structures known as *Nowon* and *Votwos* (Figure 3.16).

⁷³ Herdrich, D. and J. Clark. 1993. Samoan *tia'ave* and social structure: methodological and theoretical considerations. In: M. Graves and R. Green (eds). *The evolution and organization of prehistoric society in Polynesia*. Auckland: New Zealand Archaeological Association, pp. 53-71.

⁷⁴ Rainbird, P. 2004. The Archaeology of Micronesia. pp.111-112.

⁷⁵ Bickler, Simon and Baiva Ivuyo. 2002. Megaliths of Muyuw (Woodlark Island), Milne Bay Province PNG *Archaeology in Oceania* 37:22-36.

⁷⁶ Sand, C. 2002. Melanesian Tribes vs. Polynesian Chiefdoms: Recent Archaeological Assessment of a Classic Model of Sociopolitical Types in Oceania. *Asian Perspectives* 41(2):285-296.

[T]he central architectural elements of pre-European contact Ureparaparan culture. These architectural forms were built adjacent each other and were the overt manifestation of social power, authority, leadership and peacemaking; functioning as meeting places and for ceremonial dancing, pig-killings of the Sok society, reverence to ancestors and oratory addresses by community big-men. Typically located along the mid-slope plateau of Ureparapara's steep outer volcanic flanks, each ceremonial-complex being associated with the hamlet or village settlements that existed across the island prior to sustained European settlement. Votwos are spectacular earthen platforms, typically 2m high or more and lined on at least one-side by the same system of interlocking-stone brickwork as seen on the Nowon facades, although on a larger, grander scale. The Votwos are symbolic of being 'high' or having rank, they provide a vantage point from where a man-of-rank or influence would stand and address his community as their leader.⁷⁷

Across East Polynesia, the social and ceremonial life of communities was and in some places continues to be expressed in the *marae* complex, an open assembly space or ritual space also known *malae* in Samoa as *ahu* in Rapa Nui and *heiau* in Hawai'i.

Similar basic elements of these ceremonial spaces are found in Polynesia and the Polynesian Outliers:

1. an open space variously elaborated into a formal courtyard and almost everywhere known as a *marae* or *malae*;
2. some form of god house, *fale* or *fare*, adjacent to or attached to the court, sometimes associated with ancestral burials;
3. posts or upright stones (often termed *pou*) or in East Polynesia, stone statues serving as symbolic representations or manifestations of deities or ancestors situated around the perimeter or at one end of the court;
4. in central east Polynesia a raised platform or altar called the *ahu* situated at one end of the court.⁷⁸

On Mangaia in the Cook Islands *marae* are rectangular and paved with gravel, sometimes with their perimeter defined with stone edgings. Upright stones representing deities are sometimes present at one end of the *marae*. When in use the *marae* had a small thatched house on them in which the deities were presumed to take up residence.⁷⁹

Although similar in form, not all *marae* had the same location or function. In East Polynesia, the most impressive *marae* are located around the coastline at highly visible points, while smaller *marae* are scattered across the landscape, their location reflecting traditional land tenure units. The smallest *marae* are mainly to be found inland or tied to larger structures, and in this context may have a specialised function.

On Rarotonga, also in the Cook Islands, mountain and coastal *marae* within the same land holding unit or *tapere* have complementary functions in the ritual system.⁸⁰

⁷⁷ Vanuatu Kaljoral Senta 2006. Republic of Vanuatu Tentative List.

⁷⁸ Kirch, P.V. 2000. *On the Road of the Winds*. Berkley: University of California Press.p.254.

⁷⁹ Ibid, p 251.

⁸⁰ Campbell, M. 2006. Memory and monumentality in the Rarotongan landscape. *Antiquity* 80:102-117.

Some *marae* continue their traditional role and all are important to present day Polynesian communities. With the exception of the *ahu* of Rapa Nui, the best known of the ancient *marae* is *Marae Taputapuātea* a large stone structure on Ra'iatea Island, Society Islands, French Polynesia. *Taputapuātea* along with a complex of other *marae*, archery platforms, traditional meeting platforms and other structures is located in a flat sandy area of about 8 hectares bordered by two hills to the east and west, on the north by the sea, and an ancient trail to the south and immediately seaward is the pass known as Te Ava Mo'a ('The Sacred Pass'). From around the 16th century, Ra'iatea became a religious centre for the worship of the Polynesian god of war, 'Oro, and it is around this time that the Tamatoa dynasty built *Marae Taputapuātea* in its present form although other structures were probably present on the site during earlier times. Amongst the later buildings erected on the site is the *Marae Hauviri* on which stands *Te Papa Tea O Ruea*, a 2.7 metre high monolith before which the Tamatoa High Chiefs were invested with the maro'ura, a sacred girdle covered with red feathers that symbolized their accession to power.⁸¹ At European contact in the late 18th century *Taputapuātea* was the spiritual and voyaging centre of East Polynesian society. It was from *Taputapuātea* that Tupaia, the famous Polynesian navigator and priest, joined the crew of Cook's *Endeavour* on the voyage to Aotearoa and beyond.

In Aotearoa/New Zealand *marae* are meeting places, the *turanga-waewae* of the Māori and the centre of traditional Māori community life. *Marae* is technically the enclosed space used for *pōwhiri* in front of a *wharehau* (meeting house) the area of greatest mana, however, the term *marae* is generally used to refer to the whole complex, including the buildings and the open space. The *marae* and the meeting house are complementary and together serve as the focal point for the community. The *wharehau* is normally the major central building and, in the main, ornately carved. It is not only named after an ancestor but it is structured to represent symbolically the ancestor.⁸²

The monumental and ceremonial sites discussed above, are not cultural landscapes in themselves but elements or sites within the evolving cultural landscapes of the Pacific Islands. In some cases, where the origin and function of these monuments is unclear they exist as a relict layer in the continuing cultural landscape. In other instances they have a continuing traditional role or social function. In both cases there is clear widespread evidence that in most cases their location is related to landforms and to units of land tenure in the past and present. As such they are an integral component of the social and economic systems that create the cultural landscapes of the Pacific.

Relict landscapes of war in the Pacific Islands

Throughout the Pacific Islands there are landscape elements or entire landscapes that were created through warfare in the pre-European and post-European contact eras.

Oral traditions, the journals of early European explorers and the archaeological record indicate that in the centuries immediately prior to European contact warfare was endemic in many parts of the Pacific, probably as a consequence of competition for resources associated with increasing island populations. Warfare resulted in significant changes to the landscapes of both large and small islands through the construction of defensive works of earth and stone. These are located at what would have been strategic points in the landscape such as hilltops and promontories often overlooking passes in barrier reefs through which enemy canoes may

⁸¹ www.maraetaputapuātea.net

⁸² <http://www.maori.org.nz/tikanga/>

approach or constructed in association with natural features such as rock outcrops that could be modified and incorporated into a defensive structure. In some islands defensive forts appear to have been occupied on a permanent or semi-permanent basis, necessitating easy access to gardens and/or the means of storing food within the defensive structure.

A striking example of a relict landscape of conflict or warfare in the pre-European contact era is the island of Rapa, a small and remote island in French Polynesia, 500 km from its nearest neighbour. The island is horseshoe shaped around a central bay. At European contact in the late 19th century the island's population of about 1500 people were living in heavily fortified hilltop communities above the bay. Radiocarbon evidence suggests these fortifications were first constructed within only a few hundred years of the first Polynesian settlement of the island, probably in response to competition for resources through population increase and associated degradation of the natural environment especially through deforestation.⁸³

The small island of Chikobia-i-Ra at the north-eastern end of the Fiji Islands appears to have been continuously occupied since it was initially settled c. 2800 years ago, during the last thousand years as in many parts of the Pacific the occupation of the island became more intense and large structures of coral and basalt were built. Eight fortified sites have been found at strategic points in the landscape some with defensive walls up to four metres high, requiring large amounts of labour to construct (Figure 3.17). Within the walls are large house mounds, ceremonial platforms, areas of burial places and the low walls of former gardens.⁸⁴

The construction of defensive structures in association with very high population density and intensive cultivation has, in the Sigatoka Valley of Fiji and the many parts of the Aotearoa/New Zealand, created relict landscapes of circular hill forts with defensive ring ditches and terracing clearly visible in the landscape and from the air.

Fortified sites in the Sigatoka Valley can be seen in relation to environmental features and resources such that some sites are purely defensive in the most inaccessible areas and other sites in the lower parts of the valley are all so production sites. Archaeological analysis of aerial photographs from the Sigatoka valley has documented the existence of 384 fortified and non-fortified pre-European habitation sites across the valley's varied topography, as well as over 200 agricultural features. To investigate the past systems of land use and land tenure and the relationship of resource availability to conflict and warfare the habitation sites have been divided into three classes: sites that had no access to resources and which exhibit a purely defensive or refuge strategy (defensive sites), sites in close proximity to agricultural resources and which also employ natural topographic or constructed defences (defended production sites), and sites located in prime agricultural areas without any form of natural or constructed fortification (production sites).⁸⁵

The greatest density of sites, in particular the defended production sites, occurs along the valley bottom. In the context of land-tenure, defended production and production sites occur most commonly amongst the smaller-sized parcels of land (averaging 353 hectares), and also at the lower elevations. In contrast, purely defensive fortifications and refuges are located atop

⁸³ Kennett, D. A. Anderson, M. Preeble, E. Conte and J. Southon 2006. Prehistoric human impacts on Rapa, French Polynesia. *Antiquity* 80:340-354.

⁸⁴ Sand, C., F. Valentin, T. Sorovi-Vunidilo, J. Bole, A. Ouetcho, S. Matararaba, J. Naucabalavu and L. Lagarde 1999. *Cikobia-i-Ra. Archaeology of a Fijian Island*. Noumea:Service des Musées et du Patrimoine.

⁸⁵ Field, J. 2005. Land tenure competition and ecology in Fijian prehistory. *Antiquity* 70:586-600 ; (see also Field, J. 1998. Natural and Constructed Defences in Fijian Fortifications. *Asian Perspectives*, Vol. 37:32-58).

mountain peaks and ridges of large-sized parcels, averaging 528 hectares. This pattern of fortified and defensive sites indicates the historically recognised “patchwork” quality of land tenure systems reflecting of Fijian patrilineal descent groups is a product of centuries of fission, migration and alliance, and that fortifications and competition were essential elements of prehistoric society.⁸⁶

Throughout Aotearoa/New Zealand are Maori defensive sites known as *pa*, a fortified place associated with a group of related people and vary in size from those built for *whanau* (a large family) to *hapu* or *iwi* (tribe) of several hundred people. In the past, they were built as refuge from attack during times of war, but also had many other uses. They were secure places to live and store food, especially *kumara* (sweet potato) stored in pits in the ground. *Pa* were not lived in all the time; according to the season, people may have been away fishing or collecting birds, or looking after gardens. People may have lived in open settlements most of the time, only going to the *pa* in times of trouble. The archaeological remains of *pa* can be very obvious in the landscape. They are often located on naturally defensible high points, such as the end of a steep-sided ridge, a coastal headland or an isolated hill. *Pa* were also built at the edge of swamps and sometimes on flat land. The construction of *pa* often involved terracing of the landscape to provide flat areas for activities and buildings.

Warfare in the post-European contact period has also created very distinct and significant relict cultural landscapes of war in the Pacific Islands. The “Pacific Theatre” of World War II had a devastating impact on indigenous peoples and their lands in many parts of Melanesia and Micronesia. The Japanese and their allied opponents, the United States, Australia, New Zealand and Canada fought a war on their island homes, resulting in the loss of countless indigenous lives, the destruction of villages and gardens and widespread damage to fragile atoll and small island environments. Throughout the New Caledonia, Vanuatu, the Solomon Islands, Papua New Guinea, and the Micronesian islands of the Marianas, Marshall Islands, Palau and the Federated States of Micronesia there are relict cultural landscapes associated with this conflict. The landscapes reflect intensive bombing, large scale construction such as airfields and the physical remains of decaying metal, tanks, and concrete structures scattered in the bush, at key battle sites and in the lagoons and harbours of key anchorages such as Truk Lagoon in Micronesia and Rabaul Harbour in Papua New Guinea.

The militarization of the Western Pacific during World War II also precipitated the initial construction of ports, roads and airports in many of the affected islands, a pattern of transport infrastructure that continues in many locations including the national airports and associated major settlements of Fiji and the Solomon Islands.

The Cold War added a further layer to the relict landscapes of war in Micronesia. After World War II the United States continued to use the region for military purposes, and in the late 1940s and 1950s used small and isolated islands as testing sites for atomic and nuclear weapons, the most famous being Bikini Atoll in the northern Marshall Islands, that required the permanent relocation of indigenous inhabitants of the atoll. In the period from 1946 to 1958, the height of the Cold War sixty-seven tests were carried out at Bikini Atoll, including the Bravo test, the world’s largest above ground atomic test. Similarly small and mostly uninhabited islands in the Central Pacific, Johnson Atoll and Kirimati and Malden Islands in Kiribati were used by United States (1958 -1962) and the British (in the late 1950s) respectively as test sites. The French also used their colonies in the Pacific to test nuclear weapons. Between 1966 and 1996 the French used Mururoa and Fangatauta Atolls in French

⁸⁶ Ibid.

Polynesia between as nuclear test sites. In all these isolated and remote locations the testing itself and associated military bases and infrastructure has dramatically altered the pre-test landscapes and left the remains of structures and other debris scattered across these tiny pieces of land and in the surrounding water and created what might be called Pacific cultural landscapes of the Cold War.⁸⁷

Organically evolved cultural landscapes in the Pacific Islands: in conclusion

The organically evolved cultural landscapes of the Pacific Islands are diverse expressions of the region's cultural and social systems. They reflect this very large and diverse geo-cultural region in the way they share a number of key similarities as a consequence of their reflecting human responses the Oceanic environment, the history of settlement across the region, and the subsequent development and interaction of Pacific Island communities.

The purpose of the above albeit brief, review of various kinds of evidence or features that are commonly found the organically evolved cultural landscapes of the Pacific is to provide a framework in which the similarities and differences between particular cultural landscapes may be recognised and described through the identification of various key elements or features. However while individual elements provide insights into specific aspects of people's lives and their relationships to their lands, it is in the relationships between various features within a landscape that express past and present social systems and these are indivisible from the environment in which they arose and continue to change.

CULTURAL LANDSCAPES OF THE COLONIAL ERA

The main focus of this thematic study is the traditional organically evolved and associative cultural landscapes of the Pacific Islands but the region also contains diverse and unique cultural landscapes that reflect the distinct colonial history of the region. As described in a previous section, although the Pacific Islands were colonised by various European powers over several centuries beginning with the Spanish in Micronesia in the 17th century, the majority of the islands were not formally colonised by Europeans until much later, in the late 18th and 19th and into the 20th centuries. In global terms this was relatively late in the history of European colonisation. It was not until this period that European voyaging and navigational knowledge enabled the potential economic and strategic values of the region to be recognised and exploited. This relatively recent colonial history, intimately related to the particular resources and character of the Oceanic environment, has created colonial landscapes that have recognisable elements of the global signature of European colonisation strategies but expressed in a unique, Pacific Island form.

Within the context of this study it is not possible to detail all the variety of colonial cultural landscapes in the region, however there are a number of key types associated with

- the extraction of natural resources
- the creation of plantation economies
- the “civilising” projects of missionaries
- the establishment of colonial rule

⁸⁷ Smith, A. 2007. Colonialism and the Bomb in the Pacific. In: J. Schofield and W. Cocroft (eds). *A Fearsome Heritage. Diverse Legacies of the Cold War*. California: Left Coast Press, pp51 – 72.

The extraction of natural resources by foreign companies – British, French, US, German – began in the early European contact period and stimulated much of the early exploration of the region from the late 18th century. Early extractive of resources such as the gathering of sandalwood, bêche-de-mer, whale oil and pearl shell did not significantly alter the cultural landscapes of the region and did not require major settlement or infrastructure in the region. However the establishment of larger scale extractive industries in the 19th century, in particular the mining of guano or phosphate on small islands including Malden in Kiribati and Nauru, nickel mining on Grand Terre in New Caledonia, gold in Aotearoa/New Zealand and from copper on Bouganville, did require larger investment of labour and infrastructure and the displacement of Indigenous communities. The mining process itself significantly altered the landscapes. The following description of Malden Island illustrates the various histories woven together in this cultural landscape:

Malden is of considerable historical importance with 21 archaeological sites. Several marae (Polynesian shrines) are located on the island - three on the NW part of the island are larger than the others. These are the best preserved relics from the pre-European period and appear to have escaped disturbance during the guano-collecting years (1860-1927). The island is thought to have had 100-200 people living on it during the time of these relics. Also present on the island are graves, but they have not helped determine the origin of Malden islanders. Graves from the guano era (1860-1927) are located in a different area from the pre-European marae, viz, southwest coast south of the landing. They have Western-style headstones, with miners' names engraved on some of them. One is even of a little two-year toddler, son of a guano manager of the time, who was "taken by the waves". Western discovery was in 1825 by the H.M.S. Blonde, named after Lieutenant C.R. Malden, the ship's navigating officer who landed and made observations on shore (Bryan, 1942). From 1860 to 1927 Malden was heavily exploited for guano and phosphate deposits. This was one of the most commercially successful of the Central Pacific guano islands; nearby Starbuck was also so rich it was dubbed "Coral Queen (Guano) Island." From 1956 to 1959 the British occupied Kiritimati Atoll to the north of Malden to test and monitor atmospheric nuclear bomb tests at Malden in 1957 and similar tests at Kiritimati in 1958.⁸⁸

Plantation economies were not established in the Pacific until the late 19th century. As discussed above, the climate and topography and the isolation of the islands from European, American and Asian markets mitigated against the establishment of plantations or any large scale agricultural enterprise in the Pacific until relatively late. However by the late 19th century demand for two tropical crops – copra (from coconut) and sugar – led to the establishment of plantations by German and British companies respectively. German companies established a string of coconut plantations on northern New Guinea, the Bismarck Archipelago, several Micronesian Islands (all German colonial territories) and in Samoa. The German companies imported both Pacific Islander and Chinese labour to the plantations, and moved labour between the various islands.

Copra was also a factor in the early colonial economy of Fiji but by far the most dramatic impact to the traditional Fijian landscape came with the establishment of sugar plantations, especially in the Rewa Delta, Sigatoka Valley and Western part of the largest island of Viti Levu and on Vanua Levu to the north. Associated with the establishment of the sugar

⁸⁸ www.livingarchipelagos.org

industry, its infrastructure including roads and railway networks to transport the sugar cane and the large refinery at Lautoka was the importing around 60 000 Indian between 1879 and 1916 indentured labourers. The descendents of these labourers and more recent arrival from India account for nearly 40% of Fiji's current population.

The establishment of plantations necessitated the resting of land from traditional land uses and in many places alienation of traditional customary land title. This created unique patterning of land tenure still evident in relict and continuing plantation landscapes of the region. There is however little detailed information available about the extent and nature of evidence within these landscapes but it is clear that they are important surviving examples of cultural landscapes reflecting the unique character of colonial enterprise in the Pacific.

From the mid-17th century in Micronesia and continuing into the present, Christian missionaries have had a major impact on Pacific Island societies, many converting to Christianity within a relatively short space of time. The tangible built and landscape heritage reflecting the establishment of Christian Church and the continuing central role the Church plays in many Pacific societies can be seen everywhere in ubiquitous and architecturally distinct and diverse churches. In some cases early missionaries created large and self sustaining missions, many of which survive in excellent condition due to their continuing use. At Vou on the Isle of Pins in New Caledonia, Marist missionaries established a mission in 1840s that included substantial domestic structures, roads and bridges, a bakery and school (Figure 3.18) and around which all the indigenous Kanak of the island agreed re-settle, establishing their villages and gardens and creating a 19th century mission landscape – a continuing cultural landscape and a unique blend of traditional agriculture, Christian and Pacific religious observances.

Associated with this missionary landscape in New Caledonia is the wider colonial cultural landscape of southern Grand Terre and the Isle of Pins that reflects the period of transportation of convicts from France to establish the colony of New Caledonia. Between 1864 and the turn of the 20th century around 30 000 convicts were transported to the colony to labour building roads, government buildings, and other infrastructure and to farm to provide produce for the new colonial society. The remains of the convict era, and especially large stone buildings directly associated with the imprisonment of convicts in the later phase of transportation are visible in many locations. A number of extant towns were settlements established by freed convicts who could not return home and the general pattern of land use and land tenure closely reflects this history and the associated removal of most Kanak from the southern half of Grand Terre.

In each of these examples and especially those associated with the exploitation of natural resources and the creation of plantation economies, the movement of people as labour for these industries is a core characteristic. These forced, indentured and free labour movements significantly altered traditional patterns of cultural diversity in the region, added a further layer of cultural heritage to the Pacific landscapes and created the multi-cultural societies of the Pacific Islands in the present.

Recognising and recording the distinct ways in which these labour migrants and their descendents have shaped the cultural heritage of the region is central to understanding the significance of evolving relict and continuing cultural landscapes of the colonial era.

ASSOCIATIVE CULTURAL LANDSCAPES AND SEASCAPES

Associative cultural landscapes are cultural landscapes where the interaction between people and the landscape is strongly linked to ideas or beliefs.

*The inscription of such landscapes on the World Heritage List is justifiable by virtue of the powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence, which may be insignificant or even absent.*⁸⁹

Associative cultural landscapes explicitly recognises the social and cultural relationships between humans and their environments. Cultural stories, ideas and knowledge are embedded in a place, in individual features and/or across stretches of land or sea. The material cultural evidence of these associations may be minimal or entirely absent.

In the World Heritage Committee's definition of associative cultural landscapes given above, these associations are reflected primarily in the natural environment. The range of natural features associated with cosmological, symbolic, sacred, and culturally significant landscapes may be very broad and encompass the land and the sea: mountains, caves, islets, stretches of ocean, cliffs, reefs, rivers, lakes, pools, beaches, hillsides, uplands, plains, forests, and trees.

Many if not all landscapes have religious, artistic or cultural associations and many associative landscapes are also evolving cultural landscapes as well.

In 1995, in recognition that the then new World Heritage definition of associative cultural landscape is likely to have many and strong expressions in the Asia-Pacific region, UNESCO sponsored a workshop to identify the diversity and characteristics of cultural landscapes in the region. The workshop participants developed the definition of associative cultural landscapes as:

*large or small contiguous or non-contiguous areas and itineraries, routes, or other linear landscapes - these may be physical entities or mental images embedded in a people's spirituality, cultural tradition and practice. The attributes of associative cultural landscapes include the intangible, such as the acoustic, the kinetic and the olfactory, as well as the visual.*⁹⁰

In regard to traditional indigenous associative cultural landscapes the workshop participants concluded

*it is necessary to define boundaries with reference, for example, to spirituality, cultural tradition and practice, language, kinship and social relationships and/or the interactions (including use and care of plant and animal species) that exist between people and their natural environment.*⁹¹

As discussed previously in this report, in reality, the landscapes of many Pacific Islands can be characterised as “transported landscapes”, that is, the landscapes of the Pacific islands are

⁸⁹ UNESCO 2005 *Operational Guidelines for the implementation of the World Heritage Convention* (1972) Annex 3.

⁹⁰ Australia ICOMOS. *Associative Cultural Landscapes in the Asia-Pacific Region*. Sydney Opera House, 27 – 29 April 1995. A report by Australia ICOMOS to the World Heritage Committee.

⁹¹ *ibid.*

essentially anthropogenic having been created by humans who transported basic elements of their economic systems across the region as they colonised previously uninhabited islands. This means the organically evolved cultural landscapes in the Pacific Islands mostly have associative attributes. In some cases these cultural landscapes also contain relict as well as continuing elements.

Associative cultural landscapes in the Pacific Islands are therefore for the most part evolving landscapes that reflect the continuity of living traditions in the region through the associations people have with their environments, through traditional knowledge systems and storied landscapes that tell of the origin, history and interconnectedness of the land and sea, living organisms and the people.

In recognition of this the following brief discussion of associative landscapes in the Pacific Islands discusses two types of associative landscapes – storied landscapes and traditional knowledge landscapes and seascapes.

Storied landscapes are a well understood type of World Heritage cultural sites. They are commonly characterised by an outstanding natural feature often a geological feature such as Uluru-Kata Tjuta in Australia that has cultural, especially spiritual associations for a particular cultural group. The second type discussed below is traditional knowledge: landscapes and seascapes. This is especially appropriate to the Pacific region. This type recognises that traditional knowledge about the environment, its resources and conservation is like stories of origin and mythological ancestral figures traditional cultural knowledge that stories the landscape and seascape. For the purposes of describing a range of associative cultural landscapes in the Pacific, although distinguishing these two types is useful, the conceptual or actual boundary between these types of associative landscape is not clear. In identifying and assessing associative cultural landscapes it may be inappropriate to create distinctions between knowledge systems or components of a single system because this fails to recognise the system as a complex whole with many associations in the landscape. In almost all cases traditional associations with landscape are one manifestation or element of traditional knowledge systems and their recording and/or publication will require consultation with knowledge holders in accordance with cultural property rights. The *Pacific Regional Framework for the Protection of Traditional Knowledge and Expressions of Culture*⁹² developed by the Secretariat of the Pacific Community should guide this process.

Storied landscapes and seascapes

All landscapes and many seascapes in the Pacific Islands are storied. Like landscapes all over the world, people name the features and tell stories of their origin that explain the relationships between the elements of the landscape and relationships to people. In the Pacific stories of origin commonly give history and authority to land tenure and social status identifying points of initial arrival of ancestors and locations of major events in their lives that continue to inform life and social relationships in the present.

In Polynesia, through the process of initial colonisation and ongoing interaction there are common and interconnected stories across the archipelagos of the region that tell of the journeys of heroes and ancestors, a shared pantheon of gods and ancestral figures some of

⁹² Secretariat of the Pacific Community. 2002. *Draft Framework for the Protection of Traditional Knowledge and Expressions of Culture*. Noumea: SPC.

whose lives and movements can be traced in many sites in different archipelagos across the region.

Tongariro National Park in Aotearoa/New Zealand is an outstanding associative cultural landscape. In 1993 Tongariro National Park became the first property to be inscribed on the World Heritage List as a cultural landscapes. The mountains at the heart of the park have cultural and religious significance for the Maori people and symbolize the spiritual links between this community and its environment. The park has active and extinct volcanoes, a diverse range of ecosystems and some spectacular landscapes.

*The power of the unbroken associations of the Ngati Tuwharetoa and Ngati Rangi with the mountains since the landing of the Arawa canoe: the strong association is both a physical (Pacific "Ring of Fire") and a cultural (Ngatoroirangi) connection to their Pacific origins in the Hawaikis. The cultural links are clearly demonstrated in the oral history which is still a pervasive force for Ngati Tuwharetoa. The peaks are spoken of with the same reverence and feeling as tribal ancestors, ensuring that the connection is one of spirituality as well as culture. The linkage of cultural identity with the mountains: Tongariro, Ngati Tuwharetoa, and Te Heuheu are inextricably linked with the tribal pepeha (statement of connection to a tribe and an area) recited at any occasion hosted by the Ngati Tuwharetoa.*⁹³

There are common and interconnected stories in Polynesia that tell of the journeys of heroes and ancestors. Many are known by different communities across the archipelagos of the region.

There are several places across Polynesia named Fagaloa or Fa'aloa Bay reflecting shared histories of Polynesian communities.

Fagaloa Bay (Figure 3.19) on the eastern tip of the large island of 'Upolu in Samoa has many legends including the Legend of *Lufasaitu* (known to be half human and half spirit) associated with the origin of many formal expressions widely used in Samoan oratory. Some of the features located along the coast around Fa'aloa Bay are associated with the resting place of the ancestral god *Moso* (known as the '*tietiega o moso*'). These include his chair (*nofoa papa*), dining table (*laulau*), branching taro (*talo magamaga*), and *ava* bowl buried in the sand (*tanoa faiava*), all made of stone. The legend of *Fatutoama* tells the story of significant mountains located near the Afulilo Valley behind Fagaloa Bay, the origin of the name being the stacking of humans to build *Lufasaitu*'s house made of 100 human poles.

Associative cultural landscapes associated with the (intangible) stories of heroes or legendary figures of the past may contain tangible cultural evidence that can be demonstrated to be associated with events in the hero's life.

Chief Roi Mata's domain is a complex of three sites in Vanuatu is associated with the life and death of the legendary chief Roi Mata. Archaeological excavations since the 1960s have identified three major sites – Mangaas, Fels Cave and Artok (Hat Island) (Figure 3.20) – associated with the last holder of the Roi Mata title, all of them dating to about 1600 A.D.. The chiefly title of Roi Mata is an ancient one, with a long history of association with the area of northwest Efate. Roi Mata appears to have been one of the more senior titles associated

⁹³ ICOMOS. 1993. Evaluation of Tongariro National Park.
http://whc.unesco.org/archive/advisory_body_evaluation/421rev.pdf

with the arrival on Efate of new chiefs and a system of “court” positions at about 1000 A.D.. The three sites combine with the stories told about the last Roi Mata to form the cultural landscape of Chief Roi Mata’s Domain.⁹⁴

Traditional knowledge: associations with the land and sea

All knowledge systems in the Pacific whether considered religious or spiritual, related to more practical daily life or to the law and land tenure are culturally embedded and have expressions or associations in the landscape and seascape.

The emergence of cultural landscapes as a recognised sub-category of cultural World Heritage sites has coincided with general recognition in “natural” heritage management that areas previously identified as pristine wilderness and celebrated for their ecological values - “untouched by human activity” - were and are the homelands of indigenous peoples. Management of their landscapes by indigenous peoples has altered the original ecological system, but has contributed to, in western scientific discourse, the conservation of biological diversity. The *Operational Guidelines for the implementation of the World Heritage Convention* make this relationship explicit by recognizing a spiritual relation to nature, modern techniques of sustainable development, and traditional practices for maintaining biological diversity.

Of particular importance in understanding the associative values of seemingly “natural” landscapes and seascapes across the entire region are traditional customary processes that managed the landscape, seascape and resources. Structuring these practices are traditional authority and land tenure systems and underpinning them is traditional knowledge of ecosystems, resources and the environment along with the potential impacts of human use, major climatic or geological events and their mitigation. The long term application of these customary practices has created cultural landscapes for which there is little or no tangible evidence of human activity but which are nonetheless patterned by culture.

In the Cook Islands, traditional societies have a complex system of marine and land tenure that allows delineated and enforceable control over the land and sea⁹⁵ through a system of *ra’ui* whereby the gathering or collecting of particular foods or plants at certain times of the year and/or from certain places is restricted. *Rahui* in Aotearoa/New Zealand, *tabu* in Fiji and West Polynesia, and *mo* in parts of the Marshall Islands are different names for the similar traditional custom of placing prohibitions or restrictions on taking natural resources until the resources are replenished.

The southern portion of the large upraised coral or *makatea* island of Niue in West Polynesia contains a rare remnant forested area, known as the Huvalu Conservation Area. Historically Niueans retain a close relationship with the forest, which provides timber for building, canoes and some carving, leaves and fruits used for food or medicinally. Three species of animal found there are of particular importance, the *uga* or coconut crab (*Birgus latro*), the *peka* or flying fox (*Pteropus tonganus*) and the *lupe* or Pacific pigeon (*Ducula pacifica*), all of which are hunted for food. Niueans have always applied a number of traditional conservation practices to land use, particularly the closing of areas or restricting activities within them

⁹⁴ Vanuatu Kaljoral Senta 2006. Republic of Vanuatu Tentative List.

⁹⁵ Tiraa, A. 2006 Ra’ui in the Cook Islands – today’s context in Rarotonga. *SPC Traditional Marine Resources Management and Knowledge Information Bulletin* 19:11-15.

through the imposition of *fono* (a temporary control) or *tapu* (a longer term taboo involving sacred beliefs, strongly observed for its spiritual power).

The Huvalu Conservation Area is divided into areas according to local, traditional practices. The core of the reserve of c.100 hectares in size is *tapu*, a most sacred site where hunting, logging or even research is prohibited. A surrounding area of c.2500 ha of primary forest provides some protection to the core but is used for hunting and other activities. These are used to regulate resource use and to create protected areas respectively. The *tapu* area has four components based on traditional village ownership -two on Hakupu land and two on Liki land, which are currently enforced. Veve in Hakupu is *tapu* for spiritual reasons. It is a cave “where the life or core of the island (*tokamotu*) is hidden”. The other enforced sites are sacred bat reserves or *tauga peka*. *Fagafue* is a village sanctioned *tapu* on Hakupu land and it is the largest *tapu* area. It has been *tapu* for four generations.⁹⁶

Traditional systems of conservation of natural resources that have patterned the “natural” landscape are also found in the Marshall Islands where certain parts of land, a whole island or a reef area, are designated as a restricted site, providing for conservation of food resources such as crabs, fishes and other marine animals. In some areas these sites are known as *mo*, literally meaning a prohibition or taboo while elsewhere they are referred to as *laroij* denoting a chiefly land ownership.⁹⁷ Where *mo* is designated, people are not allowed to visit unless the *iroij* or paramount chief had given special permission. This may be granted by the *iroij* on specific occasions such as a feast to which the whole community is invited. Harvesting from a *mo* may also have been granted during food shortages or famine as a last resort. To visit a *mo*, one must observe certain rules which can include going through certain rituals, or be prohibited from saying certain words or even using different names for some of the birds and animals. One is advised that failure to observe these rules could result in a disaster such as a bad storm on the homeward voyage, or a member of the visiting party having a tragic accident. It was through *mo* that biological resources were conserved. *Mo* are still recognized today and most people still know their traditional land tenure status.

Peoples of the Pacific Islands not only have a profound understanding of the resources of the sea and the ecology of sea life but, with the exception of those living in the highlands of New Guinea, they have knowledge of all aspects of the oceans - the current, the winds, the waves and the skies above. This is not just the association of natural features or elements, the weather or natural events with symbolic or mythological stories but entire systems of traditional knowledge about the sea, about navigation and seafaring, and about the routes that linked island communities but which remain culturally embedded in a particular place whether this be a lagoon, the waters surrounding an archipelago or navigation routes over thousands of kilometres of open sea. This cultural knowledge means that Pacific seas and oceans may be considered as associative seascapes.

Seascapes are further nuanced and utterly knowable places for those that exist in them on a quotidian basis. Modern ethnography allied to historical reports provides an abundance of information that, through senses, lore, observation, technology, skill, mythology and myriad other ways, the ocean of the Micronesians [and other

⁹⁶ Hicks, N. 1998. Environmental Protection in the Age of Economics - The Niue Experience. *Journal of South Pacific Law*, Article 3 of Volume 2.

⁹⁷ National Biodiversity Team of the RMI, 1999. National Biodiversity Report: The Marshall Islands- Living Atolls Amidst the Living Sea. RMI Biodiversity Project, Majuro. pp. 26-27.

Pacific Island peoples] *was and in some cases still is an utterly knowable place in its form and texture and its link with the guiding heavens connecting the strange place that is always beyond the knowable world, the horizon where spirits below meet the spirits above. This is a seascape traversed by known seaways a place of paths that linked communities.*⁹⁸

It is beyond the scope of this study to detail these connections and seaways and the knowledge of the sea that underpins them. Much of this heritage is intangible and may be better recognised within the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) although these systems of knowledge have developed over long periods of time in a particular place and are embedded in that place. They are systems of knowledge that have enabled Pacific people to live in their island communities and to journey between these communities. The Pacific Island societies, their systems of knowledge, their association with the land and sea and the expressions of this in the landscapes and seascapes of the region are inseparable.

Traditional navigation and seafaring in the Pacific involves knowledge of the Oceanic environment in which spiritual, tangible and the customary practices meet in associative cultural seascapes.

In many Pacific Island societies, the navigator was and is a specialist role often held within particular families. Although much knowledge of traditional navigation has been lost since European contact and colonisation, in Micronesia this knowledge continues to be passed on and in Polynesia several projects have actively re-invigorated these practices. On the Island of Satawal in Micronesia a navigator must know the star paths – the *ururun mor* to follow from one island to another. This knowledge is called *ofanuw* and is repeated in long chants. The navigator also knows the zenith stars, which pass directly above particular islands:

*The first thing I learned from my uncle was the names of the stars, paafu. The same person also taught me areuum and amaas. Amaas is knowing the star in front of the canoe and the star behind it. Areuum is knowing the stars in front and behind the tam (outrigger). Ofanuw is the knowledge about stars associated with an island destination. Then I started learning ururun mor – when each star rises and sets. If I just know how to sail but I don't know when each star will rise, I will die in the ocean. (Satawalese navigator, Jerome Rakilur)*⁹⁹

This aim of this brief discussion of the associative cultural landscapes and seascapes of the Pacific region has not been to detail specific associations the many and diverse societies of the Pacific Islands have with particular places, landscape features or ecosystems but to:

- a) indicate in general the range of stories, knowledge or other associative values that Pacific cultural landscape and seascapes may have and that should be considered in identifying the values of landscapes or seascapes;
- b) demonstrate that associative values may be present in all Pacific cultural landscapes and seascapes, including organically evolved landscapes with tangible evidence of human activity, and relict landscapes.

⁹⁸ Rainbird, P. 2004. *The Archaeology of Micronesia* Cambridge: Cambridge University Press p.5.

⁹⁹ UNESCO 2005. *The Canoe is the People. Indigenous Navigation in the Pacific*. CD-rom produced by UNESCO Links Project www.unesco.org/links

PART 4: Cultural Landscape Portfolio

Kevin L. Jones

This selected portfolio has been compiled to show in an innovative way the range of cultural landscapes in the Pacific region and to highlight significant ones. It includes some sites that have been inscribed on the World Heritage list or which are on Tentative Lists. Inclusion of a site in this portfolio does not imply, however, that the site has the potential to demonstrate outstanding universal value – some sites may well, with further research and analysis, achieve this. The portfolio has been compiled to reflect the range of cultural landscapes as well their commonalities, as outlined in the previous sections. It is not intended to be an exhaustive list of significant sites – apart from research in the published literature much more could be done in collaboration with Pacific communities to extend and improve the present state of our knowledge.

The sources of information on which the portfolio is based are four:

- A review of the published anthropological and archaeological literature describing a wide range of landscapes which could be classified under a number of themes, but especially associative, discovery and origins, settlement pattern and horticulture and W.W. II and its aftermath;
- Application of the thematic frameworks developed at Port Vila most of which are relevant to the analysis of landscape;
- Suggestions from States Parties in the region, reported from Port Vila in 2005¹⁰⁰ and in response to an invitation at the February 2007 conference at Tongariro;
- A review of the Tentative Lists of the States Parties including the draft US Tentative List.

The portfolio explores cultural landscapes more widely than the Tentative Lists which have now been submitted for most Pacific Island countries. In some cases the Tentative Lists have not been framed to incorporate cultural landscapes. For this portfolio, some Tentative List sites and some inscribed sites have been re-interpreted as cultural landscapes. Rapa Nui (Easter Island), Chile, although clearly an associative cultural landscape, was inscribed in 1995 for “*the substantial remains of this culture blend with their natural surroundings to create an unparalleled cultural landscape*” (decision of the 19th session of the World Heritage Committee). It was nevertheless inscribed as a cultural site rather than a cultural landscape. East Rennell (Solomon Islands) has been incorporated with its neighbour, Bellona Island, as a cultural landscape.

There have been a number of natural World Heritage establishment projects in the Pacific in the last five years, mainly in the area of atoll and coral reef systems. In the portfolio coverage is given to the cultural landscape dimensions of several of these, especially the North West Hawaiian Islands (US draft list), selected atolls of the Line Islands (Republic of Kiribati) and

¹⁰⁰ UNESCO World Heritage Centre. 2005. Report, Thematic Framework for World Cultural Heritage in the Pacific, 5-8 September 2005, Port Vila, Vanuatu. (<http://whc.unesco.org/uploads/activities/documents/activity-7-1.pdf>).

the far north-eastern atolls of the Tuamotu Archipelago. The last two have been considered as part of this portfolio and as part of the Central Pacific World Heritage Project.

Table 1 summarises the land- and seascapes in this portfolio and gives a brief indication of their characteristics and thematic context. On the basis of existing desk studies, all these portfolio entities might merit further research and comparative analysis as part of Tentative Lists. Sources such as Elbert and Monberg's (1965) *From the Two Canoes: Oral Traditions of Rennell and Bellona Islands* and the other well published bodies of Polynesian tradition are the exceptions rather than the rule in the wider Pacific context. This paucity of data, especially in the western Pacific, means that this portfolio is somewhat weighted to landscapes where archaeological sites have been the main focus of site survey and research. This combination of good published bodies of tradition and intensive archaeological work has led to an inevitable privileging of Polynesia in this portfolio.

Pacific Island States Parties when reviewing this material should consider the wide and imaginative range of reference that is needed to evaluate significance in the Pacific context. One example given here for Taputapuātea Marae (French Polynesia) covers the internationally known concept of "taboo", which ultimately derives from nineteenth-century descriptions (often by antagonistic missionaries) of the workings of *tapu*. Pacific societies have been the centre of much attention in the west since the sixteenth century. In the age of European exploration from the mid-eighteenth century onwards, many high-minded ideals and models of society were thought to be exemplified in the Pacific. Some concepts such as "taboo" and relatively egalitarian societies came to be modified and adopted in Western societies.

TABLE 1. A summary of the portfolio of cultural landscapes. For locations see Fig. 4.1.

State Party	Name	Landscape type	Theme(s)
Chile	Rapa Nui	Organically evolved, relict. Associative	Environmental restrictions and catastrophe, Polynesian settlement pattern
Hawaii (USA)	North Kohala	Organically evolved, relict	Polynesian sweet potato horticulture and settlement pattern
	Mauna Kea	Organically evolved, relict. Associative	Polynesian stone quarries, ritual
	Papahānaumokuākea Marine National Monument*	Associative land- and seascape	Seascape, Polynesian traditions, WW II
Polynésie Française	'Opunohu Valley, Mo'orea	Organically evolved, relict	Polynesian settlement pattern
	Taputapuātea, Raiātaea	Associative land- and seascape	Polynesian traditions, social organization, oceanic voyaging and navigation
	Rapa	Organically evolved, relict	Polynesian settlement pattern, traditions, environmental restrictions, fortifications and warfare
	Atoll marae, Tuamotu Archipelago* (Napuka and Tepoto Is)	Organically evolved, relict. Seascape and landscape. Part of Central Pacific World Heritage Project	Polynesian settlement pattern, oceanic voyaging and subsistence
Republic of Kiribati	Line Islands* (Kiritimati and Tabuaeran Is)	Associative and relict landscape and seascape. Part of Central Pacific World Heritage Project	Micronesian (Polynesian?) traditions, social organization, navigation
Republic of Marshall Islands	Bikini Atoll*	Associative seascape	WW II, Cold War imperialism, thermonuclear tests, forced population movement
New Zealand/ Aotearoa	Mangaia (Cook Islands)	Organically evolved, relict and continuing elements	Polynesian horticulture, wet and dry
	Bay of Islands	Organically evolved, relict. Associative	Polynesian settlement patterns, fortifications, horticulture. Associations with the colonial process in New Zealand
	North Taranaki fortified landscape	Organically evolved, relict. Associative	Polynesian settlement patterns, fortifications. Associations with the colonial process in New Zealand
Fiji	Sigatoka dunes and Sigatoka valley*	Organically evolved, relict	Lapita and Polynesian origins, navigation, environmental change
Tonga	Lapaha Royal Tombs and the Tongan maritime chiefdom	Associative and relict, ongoing funerary functions	Polynesian social origins/ideology
Solomon Islands	Reef/Santa Cruz Islands*	Organically evolved, relict and continuing elements	Lapita and the originating populations of Polynesia. Arboriculture and tree crop selection and/or domestication
	Bellona and East Rennell*	Associative land- and seascape	Polynesian outlier, settlement pattern.
	Marovo Lagoon*	Associative land- and seascape. Relict elements.	West Pacific (Papuan) social origins/ideology; relict forest pattern
	Tikopia	Organically evolved, relict and continuing elements. Associative	Polynesian outlier, settlement pattern. Associations with the history of anthropology.
Papua New Guinea	Kuk and the origins of wetland taro	Organically evolved, relict	West Pacific (Papuan) horticulture and plant domestication
	Arawe Islands	Organically evolved, relict	Lapita and the originating populations of Remote Oceania
Palau	Babeldaob hill terraces and traditional village settlements	Organically evolved, relict	West Micronesian (Austronesian) settlement pattern, fortifications

*Places marked with an asterisk have high intrinsic biodiversity values.

CULTURAL LANDSCAPES

The entries are in a standard format as follows:

- Name of the landscape place, usually containing some indication of its thematic interest;
- Name of the State Party and whether the landscape or some part of it is on the Tentative List or inscribed on the World Heritage list;
- Location;
- Current land use;
- General description;
- History and culture;
- Significance of the landscape, drawing on a wide range of thematic strands;
- Threats and authenticity issues.

Some of the portfolio entries have an illustration. By entering the latitude and longitude in Google Earth it will be possible to zoom into some remarkable aerial photographs of these land- and seascapes. Particularly good examples found while researching this portfolio are aerial photographs of North Kohala, Raiātea, Mangaia, Bellona and Rennell, Marovo Lagoon and the Arawe Islands.

Rapa Nui, Easter Island, a fable for the modern world

State Party: Chile. Inscribed on World Heritage List.

Location: 27° 49' S 151° 25' W

Land tenure: National Park.

General description:

The island is of moderate to low relief and is made up of a sequence of volcanic deposits including some larger craters (Rano Kau, Rano Raraku). The great extent of the original volcanic deposits has been cut back by sea action leaving a generally rocky coastline with some extensive stretches of cliffs especially at the east, south-east, south-west and west sides. The only sandy beach, at Anakena on the north-east of the island, was probably the site of first settlement by Polynesians. Fresh water is perched in a lens at or just above sea level within the volcanic rocks and emerges as a series of springs scattered around the coastal fringe and as lakelets in the centre of two craters. The coast and the springs have always been the main focus of settlement, although later in prehistory sweet potato horticulture was widespread in the inland areas. At first settlement the island had a simple forest cover of a tall palm-tree (similar to the *Jubaea* palm of Chile). By the eighteenth century these palms had completely disappeared.

History and culture:

Discovered and settled by Polynesians at about AD 1000, the island was first visited by Europeans at Easter 1722 in the course of the voyage of the Dutch explorer Roggeveen. Subsequent European visits include ones by James Cook (1774) and La Perouse 1786 - both explorers provide accounts of the society and unfolding events there. In his journal Cook noted:

The Stupendous stone statues erected in different places along the Coast are certainly no representation of any Deity or places of worship; but the most probable Burial Places for certain Tribes or Families [...] what I call the foundation [ahu] is an oblong square about 20 or 30 feet by 10 or 12 built of and faced with hewn stones of a vast size, erected in so masterly a manner as sufficiently shows the ingenuity of the age in which they were built[...].

Te Pito te Henua (the navel or end of the world) is the traditional name. Rapa Nui appears to be a 19th century coining to distinguish the island from Rapa. Small *moai* (statues) were beginning to be carved at Rano Raraku by about A.D. 1100 and the very large *moai* left *in situ* there represent the latest phases of production in the 16th century. The *moai* (statues) played a key role in the ideology of descent and the control of the land division of the island. They are erected on *ahu* (altars) in which the dead were buried.

Recent archaeological fieldwork has suggested that the flourishing of statue-making from A.D. 1200 must have been supported by agricultural surpluses from the sweet potato (*Ipomoea batatas*), newly introduced by that date from continental South America. The island became divided territorially in increasingly narrow strips running from the coast inland. The *moai* stand on *ahu* and are generally on the coastal strip, although inland examples are known. The *moai* face inland over the land of the descent group marked by the ancestral figures of the *moai*.

In the 16th century, these well marked territorial divisions of the island and the small highly competitive social entities that they represented were overwhelmed in a breakdown of the social order. By the 18th century the *moai* had almost all been thrown down (generally face-down) from their *ahu*:

Whatever economic power the hereditary elite once commanded, inducing their people to erect ideologically legitimating symbols of their and their ancestors' glory, became thoroughly eroded. Power now fell to the warrior class, the matatoa [...]. Seemingly tending towards hierarchy and increased centralisation at one phase, it transformed itself into an anarchistic state. In the end the relations of power that underwrote the construction of the most incredible monuments the ancient Pacific world has ever seen were not sufficient to survive the pressures they put upon the very ecosystem that those ideological symbols were meant to dominate and control. (Kirch 2000: 274-275).¹⁰¹

Current land use:

Apart from the concentrated settlement area around Hangaroa, the island has a cover of coarse grass and low shrubs with some grazing by horses. The land is mainly Chilean national park. There is a large government-run cattle station at the eastern end of the island. Some parts of the national park land have high visitor use and these areas have track and other visitor orientation facilities.

Significance of the landscape:

Rapa Nui is representative of a common Polynesian land tenure arrangement where the land is divided into strips back from the coast, thereby ensuring access to a range of ocean and land resources. These areas of land would have been controlled by descent groups. On Rapa Nui, the land tenure and its descent group or ancestral ideology was represented in the famous figures of the *moai*. The breakdown of this system of social order due to resource stress has long been seen, rightly or wrongly, as a microcosm of a potentially disastrous end to the modern world. Summed up in the phrase "Easter Island - Earth Island", the associative values of Rapa Nui, taken with the remarkable settlement pattern archaeology and the aesthetically important *moai*, makes this an outstanding and rightly famous cultural landscape.

Threats/authenticity:

The land area is mainly national park land except for the airport and airfield, the port and modern township of Hangaroa and an area to the south of the township which is being made available for the allocation of *parcelas* (settlement blocks for indigenous Rapa Nui people). Most *moai*, made from a relatively soft tuff, are suffering from weathering. There has been a large number of *ahu/moai* complexes reconstructed in the last five decades with some loss of authenticity.

See Figure 4.2.

¹⁰¹ Bahn, P., and J. Flenley. 1992. *Easter Island - Earth Island*. London, Thames and Hudson.

Kirch, P.V. 2000. *On the Road of the Winds: an Archaeological History of the Pacific Islands before European Contact*. Berkeley, University of California Press.

Mieth, A., and H.-R. Bork. 2004. *Easter Island - Rapa Nui: Scientific Pathways to Secrets of the Past*. Kiel, Christian-Albrechts-Universität.

Van Tilburg, J. A. 2003. *Among Stone Giants; the Life of Katherine Routledge and Her Remarkable Expedition to Easter Island*. New York, Scribner.

North Kohala, a relict horticultural landscape in the north-east trade wind zone

State party: USA. Not on Tentative List.

Location: 20° 10' N 155° 50' W

Land tenure: Private land and national and state park.

General description:

All of the Hawai'ian archipelago is subject to north-east trade winds. The archipelago forms a chain of islands at right angles to the wind, and there are distinct climatic and geomorphological contrasts between the windward and leeward sides of the islands. The central ridge line of North Kohala rises to 1670 m above sea level. The area is about 20 x 10 km.

North Kohala has older land forms than the rest of Hawai'i (Big) Island and has better developed soils and deeply cut valley systems on the wet, windward (north-east) side. The leeward slopes (where rainfall was moderate at the middle elevations and more suitable for sweet potato cultivation) was an area of high population density in the pre-European period. There are remarkably well preserved field systems in the pattern known as *ahupua'a*, a narrow strip of land that runs inland from the coast, perhaps 2 km wide and running inland for 20 km, crossing a number of resource zones.

History and culture:

At Lapakahi, in the north-west of the North Kohala district, a University of Hawai'i project found that the prehistoric *ahupua'a* cut across three distinct settlement zones: (1) a densely settled coastal zone centred on one hamlet, Koai'e; (2) an inland zone of limited settlement with inadequate rainfall and; (3) the farthest upland zone 2-4 km from the coast where rainfall was adequate and field systems were marked by the reticulation of field boundaries and numerous "C-shaped shelters". The coastal area appears to have been settled by about A.D. 1300 but by A.D. 1450 settlement had extended into the upland horticultural zone and a boundary wall had enclosed the lower settlements. By A.D. 1500, Lapakahi had consolidated as a "distinct social and political unit".

The windward coast of North Kohala, by contrast, seems to have been settled late in pre-European times, perhaps because of the persistent threat of flooding in valley floors. Most settlement dates are after A.D. 1500. It has been suggested that settlement here was only feasible on the advent of the centralised and stratified chiefdoms that marked late pre-European Hawai'ian society. With that degree of central control it was possible to found and to maintain the size of irrigation and flood works needed to garden in the flood-prone conditions. Most of the named *heiau* (temples) of Kohala are on this coast. They are more or less rectangular stacked-stone enclosures, sometimes with interior subdivisions.

Today the Koai'e settlement is manifested in the form of substantial stone walls of canoe sheds and house sites in a state park. Other field monuments include Mo'okini Heiau (ceremonial place/altar) and the Kamehameha Birthplace (a walled compound). Kamehameha was present among the chiefs at the visit of James Cook in 1779 and later (after 1804), as Kamehameha I, established a paramount chieftainship over all the Hawai'ian Islands. These

sites are in the Kohala Historical Sites State Monument. The Pu'ukoholā and Mailekeni Heaiau are part of a National Historic Site in the care of the National Park Service.¹⁰²

Current land use:

A mixture of privately owned land, Hawai'i State Park and National Park Service areas.

Significance of the landscape:

North Kohala is a relict landscape with outstanding visibility of prehistoric Polynesian horticultural land division. The landscape also reveals the evolution of small chiefdoms and their eventual coalescence under the tutelage of the Hawai'ian kings (paramount chiefs of all the islands from the early 18th century). The founding sites of the earliest Hawai'ian kings (commencing with Kamehameha I) are in this district. This evidence is broadly comparable with the development of the Pomare dynasty in Tahiti/Mo'orea.

The remarkable well preserved horticultural landscape also represents the adaptation of sweet potato to the distinctive patterned climatic zones created by the north-east trade winds in these latitudes. The north-east side of the Kohala hill range is wet while the other has a distinct rainfall zonation in which the most suitable land is at an intermediate altitude. The Kona field system in the adjacent Kona District is broadly comparable. The Kohala District is adjacent to the Hāmākua District which contains Mauna Kea.

Threats/authenticity:

The open landscape character of this landscape is created by grazing on privately owned land. Changes in land use could greatly modify the visibility.

¹⁰² Kirch, P.V. 1985. *Feathered gods and fishhooks: an introduction to Hawaiian archaeology and prehistory*. Honolulu, University of Hawaii Press.

Kirch, P.V. 1996. *Legacy of the Landscape: an Illustrated Guide to Hawai'ian Archaeological Sites*. Honolulu, University of Hawaii.

Mauna Kea, a high-alpine ceremonial and quarry landscape

State Party: USA. Not on Tentative List.

Location: 19° 50' N 155° 25' W

Land tenure: US National Park Service science reserve.

General description:

Mauna Kea and the neighbouring Mauna Loa are the highest peaks of the Hawai'ian archipelago and are the highest volcanic peaks (measured from the ocean floor) in the world. With the exception of Papua New Guinea, they are the only peaks within the tropical Pacific with evidence of Pleistocene glaciation. In Hawai'ian belief they are the remote abodes of the gods including Akea, the father of Hawai'i, and Poliahu, the goddess who keeps the mountain tops barren under ice and snow and provides the melt streams that feed the fertile valleys of the Hāmākua coast and North Kohala. The mountain is in the Hāmākua District of Honolulu.

History and culture:

The saddle between Mauna Loa and Mauna Kea was a crossing point between the windward and leeward sides of the island. A number of shelters and shrines are known in this area, including the Ahu o 'Umi first mapped by the U.S. Exploring Expedition in 1841.

On the flanks of Mauna Kea between altitudes of 2 600 and 3 780 m above sea level is one of the world's largest prehistoric quarry sources, covering an area of about 20 km². It lies on the domed upper aspects of the volcano and in patches of glacial drift at lower altitudes. The primary source forms an escarpment at about 3 700 m altitude in the vicinity of Pu'u Ko'ko'olau. It is a single flow of extremely hard and dense blue-black basalt, originally cooled very suddenly and crystallised by a covering of ice on the volcano. This source has the greatest concentration of quarries. Glacial action carried some stone down the mountain from the primary source and some of this stone has also been exploited in patches, especially near springs by the Pohakuloa Gulch to the west between 2 700 and 3 200 m altitude and Waikahalulu Gulch to the east between 3 000 and 3 400 m altitude.

The quarry areas are marked by primary extraction areas, workshop areas (for the finishing of adze preforms), shrines, stone-walled open-air shelters and rock overhang and lava tube shelters. The many shrines consist of upright stones or slabs in rows or clusters, often in prominent locations. The rock shelters contain highly significant assemblages of organic materials such as fire making materials, Pandanus matting, tapa cloth, tī rain capes and twisted sennit cordage. Radiocarbon dates from the shelters suggest use of the quarry complex from about A.D. 1200 and that use would have continued until the period of sustained European contact. It has been argued that adze manufacture was a craft specialisation, i.e. practised by specialists who would have supplied adze preforms to everyday users.¹⁰³

¹⁰³ Kirch, P.V. 1985. *Feathered gods and fishhooks: an introduction to Hawaiian archaeology and prehistory*. Honolulu, University of Hawaii Press.

McCoy, P.C. 1990. Subsistence in a 'non-subsistence' environment: factors of production in a Hawaiian alpine desert quarry. Pp. 85-119 In: D.E. Yen and J.M.J. Mummery (eds) *Pacific production systems....* Canberra, Research School of Pacific Studies.

Current land use:

National Park Service science reserve and other classes of National Park land.

Significance of the landscape:

The Mauna Kea quarry is a part of the high-altitude volcanic landscapes of Mauna Kea and Mauna Loa, partly incorporated in the Hawai'i Volcanoes World Heritage site area. The reserved quarry area contains many sites in remarkably good condition which illustrate not only Polynesian skills in working stone (in effect, a Palaeolithic skill that in the Pacific survived well into the last millennium) but also the rituals associated with intrusion into and ensuring survival in this high-altitude zone. There are comparable stone sources of large area in other parts of Polynesia, notably in the Nelson region, New Zealand, and Tataga Matau, Tutuila, Samoa. However, these sites do not have the unique high-alpine character of Mauna Kea, not its evidence of human adaptation to such a zone and with such a wealth of ceremonial and organic material remains.

Threats/authenticity:

Alpine weathering and mass movement is the principal cause of change to site condition.

Papahānaumokuākea Marine National Monument: a marine wilderness and cultural seascape

State Party: United States of America. On draft Tentative List, 2007.

Location: 22⁰—30⁰N 161⁰—180⁰W

Land tenure: Entirely owned by federal agencies and the State of Hawai'i. Close consultation with indigenous Hawaiian communities.

General description:

Papahānaumokuākea Marine National Monument (dedicated 2007) is the new name of the site complex of the Northwestern Hawaiian Islands (NWHI) which includes a coral reef ecosystem. The islands provide a typical geomorphological sequence of eroded high islands, near-atolls with volcanic pinnacles emerging from perimeter lagoons and reefs and true atolls with roughly circular perimeter reefs and central lagoons. The islands are also surrounded by more than 30 submerged ancillary banks and seamounts. Representing a cross section of a Pacific archipelago, the property includes pelagic basins of various depths, submarine escarpments, deep and shallow coral reefs, shallow lagoons, littoral shores, dunes, and dry grasslands and shrublands; it does not include abyssal ocean depths.

The total land area is 14 km² and the ocean area is 362, 000 km². More than 14 million seabirds nest on the tiny islets in the chain, including almost all Laysan albatrosses and black-footed albatrosses. Large, predatory fish such as sharks, giant trevally, and Hawaiian grouper, rarely seen and over-fished elsewhere, are abundant. Twenty five percent of the nearly 7,000 known marine species in the region are found nowhere else. A significant number of the terrestrial plants, birds and insects are also endemic.

The following islands are included in the area—native Hawaiian names (English names):

Nihoa Moku Manu (Nihoa Island, Bird Island)
Mokumanamana (Necker Island)
Mokupāpapa Lalo (French Frigate Shoals)
Pūhāhonu Lalo (Gardner Pinnacles)
Nalukakala Ko'anako'a Maro Reef
Kauō Kamole (Laysan Island, Moller Island)
Papa'āpoho Kapou (Lisianski Island)
Holoikauaua Manawai (Pearl and Hermes Atoll)
Pihemanu Kaihelani (Midway Islands, Brook Island, Middlebrook Islands)
Kānemiloha'i Holaniku Kure Atoll

History and culture:

In Hawaiian traditions about the cosmogeny of the Hawaiian Islands, Papahānaumoku (personifying the earth) and Wākea (personifying the sky) are two well recognized Hawaiian ancestors, with many parallels elsewhere in Polynesia. (In New Zealand they are Papatuanuku and Rangi.) Papahānaumokuākea as a name encourages resource abundance of the earth, sea and sky. Taken apart, the words 'papa' (the earth mother), 'hānau' (birth), 'moku' (small island or large land division), and 'ākea' (wide) bespeak a fertile woman giving birth to a wide stretch of islands beneath a benevolent sky. The term is cognate with that of Mauna Kea (see previous portfolio case study).

On Nihoa Island, 89 cultural sites have been documented, including residential features, horticultural terraces, ceremonial structures, shelters, cairns, and burial sites. This island also has sufficient soil development for limited horticulture to have been established. Mokumanamana has 33 *heiau* (ceremonial sites) along the island's central spine; it was, and continues to be visited by Native Hawaiians for spiritual purposes and to practise the arts of navigation. It has the highest concentration of such religious sites found anywhere in the Hawaiian Archipelago.

The low, inconspicuous nature of the islands and, historically, their often incorrect location on maps has led to a material legacy of shipwrecks. Following WW II there were also many sunken naval aircraft. The remote location has kept these maritime heritage resources safe from salvage and looting. Currently, there are 60 known shipwreck sites and a total of 127 potential maritime archaeological sites.

Midway Atoll is two small islands and a surrounding coral atoll in the central Pacific Ocean. Discovered in 1859, they were annexed by the United States in 1867 and remain a U.S. territory with an important naval base. During WW II, Midway Atoll's central location in the Pacific made it a critical link in communications and transportation history in the Pacific. A World War II Allied victory, the Battle of Midway (June 3–6, 1942), was a major turning point in the war in the Pacific. The Battle of Midway National Memorial was designated in 2000.¹⁰⁴

Current land use:

The three principal entities with responsibility for managing lands and waters of the Monument - NOAA, USFWS, and the State of Hawai'i (collectively, the Co- Trustees) - work cooperatively to administer the monument areas.

Significance of the landscape/seascape:

The islands of Papahānaumokuākea and the surrounding seascape play a central role in Native Hawaiian archaeology, cultural identity, and spiritual well being. 'O ka mea i kūpono i kō kākou no'ono'o aku, 'oia kā kākou e mālama.' ('What is suitable for us to reflect on is what we should preserve.') The ceremonial terraces and platform foundations with upright stones found on both Nihoa and Mokumanamana are unique traditional Hawaiian architectural forms of stone masonry work that resemble those of inland Tahiti, and some stone figures show a strong relationship to similar carvings in the Marquesas. They are some of the best preserved early temple designs in Hawai'i, and have played a critical role in understanding Hawaii's strong cultural affiliation with Tahiti and the Marquesas, and indigenous Hawaiians' role in the migratory history and human colonization of the Pacific.

¹⁰⁴ Papahānaumokuākea Marine National Monument. Application for inclusion of a property in the U.S. World Heritage Tentative List. Honolulu, Hawai'i, Friday March 30, 2007. (http://home.nps.gov/oia/topics/worldheritage/Applications/Papahanaumo_kuakea.pdf)

DiNardo, G., and F. Parrish (eds) Northwestern Hawaiian Islands, Third Scientific Symposium, November 2-4, 2004. (Atoll Research Bulletin, 543.) Washington D.C., National Museum of Natural History.

Emory, K. 1928. *The Archaeology of Nihoa and Necker Islands*. (Bishop Museum Bulletin, 53.) Honolulu, BP Bishop Museum Press.

Papahānaumokuākea continues to be a training ground for ocean-related traditional cultural practices. Since the 1970s, practitioners in Polynesia and Hawaii in particular have had enormous success in reviving traditional methods for navigation and sailing of double-hulled long distance voyaging canoes. The most famous voyaging canoe, the *Hōkūleʻa*, originally designed by anthropologist Ben Finney, has sailed to the Northwestern Hawaiian Islands three times, in the years 2003, 2004, and 2005.

The variety of shipwreck sites in Papahānaumokuākea reflects two distinct and important themes in maritime history. The aircraft and shipwrecks of WW II, along with the physical remains of the 19th century whaling industry in the Pacific, create two distinct cultural landscapes that tie these atolls together. They reflect significant periods of seafaring history in the Pacific Islands after the period of settlement by the early Polynesian voyaging canoes. The Battle of Midway was a decisive WW II battle.

Taputapuātea marae complex and the Opoa valley, Raiātea (Leeward Islands)

State Party: France (Polynésie Française). A case is being made for Taputapuātea and Te Pō to be put on the Tentative List of France.

Location: 16° 50' S 151° 25' W

Land tenure: French Polynesia Park and private land.

General description:

The Taputapuātea *marae* complex is a small landscape area (about 60 ha) focussed on the broad point of Te Pō and the coastal *marae*, including a hill, a river, part of the encircling reef and a passage through the reef named Ava Moa. It lies in the Opoa Valley district on the south-east corner of Raiātea beneath the hill Tea'etapu (meaning the scared ascent to Hawiiki) and the nearby Puu Roa, burial ground of the chiefs of Opoa.

History and culture:

The complex consists of seven *marae*, the largest of which, Taputapuātea, is 90 x 35 m in plan. It includes an *ahu* on the seaward end about 35 x 7 m in plan faced with coral slabs up to 4 m high. Radiocarbon samples taken from a clam found on the *marae* gave variable dates. Wallin prefers a date of about A.D. 1700. The other *marae* were not as well defined when first recorded by K.P. Emory in the 1920s but his drawings show that they were about 35 m across on the narrow axis and with *ahu* on the seaward end. One *ahu*, part of Marae Hauviri, currently lies on the high water mark where the massive upright slabs of its *ahu* provide some protection from wave action.¹⁰⁵

In his first voyage journal (Aug 1769) James Cook describes an *ahu* as “a long square of stone work built Pyramidically [...]” Joseph Banks for his part noted that “The greatest pride of an inhabitant of Otaheite is to have a grand Marai”, thinking back perhaps to the buildings of the aristocratic class to which he belonged. These and other 18th century European accounts describe the functions of various elements of *marae*. The upright stones on the rectangular courtyards, used as backrests, positioned the participants in the ceremonies and also represented ancestral spirits. The *ahu* were sacred to the gods who were represented by wooden or stone slabs. Priest's houses, the elevated wooden platforms for sacrificial offerings, sacrifice pits and small god houses were other characteristic features.

Until the late eighteenth century, Rai'ātea was the centre of chiefly and religious power in central Polynesia. The god Oro was born of the god of the sea Ta'aroa (Tangaroa) in the sacred district of Opoa. The ancient name of Rai'ātea was *Havai'i fanaura'a fenua* (Havai'i the cradle of the earth). There are many places throughout Polynesia - from Hawai'i to New Zealand - which bear names cognate with those of the names of places in ancient Rai'ātea, e.g. Hawai'i, Hawaiki, Avaiki, Savai'I, Avarua, Awarua. There are other cognate place names such as Rangiātea, Tahiti/Tawhitinui - all testimony in living tradition and in place names to the extraordinary rapidity and extent of Polynesian voyaging throughout the Pacific about 1200-800 years ago. This is captured in the (New Zealand) Māori proverb: “E kore au e ngaro; te kākano i ruia mai Rangiātea” - ‘I shall never be lost; [for I am] the seed which was sown from Rangiātea”.

¹⁰⁵ Dupon, J.-F., J. Bonvallot and E. Vigneron (eds). *Atlas de la Polynésie Française*. Paris, ORSTOM.

Current land use:

Te Pō is French Polynesia park land.

Significance of the landscape:

Taputapuātea is widely referred to in pan-Polynesian traditions and is generally regarded as the most sacred *marae* of Polynesia. The site was visited by James Cook, Joseph Banks and others from the *Endeavour* in the course of the first voyage (August 1769); their descriptions are an important record of the Polynesia-Europe encounter. Taputapuātea may also be read as a key element in a wider Polynesian cultural seascape representing both the historical facts of ancient voyaging and its symbolism in the modern landscape names of countries from New Zealand to Hawai'i, where cognate forms of Hawaiiki, Rai'ātea and Tahiti are common in the landscape.

The word *marae* has great antiquity in the Polynesian languages and refers to a formal ceremonial assembly and offering ground. It may also accrue burial and mortuary functions. Many but not all central Polynesian *marae* have a strongly megalithic character and constitute remarkable field monuments. *Marae* have a courtyard of rectangular outline which may be up to 80 m long. It may be defined by a surrounding wall or by a simple stone-paved outline usually both. Corner stones are often pronounced and there are often upright stone slabs inserted in the stone paving. At one end is the *ahu* or 'altar', a raised stone platform, narrow and rectangular, sometimes stepped and up to 2 m in height.

The *marae* in New Zealand Aotearoa refers to the ceremonial space surrounding the principal meeting house or houses of a *whānau* (an extended family), or *hapū* (sub-tribe). Some modern *marae* may have intertribal, national or Pacific-wide functions and symbolism.

The concept of taboo is exemplified in practices that surround *marae*. Many *marae* have highly *tapu* (forbidden) areas and may be regarded as the origin of the Polynesian and wider Oceanic origins of this concept. In Polynesia, land, objects, some people, some practices and some parts of the body may be *tapu*.

‘Opunohu Valley, Mo’orea, a landscape of ancestral Polynesian settlement

State party: France (Polynésie Française). Not on Tentative List.

Location: 17° 30' S 149° 50' W

Land tenure: National Park (Parc National), some private land and development in the coastal lowlands.

General description:

The valley is the larger of two deeply embayed drainage basins on the northern side of Mo’orea. It has an area of about 1500 ha. Some of the land is extremely steep but there is 800 ha of low-lying flood plain. Rainfall varies from 2500 mm to more than 3200 mm in the hills. The modern forest species are dominated by Polynesian introductions: Tahitian Chestnut and *Canarium* (candlenut), both of which have also been identified from charcoals in prehistoric levels of alluvium/colluvium in the valley. Pan-Oceanic species such as the fern *Dicranopteris linearis* thrive in long-disturbed areas.

Following tradition, there was a great *marae*, also named Taputapuātea, at Papetoai Point which is to the north-west of ‘Opunohu Bay in the ancient district of Fa’ato’ai. Only a few stones remain today.

Lepofsky *et al.* (1996) have shown that the earliest settlement is represented by charcoals dating to A.D. 700 in valley-floor sediments. These sediments include fragments of domesticated varieties of coconuts. This phase (the earliest documented in the Society Islands) involved shifting horticulture on the hillslopes and some consequential alluviation on the valley floors.

The later *Atiro’o phase* (A.D. 1000-1650) is represented by streamside taro plots and simple *marae*. Rectangular (low status) and round-ended, stone-outlined house floors, the latter in association with *marae*, suggest “a well-established community with status individuals” (Green *et al.* 1967). There are numerous other structures such as the distinctive stone-paved archery platforms. There was probably well developed arboriculture including Tahitian chestnut and breadfruit as well as dryland and irrigated taro.

The ethnohistoric period is represented by the *Marama phase* (A.D. 1650-1788) when the peoples of the valley were conquered by the Marama line of coast-dwelling chiefs. The society was highly stratified into three levels: *ari’i*, *ra’atira* and *manahune* (the commoners). In this late phase, there are complex forms of *marae* with multiple platforms and intensified subsistence with elaborate water management of taro pondfields. Most of the *marae* will relate to this late phase. There are five *marae* on the north-western shores of ‘Opunohu Bay. The area of greatest settlement was in the upper valley floor about two kilometres in from the bay, including five *marae* complexes. (One of them, ScMo103, has seven individual *marae* and other forms of platform.) Wallin (1993) notes a total of 29 *marae* in the valley and on the shore of the bay:

- 8 examples of type 1: unwallled rectangular courtyards with no *ahu* but with upright stones;
- 10 examples of type 3: walled and with *ahu* higher than 20 cm;
- 2 examples of type 5: stepped *ahu* facing walled courtyard;

- 6 examples of marae with *ahu* destroyed or unclassified.

The Pomare phase 1788-1812 is the period of European intrusion when the valley was used as a refuge by some chiefs, ending when Pomare II converted to Christianity.¹⁰⁶

Current land use:

The upland area of the site is national park with moderate tourist numbers (perhaps 50 000 per annum). There is some ongoing gathering of forest resources by the local community. Lowland areas around the bay are grazed or under development or, for the coastal area with the most marae, in the ownership of the university. The valley is serviced by a road which gives views over the valley and towards the coast.

Significance of the landscape:

The valley has many relict landscape features and strong associative cultural values. Lepofsky *et al.* have demonstrated a long process of settlement and related environmental disturbance. Alluvial deposits in the valley contain macroscopic traces of a number of common Polynesian cultivars from the very earliest period of settlement. As recorded by Roger Green, the valley has a number of *marae* (stone-lined platforms) still extant, some of very complex forms, archery platforms (small stone-lined enclosures), paths and stone-lined terraces and water reticulation systems originating in the streams and spreading out on the contour and downslope through what were once taro terraces.

The ‘Opunohu valley clearly illustrates a universal process of social evolution — both in its archaeology and oral history — and illustrates this process in a Polynesian society. The valley has been well known since the 1960s and the pioneering archaeological work of R.C. Green. The modern history of the valley illustrates the process of colonisation.

Threats/authenticity:

National park management assures a minimum of threat but there is development on the freehold land.

See Figures 4.3, 4.4. and 4.5.

¹⁰⁶ Dupon, J.-F., J. Bonvallot and E. Vigneron (eds). *Atlas de la Polynésie Française*. Paris, ORSTOM.
 Green, R.C., K. Green, R.A. Rappaport, A. Rappaport and J. Davidson. 1967. *Archaeology on the Island of Mo'orea, French Polynesia*. (Anthropological Papers of the American Museum of Natural History 51 (2).)
 Kirch, P.V. 2000. *On the Road of the Winds: an Archaeological History of the Pacific Islands before European Contact*. Berkeley, University of California Press.
 Lepofsky, D., P.V. Kirch and K.P. Lertzman. 1996. Stratigraphic and palaeobotanical evidence for prehistoric human-induced environmental disturbance on Mo'orea, French Polynesia. *Pacific Science* 50 (3): 253-273.
 Wallin, P. 1993. *Ceremonial Stone Structures: the Archaeology and Ethnohistory of the Marae Complex in the Society Islands, French Polynesia*. (Aun 18.) Uppsala, Societas Archaeologica Upsaliensis.

Napuka and Tepoto, atoll marae and the Tuamotu Archipelago seascape

State Party: France (Polynésie Française). Not on Tentative List.

Location: 14°10' 30 S 141°14' W

Land tenure: Customary land, outer reef platform and lagoon usage.

General description:

The Tuamotu Archipelago is classified into three major divisions: Western, Central, Northern and Eastern. The atolls stretch out over 1300 km from north-west to south-east and are more widely dispersed to the south-east. Napuka is one of a trio of small atolls (the others are Tepoto and Pukapuka) that form the farthest north-eastern grouping of the Tuamotu Archipelago, Îles du Désappointement or Disappointment Islands, so named in 1765 by Byron (first European contact). Napuka consists of a well-developed reef roughly shaped like a triangle, 7 km in length and 3.5 km wide enclosing an 18 km² lagoon. Situated on the reef are around 30 islets, the largest of which occupies the entire north coast of the atoll. The total land area is 8 km². There is no navigable pass through the coral reef. The modern village of Tepukamaruia is located in the northern part of Ogoio motu on the west of the island. The second atoll, Tepoto, has an infilled lagoon and a total area of 4 km².

History and culture:

The islands' archaeology is Polynesian in origin. Date of first settlement is not known but it may be as early as the first settlement of the Marquesas or Tahiti, since the Tuamotu Archipelago forms a screen between the two groups. First settlement of Mangareva to the far south-east was later, at about A.D. 1200. Later in the prehistoric period marae were built on the perimeter islands of the atolls throughout the Tuamotus. Apart from Napuka (further described below), Takapoto has 13 recorded and Tikehau 8.

The island of Napuka is principally known for its assemblage of *marae* (more than 22 in total), scattered on the islands of the reef perimeter; the documentation of the turtle sacrifice ceremonies by K.P. Emory (1934; 1947); and, more recently, its traditional marine subsistence economy which has been studied by E. Conte (1988). The marae are likely to be of the later part of the second millennium AD. The largest marae were Marokau and Fakarava; these were *marae tifai* where turtles were sacrificed and ceremonially eaten. Others were named: Aturona, Rangihua, Tarahu, Tararua, Garutua, Haurangi and Faunoa. The *marae* have quadrangular courtyards with at one end an ahu 3-40 m in length, 60 cm to 3 m in width and 30 cm to 1.5 m high. (Some *marae* are in fact very small.) There are small platforms and occasional stone uprights (*pohatu*) on the courtyards. In the wider Tuamotu Archipelago the general pattern is like the unostentatious inland *marae* of Tahiti, i.e. a low *ahu* with upright slabs usually three in a line on top and with courtyards with uprights as on Napuka.

The islands were evangelised in 1878, a relatively late date, and were not opened up to the copra cash economy until the 1920s. Many ancient Polynesian practices therefore survived much later than they did elsewhere. Conte has recorded a great deal of information about the toponymy of Napuka. The open sea is *tua*, the lagoon *roto*. North is *tokerau*, south is *tonga*. Inhabited areas are *oire*, less inhabited areas are *ngake*. There are many named coral pinnacles in the lagoon and favoured fishing grounds on the immediate inner and outer faces of the low-

lying parts of the reef where traps are constructed. The islands are dotted with named natural and constructed observation points for watching the sea and approaching vessels.

The marine subsistence practices of the islanders follow a strong seasonal rhythm according to the condition of the fish and the availability and the ease of catch of sea turtles. May to November is the prime season, accompanied by important rituals, when the turtles come ashore to breed. They were harpooned in the sea or taken by hand when on the land. December to March is the bad season when the giant clam (*Tridacna maxima*) is mostly exploited.

Excavations by Conte of a burial ground on *marae* Te Tahata on Tepoto recovered a mass burial of victims of infectious diseases. The burials date to about 1850. This particular *marae*, recorded by Emory in the 1920s, would predate that era. It is marked by well formed upright stone structures and abundant fragments of turtle bones, suggesting that it too was a *marae tifi*.¹⁰⁷

Current land use:

Modern settlements, plantation areas and unoccupied land.

Significance of the landscape:

Along with the other atolls of the Tuamotu Archipelago, Napuka and Tepoto are representative of the ancient Polynesian cultural associations of the long chain of atolls, reefs and seascapes which come under the developing Central Pacific World Heritage Project (atolls in the Line and Phoenix Islands, the northern Cook Islands and the Tuamotu Archipelago). It shows the unique adaptation of humankind to the very marginal environmental conditions of life on atolls. Some atolls in these chains, the so called “mystery islands” such as Kiritimati in the Republic of Kiribati (discussed elsewhere in this portfolio), had been abandoned by settlers by the eighteenth century. In the case of Tepoto, the introduction of European disease and its disastrous effect on local populations has been demonstrated at the *marae* Te Tahata.

See Figures 4.6. and 4.7.

¹⁰⁷ Conte, E. 1988. *Les Techniques de Pêche Pre-Européennes et Leur Survivances en Polynésie Française*, Université de Lille, Villeneuve d’Ascq.

Conte, E. 1993. L'utilisation du milieu marin et récifal : Napuka. Planche 64. In: Dupon, J.-F., J. Bonvallot and E. Vigneron (eds). *Atlas de la Polynésie Française*. Paris, ORSTOM.

Conte, E., and J. Dennison. 1995. Tepoto burials. *Journal of the Polynesian Society* 104 (4): 397-427.

Emory, K.P. 1934. *Tuamotuan Stone Structures*. (BP Bishop Museum Bulletin 118.) Honolulu, BP Bishop Museum.

Emory, K.P. 1947. *Tuamotuan Religious Structures and Ceremonies*. (BP Bishop Museum Bulletin 191.) Honolulu, BP Bishop Museum.

UNESCO World Heritage Centre. 2004. *Central Pacific World Heritage Project: International Workshop Report 2-6 June 2003, Honolulu, Hawaii*. (WHC-2004/WS/4.)

Rapa, a fortified Polynesian island landscape

State Party: France (Polynésie Française). Not on Tentative List.

Location: 27° 36' S 144° 20' W

Land tenure: Customary land.

General description:

Rapa is a small (39 km²), very remote island, about 6 km across at its widest and with a deep bay (Ha'urei Bay), entering the centre of the island from the south-east. The vegetation cover today is grass and fern over most of the hill country and on the abandoned sections of the pondfields. The principal ridge line surrounding the central bay is very steep and precipitous. On its high points there are 25 hill forts (*pare*). They are deeply sculpted and show well in the modern landscape and some can be discerned in current satellite imagery.

History and culture:

The earliest archaeological site on the island is a large sea cave Tangarutu in which the lowest layers date to A.D. 1150-1250, probably the period of first settlement. This age is very similar to that of first discovery of many other areas of the south and south-west Pacific such as New Zealand. Two of the *pare* (hill forts), Morongo Uta and Ruatara or Ruitara, have early dates at about A.D. 1500-1600. (This is the same age at which fortifications start to appear in New Zealand.) The balance of the *pare* consistently date to a narrow range at about A.D. 1700-1850, presumably the period of greatest population and major strife over land resources. Pollen cores on the lower slopes of the island go as deep as 3 m and represent over three millennia of natural and human-induced change. The earliest pre-human forest appears to have been dominated by species of *Pandanus* and tree fern and there were some grasses. From A.D. 1200 to 1825 the pollen record shows human impact on the environment in the form of greatly increased sedimentation rates and higher frequency of charcoal fragments, increased grasses and fire-induced ferns and the pollen of the taro *Colocasia esculenta*. Deforestation was probably complete by A.D. 1500.

In the 1960s a Norwegian expedition excavated and restored one of the hillforts, Morongo Uta. It had clearly been used for everyday living, i.e. it was not simply a retreat in times of strife. The Norwegian reconstruction shows a tower-like central platform, with narrow surrounding terraces extending out along the ridge line. There were defensive ditches and it seems likely that the fortifications were palisaded. In 1920, J.F.G. Stokes recorded a wealth of traditions about the hill forts and the relationship of the modern social groups of Rapa to them. Like Mangaia in the Cook Islands, the people of ancient Rapa were in a constant state of warfare over access to and control of the relatively small areas of taro-producing pondfields. These flanked the inner shores of Ahurei Bay and lay on the valley bottoms of the small bays dotted around the open coast.

The hillforts were being built from about A.D. 1500. Kennett *et al.* (2006) hypothesise that this development may represent either (a) strategic defence of heavily contested resources, with weaker groups pushed to less productive area, or (b) an 'energy sink' substituting for prolific reproductive and child-bearing behaviours, which in turn optimised population levels in relation to uncertain horticultural productivity. Both hypotheses may be true.¹⁰⁸

¹⁰⁸ Kennett, D., A. Anderson, M. Prebble, E. Conte and J. Southon. 2006. Prehistoric human impacts on Rapa, French Polynesia. *Antiquity* 80: 340-354.

Current land use:

Mainly fernland with small areas of pondfield taro. Small settlement areas. Land use is controlled by descent groups under overall control of the “Council of Seven” (or the seven founding descent groups).

Significance of the landscape:

Rapa like New Zealand and Fiji is notable for the elaboration and density of its hill fortifications. Other Polynesian islands had traditions of warfare but late in prehistory settled into a form of peaceable living under senior or paramount chiefs tantamount to royal families. The notable contrast is Easter Island (Rapa Nui) where warfare appears to have broken out between carefully organised clans but no elaborate system of defence developed. The modern landscape there is dominated by the thrown-down statues, potent symbols of the widespread breakdown of a former social order. In Rapa, Fiji and New Zealand, by contrast, an uneasy equilibrium of force and defence is reflected in the sheer density of fortifications at easily defended features of the landscape such as river bends, headlands or hill tops.

See Figure 4.8.

Kiritimati and Tabuaeran in the Line Islands - “Mystery Islands” at the centre of Polynesia

State Party: Republic of Kiribati. On Tentative List as part of the initiative of the Central Pacific World Heritage Project (focused on the natural values of reefs and atolls).

Location: 6° 30' N—11° 30' S 163° W—150° 10' W

Land tenure:

Since the early twentieth century under the British administration of the Gilbert and Ellice Islands the islands have been settled by people who today identify as i-Kiribati. Most of the small islands are wildlife reserves. Kiritimati has a population of 3 000.

General description:

The Line Islands comprise four atolls and six raised coral reef islands, straddling the equator over a rough arc 2 000 km long. Kiritimati, an atoll with a large perimeter island, is by far the largest at 321 km². The rest vary from 40 km² to 0.2 km². They are both landscape and seascape. The islands all have highly significant lagoon and reef ecosystems and sustain very high populations of tropical seabirds. The flora is depauperate with mainly coconut stands and *te bwabwai* (taro-growing depressions or pits). On Tabuaeran there are closed groves of *Pisonia*, coconuts and pandanus.

History and culture:

Not settled at the time of James Cook's arrival in the eighteenth century, there is clear archaeological evidence of *marae* and other Polynesian settlement from Caroline Island (Millennium Atoll) and of *marae* and other archaeological sites of Polynesian derivation on Tabuaeran (formerly Fanning), Kiritimati (formerly Christmas), and Malden Islands. The earliest artefacts documented, although sparse, are recognisably Polynesian and not dissimilar to artefacts of the New Zealand Archaic. The *marae* were first recorded by Kenneth Emory in the 1930s. Simple in form and often battered about by storms, they are recognisably similar to other *marae* in central Polynesia from the Tuamotu Archipelago to the Cook Islands. Their makers, Polynesians, had wide networks of interaction and notable voyaging skills, evidenced principally by the trade or transport of basalt for adzes from sources in the Marquesas and Society Islands (Polynésie Française) and Aitutaki (Cook Islands, New Zealand) and possibly Hawaii - all sources 2 000-3000 km distant from the Line Islands.

Radiocarbon dates for the Polynesian settlement are about A.D. 1200-1400 (thirteenth to fifteenth centuries A.D.) - i.e. in the era when there was considerable inter-island voyaging and when the most far-flung islands of the south-west Pacific (New Zealand, Norfolk Island, Auckland Islands) were discovered by Polynesians. This is also the era when the 'Polynesian outliers' of the tropical western Pacific such as Tikopia and Renell and Bellona were first settled by the ancestors of their modern populations.

The Line Islands are therefore some of the remote “mystery islands” of Polynesia - so called because there is a mystery as to why they were once a key part of the Polynesian settlement story but were later abandoned. Anderson *et al.* (2000) have recently tentatively concluded that a crisis in the availability of water (affecting human consumption, horticultural prospects and the existence of coconut palms) coupled with the introduction of rats and the over-consumption of large seabirds from nesting grounds led to the mysterious abandonment. Di Piazza and Pearthree (2001) by contrast have argued that Kiritimati was never permanently

settled. In their view it was periodically visited by Polynesian foragers based on the environmentally sustainable island of Tabuaeran 300 km to the north-west.¹⁰⁹

Current land use:

Human settlement and horticultural use on Kiritimati. Tabuaeran is not settled.

Significance of the landscape:

Kiritimati and Tabuaeran are two of the ‘mystery islands’ of central and southern East Polynesia. They are representative of the phenomenon of relatively late Polynesian settlement of isolated islands followed by abandonment for reasons possibly to do with the non-sustainability of resources such as the nesting seabirds which are so abundant under the modern conservation regime of the islands. Di Piazza and Pearthree have argued that 700-500 years ago these two islands were widely linked with other parts of Polynesia (where there would have been closely related peoples) and that the two islands were economically complementary parts of a seascape linked by short-range voyaging.

Along with the atolls of the Tuamotu Archipelago, such as Napuka, these islands are representative of the ancient Polynesian cultural associations of the long chain of atolls, reefs and seascapes which come under the developing Central Pacific World Heritage Project (covering atolls in the Line and Phoenix Islands, the northern Cook Islands and the Tuamotu Archipelago).

See Figure 4.9.

¹⁰⁹ Anderson, A., P. Wallin, H. Martinsson-Wallin, B. Fankhauser and G. Hope. 2000. Towards a first prehistory of Kiritimati (Christmas) Island, Republic of Kiribati. *Journal of the Polynesian Society* 109 (3): 273-291.

Di Piazza, A., and E. Pearthree. 2001. An island for gardens, and island for birds and voyaging: a settlement pattern for Kiritimati and Tabuaeran, two 'mystery islands' in the northern Lines, Republic of Kiribati. *Journal of the Polynesian Society* 110 (2): 149-170.

Anonymous. 1993. *Kiribati National Environmental Strategy*. Chapter 2: The Setting.

UNESCO World Heritage Centre. 2004. *Central Pacific World Heritage Project: International Workshop Report 2-6 June 2003, Honolulu, Hawaii*. (WHC-2004/WS/4.)

Bikini Atoll

State Party: Republic of Marshall Islands (RMI). On Tentative List along with Ailinginae Atoll.

Location: 11° 35' N 165° 23' E

Land tenure: Not applicable, abandoned land because of radiation risk.

General description:

An atoll is an irregularly ring-shaped reef with a chain of islands built up on the reef. The central sea water lake or lagoon is usually connected by a deep pass or passes to the open sea. In trade wind areas there may be a greater build-up of islets on the windward side and a series of small channels draining the lagoon through the leeward side of the reef. The islets usually have a series of storm beaches and inland flat areas all built from weathered coral boulders and sand. Fresh water is scarce and usually perched as a lens on saline ground water or sea water, where it can be reached by digging shallow wells or open shallow pits for the cultivation of taro.

Today the “forest” in most areas of the Marshall Islands is dominated by coconut palms. Breadfruit is also common on the Marshall Islands. Both species are important in subsistence. “No record remains of the true original Marshall Islands vegetation” (Fosberg 1990). However, it can be inferred that there were zones of mixed broadleaf forest of low stature with a climax forest of *Neiosperma* and *Pisonia grandis* (a very tall tree). Herbaceous plants such as some bunch grasses may have been dominant in dry interiors and in seabird colonies. About 10 species of seabird breed on the Marshall Islands and seven pelagic roaming species pass through the area.

History and culture:

In 1947, Bikini Atoll, the northernmost of the Ralik Chain was the site of an early series of nuclear tests named “Operation Crossroads”. Bikini is also the name of one particular island, about 5 km long and no more than 1 km wide, nearest the site of the early tests on the north-east of the atoll. Its vegetation was largely destroyed by the thermonuclear tests in 1954 but has since recovered. Eniwetak was another atoll used for testing.

The earliest target was a fleet of older WW II ships assembled about 5 km south-east of Bikini. There were two atomic blasts: the first, Able, an air blast, and the second, Baker, underwater, both in the eastern part of the lagoon. The ships that are now sunk on the lagoon floor following the tests of 1947 include vessels of great symbolic importance in the naval history of WW II. They include the battleship *Nagato* (Japanese flagship for the attack on Pearl Harbor in 1941), the USS *Saratoga* an aircraft carrier and the USS *Arkansas* a battleship. The German cruiser *Prinz Eugen*, damaged by the bombing, was towed to Kwajalein and driven ashore there by a storm. Other ships on the floor of the lagoon include submarines and smaller support and transport ships.¹¹⁰ The Bravo hydrogen (thermonuclear)

¹¹⁰ Fosberg, F.R. 1990. *A Review of the Natural History of the Marshall Islands*. (Atoll Research Bulletin 330.) Washington D.C., National Museum of Natural History.

Delgado, J.P., D.J. Lenihan and L.E. Murphy. 1991. *The Archaeology of the Atomic Bomb: [...] the Sunken Fleet of Operation Crossroads at Bikini and Kwajalein Atoll Lagoons*. (Southwest Cultural Resources Centre Professional Papers 37). Santa Fe NM, National Park Service.

bomb test was carried out in 1954. It destroyed a large part of the barrier reef on the north-west part of the atoll.

Current land use:

The land area of Bikini Island still has restricted use. The ownership of the ships on the lagoon floor was transferred to “the people of Bikini” under the Compact of Free Association between the USA and the government of the RMI.

Significance of the landscape:

The events of Operation Crossroads (1947) and Bravo (1954) had high symbolic significance at the end of WW II and in the opening phases of the Cold War. From the United States’ point of view Operation Crossroads destroyed symbolic vessels of a defeated enemy and demonstrated the capability of atomic weapons against a substantial assemblage of naval vessels - equivalent at the time to the fifth largest national fleet on the international scene. In addition the sunken vessels contain an assemblage of the scientific instrumentation needed to measure blast and other effects. The Bravo hydrogen bomb test, carried out in 1954 on the north-western fringing reef, was a significant escalation in that phase of the Cold War.

Naval history from as long ago as the era of Classical Greece is littered with mass sinkings of fleets. In the twentieth century, the French fleet was scuttled after the surrender of France in WW II. On the world scene, there are other sunken fleets still intact: parts of the Japanese fleet sunk at Chuuk (FSM) and, notably, the WW I German fleet scuttled at Scapa Flow in the northern UK after the armistice by German crew.

The people of the RMI and Bikini in particular were removed from these islands so that the tests could proceed. Today their descendants are determined that this aspect of the imperial and Cold War programme represented at Bikini should not be forgotten (<http://bikiniatoll.com/home.html>).

Threats/authenticity:

The sunken ships contain large amounts of dangerous WWII ordnance. The subsurface soils of the perimeter islands are understood still to have high levels of radioactivity. Tests at Chuuk (FSM) suggest that the steel platework of the ships there may retain their structural strength for another 20-40 years. A similar duration may be expected for the Bikini fleet. Even in structurally broken down form, as at Chuuk, the assemblages on the lagoon floor will retain their symbolic and archaeological significance.

See Figure 4.10.

Mangaia - island landscape of Orongo, god of taro and war

State party: New Zealand/Cook Islands. Not on Tentative List.

Location: 21°55' S 157°55' W

Land tenure: Traditional land tenure.

General setting:

Mangaia has an ancient, relict volcanic core surrounded by uplifted coral reefs, the latter forming a *makatea* landscape (coralline limestone karst). The total area is 52 km² and today the once-forested core lies in fern. Six streams which rise on the ancient core flow in a radial pattern down its slopes and are eventually dammed against the surrounding wall of the *makatea*, a trap for sediment and an ideal environment for pondfield taro cultivation.

History and culture:

The six ancient territorial divisions of the island, centred on the pondfields and extending inland to a more or less common boundary in the centre were: Tavaenga, Karanga, Ivirua, Tamarua, Veitatei and Keia. Only a small proportion of the land was suitable for cultivation (2% on the pondfields or *puna* lands, 18% dryland on the *makatea*). This limitation of the resource was associated with a state of chronic warfare in late prehistoric times, with the victors succeeding to the pondfield resource and the vanquished forced to survive on the poorer, less productive soils of the *makatea*. The vanquished were also faced with the realities of a long, slow reduction in terrestrial and marine resources over the course of the island's prehistory.

The island had an office of paramount chief, named Te Mangaia, achieved through warfare and legitimated by human sacrifice at the temple of Orongo, dual god of taro and war. Late in prehistory the settlement pattern was marked by residential areas on ridges just above the pondfields. The settlements were focused on earth terrace *marae*. All the *marae* of Mangaia still surviving are level rectangular earthen areas enclosed on one or more sides by coral slabs. Uprights are present and usually on the periphery. The *marae* are all clustered in the six districts close to the margins of the pondfields and about 1-2 km from the coast. Bellwood (1978) records a total of 34 named *marae* with areas ranging from 75 to 400 m².¹¹¹

Current land use:

Traditional subsistence and aborigiculture.

Significance of the landscape:

Mangaia, like Rapa and Rapa Nui, is a small island in which competition for resources such as taro pondfields was intense. Like Rapa Nui but unlike Rapa, there seems to have been no pattern of defence from fortifications, nor was there a breakdown of overall social order as seems to have been the case at Rapa Nui. Mangaia also represents the adaptation of ancestral Polynesian settlement patterns to a distinctive pattern of resource availability dictated by the geomorphological make-up of the island. (See Figure 4.11.)

¹¹¹ Bellwood, P. 1978. *Archaeological Research in the Cook Islands*. (Pacific Anthropological Records 27.) Honolulu, B.P. Bishop Museum.

Kirch, P.V. 2000. *On the Road of the Winds: an Archaeological History of the Pacific Islands before European Contact*. Berkeley, University of California Press.

Kerikeri, the Bay of Islands, and the advent of the European missions

State Party: New Zealand. The Kerikeri basin is on the Tentative List. Wider area is not on the list.

Location: 174⁰ E 35⁰ 15' S

Land tenure: Some freehold land, some Māori Land, otherwise most key areas are in reserves vested in the New Zealand Historic Places Trust or Te Papa Atawhai (Department of Conservation).

General description:

The landscape areas include headlands and bays on the north-eastern entry to the Bay of Islands (sites of pā and the first Christian missions); the Keri Basin, an inlet on the north-west side of the bay (site of a pā and early standing mission buildings); and the inland volcanic Taiaimai Plains, a landscape of many pā on volcanic cones, early 19th century pā and an early mission station linked to Kerikeri). The Kerikeri basin is on the north-western margins of the Bay of Islands, the most accessible and safest anchorage for ships arriving from the wider Pacific region.

History and culture:

There was settlement prior to European arrival since there are many pā such as Kororipo which are of pre-European defensive form. This particular pā was also the coastal settlement of Hongi Hika of Nga Puhi, a pivotal figure in New Zealand history in the 1820s and 1830s. The Kerikeri basin is on a longstanding route from the outer Bay of Islands to the Taiaimai Plains (southwest of Kerikeri), a densely settled area prior to the 1820s.

In 1814 Te Oihi, lying at the foot of the slopes leading to the pā, Rangihoua, was the site of the first Christian service in New Zealand. The Revd Samuel Marsden (based at Parramatta, NSW) also founded the first mission station at this spot. The inner parts of the Bay of Islands, at this time, were suffering instability in tribal relations caused by a burgeoning trade in muskets. From about this period Kerikeri and the inner Bay of Islands was the launching point for a series of bloody intertribal wars which eventually affected all of the North Island and parts of the South Island (which was much more sparsely populated).

By 1819, a mission settlement was able to be founded at Kerikeri, by 1832 at Te Puna (near Rangihoua) and by 1831 at Te Waimate on the Taiaimai Plains, reached by a dray road which followed the old route from Kerikeri. At Kerikeri the Mission House (also known as Kemp House) and Stone Store (1836) still stand. Sited by falls which stopped further passage up the river, it is one of the earliest European settlements in New Zealand. At Te Waimate, the first mission house (1831) (one of three) is also still standing. There are also significant pā of the pre-European and missionary period such as Kororipo at Kerikeri and Okuratope near Te Waimate.¹¹²

¹¹² Binney, J. (ed.) 2007. *Te Kerikeri 1770-1850: The Meeting Pool*. Wellington, Bridget Williams Books.
Lee, J. 1983. *I have named it the Bay of Islands[...]*. Auckland, Hodder and Stoughton.

Current land use:

A variety of uses: grazed and ungrazed grassland, reserve land with reverting forests, Maori land, and buildings and their built environs.

Significance of the landscape:

The Kerikeri Mission House, built 1822, is New Zealand's oldest surviving building. The Stone Store (built 1836 as part of the mission settlement) is New Zealand's oldest stone building and the oldest trading building. The two are close together and dominate the former wharf frontage to the river. The Mission House has therefore witnessed and survived every phase of modern New Zealand history. In the Kerikeri basin, the physical evidence and consequence of meeting of two different peoples and cultures is still marked starkly and evocatively on the landscape.

The Bay of Islands is representative of the activities and social processes instituted by Christian missionaries throughout the Pacific. In almost all parts of the Pacific to be Polynesian is to be Christian. The assemblage of reserves and buildings in the Bay of Islands represents all phases of this process from the pre-European settlement pattern, the effects of early trade including guns and its influence on Māori/Polynesian society, the first mission endeavours and finally the more lasting influences represented by the mission archaeological sites at Te Puna and the still extant buildings at Kerikeri and Te Waimate.

Elsewhere in New Zealand, there are numerous early mission settlements (Mangunu, Kaeo, Rangitukia, Gisborne) where there is more or less continuity of Māori settlement and a continuation of the function of religious buildings. The Rangitukia marae, school and Anglican church or the marae and church at Manutuke are examples. However, they are somewhat later in founding and do not offer the same complex of surviving buildings.

Threats/authenticity:

There are other mission stations in the Bay of Islands but they have been encroached on by urban development. Te Puna, Rangihoua and Te Oihi in the outer Bay of Islands risk being encroached on visually by high-cost coastal land subdivisions but so far these effects have been well mitigated. Kerikeri has recently been the subject of intensive land planning to re-route the heavy traffic of the road which passes within 2 m of the Stone Store and remove the road traffic bridge, the low height of which dams the water and threatens flooding of the Mission House. Most elements of the basin are in the hands of the Crown or the New Zealand Historic Places Trust. Both store and mission house have been the subject of architectural stabilisation and restoration over the last five years. The Mission House has had an unstable kitchen chimney reconstructed and satisfactory foundations inserted under the building. The Stone Store has had the massive stone walls re-grouted and rising damp problems resolved, its upper floor plates connected to the walls, and with the reconstruction of some features it now resembles its original form of 1836.

The overall setting has good long term prospects with central and local government approval of a bypass road which will eventually take all vehicle traffic away from the precinct and ensure future protection from flooding. Minor areas of freehold land in the precinct and in some buffer areas are controlled by district planning rules.

The Te Waimate mission house was heavily reconstructed in the late 1960s with some loss of authenticity and it is generally recognised that the curator's house is too close to it. The pā such as Okuatope, Kororipo and Rangihoua have not been the subject of proper conservation planning and management over the years. Steps are being taken to ensure adequate management of Kororipo as part of the Kerikeri conservation initiatives.

See Figure 4.12.

North Taranaki, a fortified landscape of the New Zealand Māori

State Party: New Zealand. Not on Tentative List.

Location: 174° E 39° S

Land tenure: The land area is mainly privately owned but with significant areas of national park land and scenic, historic and Māori reserves which enclose a significant proportion of the fortifications (pā).

General description:

The landscape is on the northern part of the Taranaki Mount Egmont volcanic ring plain and the terrace lands extending north-east from there to the Whitecliffs (Parininihi) area. The total area is about 10 x 70 km. The land forms and soil are based on massive collapses of the mountain or lahars (mudslides) from its upper slopes. The surfaces are moderately hilly and generally slope down to the north. They have been dissected by a series of generally short rivers or streams (the Waitara River, rising in the ranges to the south-east, is an exception.) The fortifications (pā) have been recorded and published in the 1960s for the eastern end by Dr Alastair Buist and in the 1980s for the Taranaki Mount Egmont ring plain by Dr Nigel Prickett.

History and culture:

The land was first settled by Polynesians in about A.D. 1200. The pā began to be built by about A.D. 1500. From A.D. 1500 the settled landscape would have been a mix of fern and shrublands with patches of forest and a reasonably well defined inland forest edge about 5 km inland from the coastline. The pā seem to reflect a rise in population and the advent of highly competitive small chiefdoms. The pā are located on coastal headlands, on coastal cliff edges, on prominent ridge ends commanding the many small valleys and on the many small lahar mounds in the western part of the landscape area. On ridges or points in terrace lands they take the form of a trench or trenches cut across the ridge line forming an enclosed area. On the edges of terraces, rectangular ditches and banks enclosing the terrace edge are typical. On rounded hills or on the low-lying lahar mounds a 'ring-ditch' (a ditch encircling the summit just below the top) is common. Sometimes these defences are combined in larger pā. A typical pā is 0.3 ha in area but they range in size from about 300 m² to about 3 ha. The range of sizes probably represents populations from that of a *whānau* (extended family, 8 adults?) to that of several *hapū* (sub-tribes, 300 adults?).

Some pā on the coast and on the inland forest edge are much larger than the others and may have had strategic significance. Dr Prickett notes, "occupants of the small works may well have had links with larger fortifications to allow a rapid congregation of population for defence if necessary."

In the 1820s before European settlement northern tribes made a number of bloody incursions into Taranaki. Several sites and places are associated with the battles of this era, especially Okoki, Rewarewa and Te Koru. In the 1850s conflict broke out between the Taranaki tribes and European settlers which led to the Taranaki Wars. Part of the wider conflict known as the New Zealand Wars (1859-1871), numbers of stockades and redoubts were built in the region. The earthworks of many of these are still standing.¹¹³

¹¹³ Gumbley, W. 1997. *Archaeological mapping of pa in four Taranaki Historic Reserves*. (Science for Conservation 60.) Wellington, Department of Conservation.

Current land use:

Mainly dairy farming, industrial and residential but with significant areas of reserves. The most important sites in reserves are: Tataraimaka, Rewarewa, and Pukearuhe (all on the coast); and Tapuinika, Koru, Pukerangiora (a mixed pre-European and nineteenth-century fortification), Te Awa Te Take and Okoki, all in inland areas.

Significance of the landscape:

The North Taranaki landscape is a prime example of a pre-European Polynesian (Māori) fortified landscape. It has a notable selection of reserves dating back to the period 1910-1930 representing many of these pā. The landscape also represents the colonial military response to an indigenous people's opposition to colonial settlement and their own adaptations of pre-European fortifications and tactics to the British and colonial military. Okoki is the burial place of Te Rangihīroa, Sir Peter Buck, and Lady Buck. In the 1930s, he was the pre-eminent ethnologist and recorder of Pacific lifeways.

Threats/authenticity:

The pre-European fortifications in reserves have been the subject of a number of condition monitoring and conservation planning projects in the last decade. Sites on freehold land have in the past been subject to modification but enforcement of the provisions of the Historic Places Act means that relatively little change is happening at the moment apart from wear from some kinds of stock. There is some visual encroachment on sites by buildings and by other forms of rural development such as shelter belts.

The Sigatoka dunes and Sigatoka valley - a landscape of 3, 000 years of Fijian settlement

State Party: Fiji. The Sigatoka dunes are on the Fiji Tentative List.

Location: 18° 10' S 177° 40' E

Land tenure: Sigatoka dunes are national park, valley land is customary land.

General description:

The Sigatoka River is one of the largest rivers of Viti Levu Island and drains its south-eastern catchments. With a catchment area of approximately 2400 km², it lies on the margins of the wet and dry zones created by the SE trade winds prevailing at this latitude. The lower valley is characterised by large areas of alluvial sedimentation, with extensive meander belts, the sediment carried down from the upper reaches which have higher rainfall than the lower valley. At the mouth the large fresh water plume has prevented the establishment of a barrier reef so that there is an extensive area of dunes west of the river mouth. Geomorphological investigations suggest that the dune system has massively increased since the time of the first human settlement by Lapita peoples at about 1 200 B.C.

History and culture:

The Sigatoka dunes indicate that the earliest Lapita settlers (1 200-100 B.C.) depended on coastal resources and also may have established horticulture plots inland on the alluvium. The first settlements were established on a low-lying back beach flat later sealed by the dune building. The dunes encapsulate this first settlement and also have burials dating from later phases of Fijian prehistory. There are a further three or four phases of occupation identified in the palaeosols of the dune sequence, by radiocarbon and by the pottery seriation.

Nearly 700 archaeological sites have been identified in the wider valley including fortified and non-fortified settlements, horticultural terraces, pondfields for taro and naga (dancing grounds). Some 40 km inland, the first settlement is from about A.D. 0 at Tatuba Cave. The first hill fortifications appear at about A.D. 500-1000. Nokonoko (15 km inland) and Qoroqorovakatini (35 km inland) are fortified hill settlements that flank the valley floor and seem to have had a long duration of use. They demonstrate the earliest development of conflict over resources.

J. T. Parry (1984; 1987), in his aerial photographic study and field survey of the valley, recorded 22 ring-ditch fortifications (*korowaiwai*), 12 hill forts and eight open village sites. A very high proportion of the sites were visible in the landscape and able to be recorded from aerial photographs. The ring-ditch fortifications are located on the alluvial flats; they were designed to take water from and to use the steep banks of oxbow creeks and distributaries as an additional element of the defences. The basic elements of the form are circular water-filled ditch or ditches as much as 1200 m long on the outside perimeter with ditches up to 14 m wide. There was a palisade on top of the bank of the inner ditch. The ditch or ditches encircled the habitation area and narrow causeways or log bridges were made to gain everyday access. Warfare was generally small-scale and local and the fortifications provided community protection against surprise attack and sieges of short duration. Parry is of the view that the earliest fortifications may be of the 17th century with the ones that are most clearly defined in aerial photographs being of the 19th century.

Dickinson *et al.* (1998) have argued that, at A.D. 1300, there was a massive increase in sedimentation in the valley possibly because of a long-term cyclical weather pattern involving more storms and perhaps with a greater degree of deforestation from accelerating human population growth. From this era, a number of new fortifications were built including Madraya, Malua and Korovatuma in the mountainous districts of the upper valley. People may have abandoned valley floors and some moved to offshore islands. The increase in burning is shown by a high frequency of charcoal in alluvium with radiocarbon ages at about this date (A.D. 1300). The ring-ditch fortifications were adapted to gunfighting in the course of the 19th century.

The Sigatoka valley is relatively well studied and is an excellent case study of a large (by Pacific standards) waterway and its catchment with a long (nearly three millennia) human occupation history:

[...] Settlement locales, optimal subsistence strategies, and competitive and cooperative choices varied between environments and temporal periods. The earliest settlement [in the Sigatoka dunes area] had access to dense and predictable resources [...]. Fortifications increased in frequency 1275 and 1475 A.D. [...] climatic disturbances (i.e., sea-level drop, interior water table drop [affecting taro cultivation], incising of stream beds, and drought in the lowlands) encouraged populations to [...] seek new habitations or refuges in the uplands (Field 2003).¹¹⁴

Current land use:

Urban and village settlements and modern horticulture on the valley floor.

Significance of the landscape:

It is generally recognised that, although it has long been known about, the Lapita phase occupation of the Sigatoka valley is sparse. The original archaeological discovery established that Fiji was settled by Austronesians but since that earliest settlement its history has been different from that of Polynesia. From ‘around 200 B.C., Fiji and Western Polynesia were, if not isolated from one another, at least separated by a cultural ‘frontier’ (Marshall *et al.* 2000: 4).

The Sigatoka River valley is one locality in a very large island (by Pacific standards) where it has been reasonably postulated that both anthropogenic and long-term natural environmental/weather cycles have created change in human settlement patterns. The options lie between lowland and upland settlement, dispersion of population within the valley and to offshore islands, always against the background of long-term climatic cycles and a culture in

¹¹⁴ Dickinson, W.R., D.V. Burley, P.D. Nunn, A. Anderson, G. Hope, A. De Biran, C. Burke and S. Matararaba. 1998. Geomorphic and archaeological landscapes of the Sigatoka dune site, Viti Levu, Fiji: interdisciplinary investigations. *Asian Perspectives* 37(1): 1-31.

Field, J. S. 2003. Archaeological and GIS-based research in the Sigatoka Valley, Fiji. *Domodomo* 16: 7-32.

Marshall, Y., A. Crosby, S. Mataraba and S. Wood. 2000. *Sigatoka: the Shifting Sands of Fijian Prehistory*. Oxford, Oxbow Books.

Parry, J.T. 1984. Air photo interpretation of fortified sites: ring-ditch fortifications in southern Viti Levu, Fiji. *New Zealand Journal of Archaeology* 6: 71-94.

Parry, J.T. 1987. *The Sigatoka valley—Pathway into Prehistory*. (Bulletin of the Fiji Museum 9). Suva, Fiji Museum.

which the use of land was increasingly competitive. Fighting and defence from fortifications has left a clear trace in the cultural landscape, as much so as Rapa or New Zealand.

Based on experience of Lapita sites in volcanic areas such as the Arawe Islands (Solomon Islands), the volcanic areas of the Bismarck region (Papua New Guinea), the Sigatoka Dunes (Fiji), and the aceramic early horizons at South Point (Hawaii) or Wairau Bar (New Zealand), such landscapes can be characterised by:

- high potential: currently not fully proven but predictable areas of deposits protected by dune or volcanic deposits;
- well defined and preserved cultural horizons with domestic structures, burials, middens and broader environmental residues;
- physical processes over a long phase (millennia) cycle which have covered and uncovered sites, through dune building or volcanic ash showers;
- the physical setting is protecting the potential sites.

In the terraceland/former lagoon setting of the Arawes and Mussau, New Britain (Papua New Guinea), the Lapita archaeological horizons are deeply buried on an upraised terrace landform at an interface between fresh and salt ground water. That particular setting gives rise to particular artefact conservation problems; the artefacts have to have the salts removed before they can be dried. The burial of these sites, the potential for them to be widespread, and the active local interest in them, is relevant to the model.

See Figure 4.13.

The Lapaha Royal Tombs, central place of the Tongan maritime empire

State Party: Tonga. On Tentative List.

Location: 21⁰11' S 175⁰ 7' W

Land tenure: All land in Tonga is Crown Land which exists in four classes: the hereditary estates of the King, the royal family and the nobility and finally government land. Most of Tonga exists as *'api* or allotments drawn from the government land. Lapaha is in the King's hereditary estate.

General description:

The Lapaha-Mu'a area is essentially two villages that form a continuous strip of occupation along the edge of the Fanga 'Uta lagoon on the north side of Tongatapu Island near the main reef pass. Modern Mu'a is to the south of Lapaha.

History and culture:

Lapaha was the central place on which the entire Tongan system of chieftainship was focussed. In traditional history, Lapaha has higher status than Mu'a, being closely involved with the Tu'i Tonga (who became the royal line of Tonga). The Tu'i Tonga resided at Lapaha and eventually were buried there. The annual tribute ceremony *'inasi* was held there and the tribute was laid in front of the Malae Fanakava.

McKern recorded Lapita-type pottery in the course of surface collections in this vicinity so it is possible that the advantages of access to the open sea were recognised as much as two to three millennia ago. At Nukuleka, not far away but closer to the entrance of the Fanga 'Uta Lagoon, Lapita pottery with strong affinities to western style Lapita, such as that from the Bismarck Archipelago has been found. It dates to about 900-850 B.C..

At Mu'a, the original shoreline was some 80 to 200 m inland from the modern shoreline. It marks the seaward extension of a fortification wall which was erected to enclose the key large mounds in the era of the 23rd Tu'i Tonga Takalaua. By the era of the 24th Tu'i Tonga Kauulufonuafeikai (the 16th century?), Lapaha had been divided into lower and higher (sacred) ranked settlement areas. The great stone jetty Mounu some 200 m long was also constructed at this time and reflects the importance of the integration of the outer-island chiefs under the influence of the Tu'i Tonga. Over the centuries the Tu'i Tonga were buried in massive rectangular tombs (*langi*) faced with tiers of finely dressed stone. In all there are some 27 rectangular platforms varying in size from 60 m square down to about 15 m square. Some are still used for burials.

Originally, Tonga may have been divided into three chiefdoms which gradually amalgamated through a process of conquest. By the sixteenth century there were two tiers of chief: *hou'eiki* who managed local estates and the *Tu'i Tonga*, the paramount chief. The founding of Lapaha is attributed to the 12th Tu'i Tonga in the thirteenth century. At its height (during the reign of the 23rd and 24th Tu'i Tonga, in the 16th century) the Tongan "maritime empire", ruled from ancient Mu'a or Lapaha, extended beyond the island of Tongatapu to the Ha'apai and Vava'u groups, Niua Toputapu (part of modern Tonga), and Uvea, Niue. In a more diplomatic fashion, by maintaining influence through a long-distance exchange system, it may have extended to the Lau Islands (part of modern Fiji), Fiji and Samoa. Speaking generally of Polynesia it has been noted:

*The scale and sophistication of [...] monuments illustrate the abilities of a chief to command labor (sic) and appropriate expertise, and these features create a historical landscape in which ancestry and rights to land are visibly affirmed. (Burley and Clark 2003).*¹¹⁵

Current land use:

Domestic settlement, park land, cemetery.

Significance of the landscape:

The Lapaha tombs and the wider area of ancient Mu'a are one of the great field monument complexes of the Pacific with strong associative values. They were the central place of the chiefs who from the 13th century established an efficient system of rule over Tonga and extended it through the Tongan 'maritime empire'. The complex is a remarkable living link with ancient Tongan royal heritage and culture which has great symbolic significance today.

The western and inner lagoon shores of Fanga Uta were probably locales of Lapita settlement as yet not fully documented. The fortification, *langi* (tombs), jetty, evidence of coastal change, other archaeological features and the continuation of the burials at Lapaha strongly represent the association of this cultural landscape with the modern leadership and constitution of Tonga. Along with sacred places like the Roi Mata cultural landscape or the tombs of Nan Douwas at Nan Madol on Pohnpei FSM, the tombs symbolise the traditional and modern powers of Pacific chiefs and the need for modern Pacific governments to be in constant dialogue with them. The modern Tongan Kingship in particular represents the only survival of this institution as a central element of the constitution of any contemporary modern Pacific state.

Threats/authenticity:

There needs to be a comprehensive conservation plan for Lapaha and it needs to link to the town planning and resource management of the modern settlement of Mu'a.

See Figure 4.14.

¹¹⁵ Bellwood, P. 1978. *Man's Conquest of the Pacific: the Prehistory of Southeast Asia and Oceania*. Auckland, Collins.

Burley, D.V. and J.T. Clark. 2003. The archaeology of Fiji/Western Polynesia in the post-Lapita era. pp 235-254. In: C. Sande (ed.) *Pacific Archaeology: Assessments and Prospects*. (Les Cahiers de l'Archéologie en Nouvelle-Calédonie 15.) Nouméa, Service des Musées et du Patrimoine de Nouvelle-Calédonie.

Burley, D.V. and W.R. Dickinson. 2001. Origin and significance of a founding settlement in Polynesia. *Proceedings of the National Academy of Sciences* 98 (20): 11829-11831.

Kirch, P.V. 1984. *The Evolution of the Polynesian Chiefdoms*. Cambridge, Cambridge University Press.

McKern, W.C. 1929. *Archaeology of Tonga*. (BP Bishop Museum Bulletin 60.) Honolulu, BP Bishop Museum.

The Reef Santa Cruz Islands - a seascape of first Lapita discovery and an arboricultural landscape

State Party: Solomon Islands. Not on Tentative List.

Location: 10-11° S 166-167° E

Land tenure: Customary land.

General description:

The islands are physiographically a very diverse group within a small area of ocean, near Tikopia (also in this portfolio). The largest island, Ndeni or Nendö (35x10 km in area), is an uplifted reef limestone table land with a mountainous interior still retaining native kauri (*Agathis macrophylla*) forest. The Utupua and Vanikoro Islands are of volcanic origin, much smaller than Ndeni, but rising to similar altitudes (400 and 1000 m respectively) and also once heavily wooded with kauri. The outer Reef Islands are low-lying atolls with a restricted flora while the main Reef Islands are uplifted limestone with a diverse flora. The Duff or Taumako Group is a line of small volcanic islands. Settlement there is concentrated on an artificial islet built close to the island of Taumako.

History and culture:

The islands were discovered about 1100 B.C. by people belonging to the Lapita cultural complex who would have found for the first time unoccupied land with 'pristine islands rich in easily procured resources [...]' but with a limited terrestrial fauna (only birds and bats). From Santa Cruz Lapita people would have realised the 'promise of untouched islands rich in both marine life and terrestrial resources [...] stretching out east from the known lands [...] a powerful motivator contributing to settlement and further exploration' (Sheppard and Walter 1996). The Lapita occupation is marked by classic dentate-stamped Lapita-style pottery and a profligate use of Talasea and New Britain obsidian, obtained by exchange from sources in the large islands north of Papua New Guinea 2000 km to the west.

The island was settled for about 600 years until about 500 B.C. by Lapita people who are represented in the lower layers of the Növlaö rockshelter and in other open sites on Nendö. The largest and earliest single site is Nanggu. Another Lapita settlement at Nenumbo has been reconstructed by Roger Green and Andrew Pawley using an ancestral form of Austronesian: it contained a *rumaq* (dwelling house) with *pupung-an* (ridge poles), *qumun* (earth ovens), *lua (n)* (storage pits) and *pale* (open-sided cooking sheds), all words with cognates in the modern languages of Polynesia. Lapita pottery transformed to plainwares probably with a continuity in population up till about the Christian era.

From about A.D. 1500, the present modern populations had established. The origins of these people, of the present era, reflected in their linguistic diversity from all the branches of Oceanic languages, is complex: *Austronesian*, spoken on Vanikoro and Utupua, perhaps direct descendants of the Lapita people; *Polynesian*, spoken on the outer Reef Islands and the Duff Islands; and *Papuan*, spoken on the main Reef Islands and on Ndenö. In fact Nendö is the only part of what Roger Green labels 'Remote Oceania' (the areas west of the Solomon Islands where long ocean voyages are needed to get from island to island) where a non-Austronesian language is spoken. The linguistic evidence is therefore in favour of quite different cultural and genetic origination and it might be expected that the modern populations

would have quite different cultures manifested in more than language differences. Nevertheless, Yen notes:

The relative cultural homogeneity of what were probably disparate human genetic stocks may be attributed to the contacts maintained between the islands of Santa Cruz in traditional time - when a trade network including the exchange of food items, raw materials and specialized products had a unifying effect[...]. (Yen 1974)

The root crop gardens are of two kinds: yams and taro. The yam gardens are cleared but useful trees are retained. After harvest, yam gardens may be planted with sweet potato, bananas and vegetable species and dryland taro. If adventive seedlings of nut and fruit bearing trees are observed they are weeded and conserved as part of this phase, usually leading to a tree-crop succession. Taro gardens are further afield and trees in them are treated more as specimen trees. The taro is planted by a succession of subdivisions of the small corms and the gardens last up to three years. Arboriculture on the other hand “appears at first glance to be a haphazard enterprise conducted by men, in contrast to the field gardening, largely the province of women.” Near the settlements, the “village gardens are virtually tree-gardens” (Yen 1974). Coconut and breadfruit dominate the landscape but nut (*Canarium*, *Barringtonia*, *Terminalia*, *Areca*), fruit (*Musa*, *Spondias*), fibre (*Pandanus*) and foliage trees are also planted.¹¹⁶

Current land use:

Tended forest land, traditional arboriculture, horticulture and settlements.

Significance of the landscape:

The presence of early Lapita in the first pristine environments of Remote Oceania, linked by extreme long-distance trade to islands 2 000 km to the west, is testimony to great voyaging skills and probably Lapita cultural affinities over that distance. This extreme long-distance resource trade/transport is not found elsewhere in Remote Oceania and is indicative of a special long-distance linkage from the Papuan continental islands into the principal island stepping stones of Oceania, especially Vanuatu, New Caledonia and the islands of Fiji, Tonga and Samoa. It is a key land- and seascape in demonstrating the initial burst of Austronesian voyaging from Near Oceania and the discovery of the isolated islands of Oceania over the succeeding two millennia.

The islands are also notable for their arboriculture. In the centuries immediately before the modern era, there seems to have been an outcome on the Santa Cruz Islands of a greater degree of selection of desirable fruit and nut forms and their propagation. Three fruits and as many as three nut species are larger than those known elsewhere in the Solomons or Oceania, indicating the value of this characteristically human practice of selection and improvement in productivity. The people on Ndeni know and assert that their products are larger than those

¹¹⁶ Green, R.C. 1995. Linguistic, biological and cultural origins of the initial inhabitants of Remote Oceania. *New Zealand Journal of Archaeology* 17: 5-27.

Sheppard, P.J. and R. Walter. 1996. A revised model of Solomon Islands culture history. *Journal of the Polynesian Society* 115(1): 47-76.

Spriggs, M. 1997. *The Island Melanesians*. Oxford, Blackwell.

Yen, D.E. 1974. Arboriculture in the subsistence of Santa Cruz, Solomon Islands. *Economic Botany* 28: 247-284.

elsewhere in the Solomons. Yen argues cautiously that on Ndeni (his main study area) that there is:

cognizance of the separability of wild and cultivated forms of the useful species; the adaptation of forest species to strand environment and vice versa; the “taxonomic” differences between varieties; inheritance of cultivated forms in terms of “like producing like”[...]; breeding systems[...].

Yen did not conclude that there is a distinct body of ethnobiological knowledge devoted to plant improvement. Nevertheless, the Santa Cruz case does demonstrate a universal process of human plant improvement of a wide range of Oceanic tree species.

Threats/authenticity:

Yen notes that there may have been some loss of knowledge of plant varieties because of a lack of specific plant names for some of them. The state of archaeological sites relating to Lapita is not known.

See Figure 4.15.

Bellona and East Rennell, “The Two Canoes” of a Polynesian Outlier

State Party: Solomon Islands. East Rennell is inscribed on the World Heritage List as a natural site.

Location: 160° 20' E 11° 40' S

Land tenure:

Customary tenure of land and reefs. Lake Tegano, the focus of the East Rennell World Heritage area, is owned in common between the four neighbouring villages of the lagoon area. All major decisions on land use are decided by the chiefs who may act through the Council of Chiefs.

General description:

Bellona and East Rennell are long narrow islands, former coral reefs, which have built up on a submerged bedrock plate boundary and progressively emerged. The highest elevations are about 200 m above sea level and for the most part the two islands have fringing cliffs and a limited area of modern reef platforms. The lower-lying eastern end of Rennell (focus of the inscribed site) is Lake Tegano, a former lagoon and brackish body of water, some 155 km² in area. The steep-sided and elongated form of Rennell (60 x 8 km) and Bellona (8 x 2 km at its widest) has led to their being generally known in Bellona and Rennell tradition as ‘The Two Canoes’ (Nguu/Gua Baka).

East Rennell is among the largest raised coral landforms in the world. The rain forest of the interior basin is typical of the Malesian tropical domain (extending from the Solomons to Malaysia and the Philippines) which has been relatively unmodified. There is a remarkable zonation of forest form between the interior basin, the tropical strand forest (including Pandanus and mangroves) of the Lake Tegano basin and the coastal coralline-karst ridge (a former reef crest). The fauna has a high degree of endemism by Oceanic standards and the flora is biogeographically unique. Endemic animals include one species of bat (there are 10 other bat species), four endemic bird species, 11 bird sub-species and an endemic sea krait. There are many endemic species of invertebrates. The local communities are regarded as having a good traditional knowledge of the natural resources of the islands.

History and culture:

Ancestral Austronesians (Lapita people) probably settled Bellona perhaps 2 200 years ago but there is no direct continuity with the modern Polynesian population. Sherds of a single Lapita plainware vessel were found at Sikumango on the western end of the island. There is no evidence for Lapita on Rennell but it may have been first settled at the same time as Bellona. Both islands today are “Polynesian outliers”, i.e., they were settled in the last millennium by people who came from the east and whose language is clearly a variant of Polynesian. The people of Rennell and Bellona say they come from Uvea or Wallis in the Wallis and Futuna group. Because of the killing of three non-island missionaries and for fear of the introduction of further infectious diseases, missions established by evangelists from the islands were not successful until the 1930s. There has therefore been a long sustained period of traditional cultural practice into the modern era.

Of the original eight founder clans only two are represented today: *sa’a Kait’u* (of Rennell and the eastern and middle districts of Bellona) and *sa’a Taupongi* of the western district of Bellona. Traditions recognise some 23 generations of the *sa’a Kait’u* (clan) which would have

been founded on the islands at about A.D. 1400. Land is subdivided into *kakai'anga* units, historically representing a rationalisation of the claims to land of descent groups. Land was owned as a form of homestead area or *manaha* inherited by male primogeniture. Authority lay with the senior landholding males *matu'a*. On Bellona ritual sites associated with the *sa'a* are scattered along the central path through the length of the island and are generally separate from the modern settlement clusters. Rituals were centred around two groups of gods: Tehainga'atua and his family and Tehua'aigabenga and his family. The latter were familiar and social gods, worshipped mainly within the settlements. The former were fearsome, owning and controlling land and natural phenomena; they were worshipped in specially constructed temples (*ngaguenga*) outside of the settlements. "The duality of the pantheon reflects the concept of a duality of nature versus culture" (Elbert and Monberg 1965). Important rituals were held in the cycle of yam harvests and re-distribution ensured close ties between communities and districts.¹¹⁷

Current land use:

Bellona is relatively small and closely settled. There is a central road with settlements along it, a dense pattern of fringing gardens and a narrow zone of taller forest above the cliffs which acts as a hedge against wind. Rennell has large tracts of rain forest and *makatea* (coralline limestone karst) forest. Ownership is customary or land is regarded as held in common with rights of resource use by family groups in specified areas.

Significance of the landscape:

Bellona and Rennell are two of several Polynesian outlier landscapes incorporated in this study. The others are Tikopia and the outer Reef Islands of the Reef/Santa Cruz group. Both Tikopia and Bellona have been meticulously documented and mapped in the course of anthropological studies of their symbolic and ceremonial landscapes. Bellona in particular has a clear duality of nature and culture reflected in the records of the traditional belief systems. All of the islands have a high degree of geographical isolation and this also has contributed to the authenticity and sustainability of traditions and traditional knowledge of natural phenomena.

Threats/authenticity:

The major threats to the islands are pressure to log forests and the over-exploitation of coconut crabs and some fish. Bellona also has unexploited phosphate deposits. The demand for modern convenience products is causing pressure for an improved cash economy which in turn places local natural resources at risk from unsustainable harvest. Following the calming of the civil unrest felt throughout the Solomon Islands in the late 1990s, World Heritage interests and the local chiefs and community have been developing conservation and tourist management plans.

¹¹⁷ New Zealand Ministry of Foreign Affairs and Trade. 1997. *Nomination of East Rennell, Solomon Islands, by the Government of the Solomon Islands, for Inclusion in the World Heritage List of Natural Sites*. [Wellington, New Zealand Ministry of Foreign Affairs and Trade.]

Elbert, S.H., and T. Monberg. 1965. *From the Two Canoes: Oral Traditions of Rennell and Bellona Islands*. Honolulu, University of Hawaii.

Marovo Lagoon, New Georgia, relict landscape, continuing seascape

State Party: Solomon Islands. On Tentative List.

Location: 8°31' S 158°00' E

Land tenure:

Customary land and customary management of lagoon area. Kinship-based land-owning groups (*butubutu*) control land areas known as *puava*. Boundaries of *puava* are often based on particular rivers and estuaries and extend out across the lagoon to particular passages through the barrier reef (*toba*). Small areas of land have in the past been alienated from customary tenure and registered with a private owner, but much has come back under the control of *butubutu*.

General Description:

The high volcanic islands of New Georgia are one of the few places in the world with large tracts of coastal rainforest. The climate is wet (4000-5000 mm p.a., double at higher altitudes) and the soils are acidic derived from weathering of basalt. The forest is basically Malesian (typical of the large land areas from the Solomons to Malaysia) but lower in height (30-45 m tall canopy), few emergent large trees, and rather diminished in species range. The impact of logging (marked by many crude roads webbed across the hill country) can be detected using Google Earth imagery on the island outside the Marovo catchment area on the island. However, even the Marovo lagoon land is not strictly a natural or climax forest as sometimes represented. It contains many relict areas and patches of light-demanding tree species, notably *Camposperma brevipetiolata* (a species related to mango and pistachio), the product of nineteenth-century cultivations at a peak of population (prior to 1850?).

The Marovo lagoon has an area of about 700 km²; it is defined by an outer line of narrow islands on the *toba* or barrier reef and the main New Georgia Island to the north and Vangunu Island and Gatokae Island to the south. There are extensive areas of mangroves on the central shorelines and on parts of the many islands and reef flats within the lagoon.

History and culture:

The people of Marovo conceptualise their land boundaries as extending out into the lagoon with complete and recognized control over all terrestrial and marine resources. Even although all people at Marovo now live on the coast there is a division between *butubutu*, based on historical circumstances, as to whether they are coastal or inland. Interests in the lagoon area are mainly held by the *butubutu* that were located on the coast in the mid-nineteenth century. Inland dwellers now hold land areas, mainly, but have extensive use rights in the fishing grounds of others. On the lagoon, primary rights lie with people who live in the *puava* and who have acknowledged descent ties. They may take or gather as of right, they are *isriri*, worthy. People with descent ties who live outside the *puava* must give a form of notice or *vaarivaavosoi* that they intend to take or gather. The notice acknowledges the power of the *butubutu*'s elders over the resources. Permission in this form is unlikely to be withheld. *Varitepae* is a form of asking for permission that outsiders have to seek. Permission may be refused.¹¹⁸

¹¹⁸ Bayliss-Smith, T., E. Hviding and T. Whitmore. 2003. Rainforest composition and histories of human disturbance in Solomon Islands. *Ambio* 32 (5): 346-352.

Hviding, E. n.d. Marine Tenure and Resource Development in Marovo Lagoon, Solomon Islands. MS report, University of Bergen. [Originally published as South Pacific Forum Fisheries Agency as FFA Report no. 88/35.

In the past, the cultivations represented by the relict forest associations were “a stable and ecologically sound land-use system” (Bayliss-Smith *et al.* 2003), capable of supporting a peak population in the mid-nineteenth century of about 11 000 people in about 15 named *puava* in the lagoon floor and terrestrial catchment. The system had three major components, not unlike that described for the Reef Santa Cruz Islands: *ruta*, irrigated highly productive taro pondfields; *chigo*, dryland taro and yams in a forest swidden cycle; and *buruburuani*, well developed secondary forest enhanced with groves of *Canarium* (candlenut) trees. The old cultivation areas are marked by *C. brevipetiolata* stands (on the swidden areas) and stone-outlined taro pondfields and *Terminalia brassii*, a species which thrives on the wet valley floors. Both tree species are unusual in that they can be easily identified in aerial photographs of the rainforest and their extent has been mapped by Bayliss-Smith *et al.* (2003). All the settlements represented by such relict areas of forest had migrated to the coast by 1900. Today there are cultivations and tree cropping in the vicinity of the coastal villages.

TABLE 2. Forest use and social organisation in Marovo lagoon vicinity (after Bayliss-Smith *et al.* 2003).

Area and population at A.D. 1800	Oral history	Archaeological field survey	Relict forest associations
Luga/Nono (north-west of lagoon). 2,000-3,500 people in total area of 26 km ² of disturbed forest.	Large and small settlements all speaking the Marovo language.	Large fortified settlements on hill ridges. Smaller settlements along rivers facing the lagoon.	Large areas of <i>C. brevipetiolata</i> forest on ridges and some on river valleys.
Central Marovo. 500-1,000 people in area of 4 km ² of disturbed forest.	Bush people and coastal people had different languages but maintained exchange systems.	Taro terraces and <i>Canarium</i> groves in interior. Only dense <i>Canarium</i> groves in coastal settlements.	Hill forest with broken canopy, <i>C. brevipetiolata</i> common.

Significance of the landscape/seascape:

The Marovo hinterland and the Marovo Lagoon together provide a good example of Melanesian land and sea tenure systems in which strong elements of traditional governance are still in place. The area is relatively isolated and has been protected largely, by local concerns, from the destruction wrought on other parts of the islands by commercial logging. There is a strong case for both the marine and terrestrial landscapes to be viewed primarily as cultural landscapes, although they do also have high biodiversity values. Particularly notable is the relict forest pattern of the hinterland, developed in a rain forest from nineteenth-century horticulture for a large population. Further analysis is needed of the comparative landscape values of Marovo and similar lagoon areas such as Roviana, also on New Georgia.

Current land use:

Subsistence taro cultivation and tree crops such as coconut in the environs of the coastal villages. Some tree crop exploitation in the inland relict forest associations.

‘We The Tikopia’, *Sir Raymond Firth and the landscape of a Polynesian outlier*

State Party: Solomon Islands. Not on Tentative List.

Location: 168° 50' E 12° 18' S

Land tenure: Traditional ownership mediated through the Kafika, Taumako, Fangarere and Tafua clans.

General description:

The island is a single Pleistocene volcanic cone with a breached crater, long open to the sea, but now a brackish lagoon known as Te Roto. There are calcareous rocks (former reefs, uplifted) on the north, south and west aspects of the crater. The total area is 4.6 km². Raymond Firth, the New Zealand anthropologist, described the cone as ‘a hollow bowl, old, battered, and moss-grown, with a broken rim, one side of which is very much gapped and the interior partially full of water’. Kirch and Yen (1982) have been able to make a successful case that much of the landscape today - the tombolo (Ravenga) enclosing the lake, the low-lying western flat, the tree and shrubland vegetation - is in large part anthropogenic (the result of human activity on the land).

History and culture:

Tikopia is one of several Polynesian outlier settlements in the South-east Solomon Islands. The island has been settled by human beings for three millennia, initially by Austronesians (Lapita people) (1000-500 B.C.) who traded with many of the Papuan island domains to the west and south, later Papuans perhaps. The first Lapita settlements were at Kiki and Sinapupu. The island was settled finally from about A.D. 1200 by Polynesians, originating in the regions of West Polynesia, i.e. from Fiji, Tonga and Samoa.

The land is divided into three districts: Faea (north-west), domain of the Ariki (high chief) Tafua; Ravenga, the western shore of Te Roto and the tombolo, domain of the Ariki Kafika, Ariki Taumoko and Ariki Fangarere. The north shore of Te Roto is Uta, the sacred district, and ancestral home of all the Tikopia clans. (Uta is the general Polynesian term for the shore so this name must go back to the era when Te Roto was an open bay.) It was from this area, perhaps four centuries ago, that Nga Ariki successfully rose up against the land dominant clan of Nga Ravenga, eliminating all but one infant son who came to found the clan Fangarere. Nga Ariki (the high chiefs) founded the three other modern clans: Kafika, Taumako and Tafua. In this way the cultural landscape of Tikopia bears witness to the story of the origins of the modern society of Tikopia.

The modern settlements all lie on the north-western and southern dunelands. Each lineage has its own named section with houses, cookhouse and canoe shed, linked to inland orchards. The settlements tend to be named *potu* followed by the name of the lineage, so Potu sa Taumoko. Matautu, the village of the Ariki Tafua, is marked by the presence of Te Marae Lasi, a low-lying trough, 10 x 255 m, a darts pitch where inter-district competitions are held. Upright stones at one end mark record throws.¹¹⁹

¹¹⁹ Bayard, D.E. 1976. *The Cultural Relationships of the Polynesian Outliers*. (University of Otago Studies in Prehistoric Anthropology vols 9-10.) Dunedin, University of Otago.

Firth, R.W. 1936. *We, The Tikopia*. London, George Allan and Unwin. [Many subsequent editions.]

Kirch, P.V. and D.E. Yen. 1982. *Tikopia: The Prehistory and Ecology of a Polynesian Outlier*. (B.P. Bishop Museum Bulletin 239.) Honolulu. B.P. Bishop Museum Press.

Current land use:

The island is isolated and the land area is almost completely devoted to customary land uses: “Such management has included the importation and establishment of a variety of crop, industrial, ornamental, and ritual plants, the modification of most of the island for field cropping or orchard cultivations, and the selection and encouragement of certain natural elements of the flora.” Timber trees are carefully nurtured. Large *Ficus* trees and some tree ferns (genus *Cyathea*) on the steepest slopes of the original volcanic vent are indicative of the original eastern Malesian lowland rain forest.

Significance of the landscape:

Tikopia, a Polynesian outlier, because of its extreme isolation and relatively poor cash economy, is a good example of an evolving cultural landscape manifesting many characteristic Polynesian crop and other land management practices. Archaeological and geomorphological work in the last two decades has demonstrated the evolution of the landscape form and the part that human beings have played in that process: the island truly is a “combined work of nature and man”. In part because of the work of Raymond Firth in the 1930s, almost all traditional social practices and traditions have been recorded and they provide an essential associative dimension to many of the relict elements of the cultural landscape such as pre-Christian ceremonial sites and the origination of the modern social structures. Firth’s publications work, an outstanding body of anthropological work, is itself a key associative element of the island.

Threats/authenticity:

The island is very isolated and the main threat would be that population is reduced by an emigration and remittance-type economy.

See Figures 4.16 (a) and 4.16 (b).

The Kuk Early Agricultural Landscape: 10,000 years of plant exploitation and agricultural transformation

State Party: Papua New Guinea. On Tentative List (in process of nomination 2007).

Location: UTM co-ordinates: ²04500 E ⁹³60000 N (zone 55 M)

Land tenure: 99-year lease to government in 1968, but re-occupied by traditional Kawelka landowners in 1990s.

General description:

Kuk Swamp is located in a large inter-montane valley in the interior of New Guinea at 1560 m above mean sea level. The Wahgi valley is one of the largest of the inter-montane valleys that run along the highland spine of New Guinea. Kuk Swamp is part of extensive wetlands carpeting the floor of the Upper Wahgi valley. The valley has a lower montane humid climate with an average annual temperature of 19 °C and annual rainfall of about 2700 mm. Climate is moderately aseasonal and dominated by local orographic effects. The retention of waters in the swamp and accumulation of organic matter washed off the slopes of the mountain ranges to the south and west have generated some of the most fertile soils in New Guinea.

The landscape area is relatively small (500 ha) and is basically a swampy plain bounded on the north side by low hills and drained by the Guga River on the west. The plains have a soil moisture excess (from rain and run-off from the hill range) 1 700 mm needing to be drained away. (It was a wetland in 1933 when Europeans first entered this area.) Scattered across the wetland surface are low mounds and hummocky ground comprised of older deposits, over and around which the wetland has accumulated. The long-modified Wai's Baret (late phases) and Neringa's Baret (middle phases) and other earlier drains are the primary drains. (Baret is *tok pisin*, Pidgin, for ditch.)

The archaeological site is located on a former Tea, and then Agricultural Research Station that was drained in the late 1960s and early 1970s. The boundaries of the proposed site accord with that of the former Station comprising Ep Ridge to the north, boundary drains to the east and south, and Kenta-Guga Creek to the west.

History and culture:

Kuk comprises an organically-evolved agricultural landscape that contains relic (ie, evidence of plant exploitation and agriculture dating back over 10,000 years) and continuing (ie, on-going traditional cultivation) practices. Kuk contains well-preserved evidence for successive periods and technological transformations of traditional cultivation dating from at least 7000 years ago to the present, as well as archaeobotanical evidence central to understanding the domestication of bananas (*Musa* spp.) and the development of Pacific agriculture. In contrast to other regions of the world, New Guinea and Pacific agriculture is traditionally based on vegetative propagation, whether of trees (e.g. *Pandanus* spp.), herbs (e.g. bananas), tubers (e.g. taro and yams), or grasses (e.g. sugarcane *Saccharum officinarum*). These plants are thought to be indigenous to, and were domesticated in, the New Guinea region.

The wetland archaeological site at Kuk Swamp, Upper Wahgi valley contains evidence for multiple periods of wetland manipulation for plant exploitation dating back over the last 10,000 years (Golson 1977). The earliest agreed upon evidence for agriculture comprises the mounded cultivation of crops, including bananas (*Musa* spp.), dating to 7000-6400 years ago

(Denham *et al.* 2003). Tubers, including taro (*Colocasia esculenta*) and a yam (*Dioscorea* sp.), were exploited from 10,000 years ago, and bananas (*Musa* spp.) were cultivated from 7000-6400 years ago. The evidence from Kuk has grounded claims for the early and independent “origins of agriculture” in New Guinea (Golson 1977; Denham *et al.* 2003).

There were six phases of horticultural development, starting at least 9 000 years ago. The first well developed ditch networks (as established by Golson’s archaeological excavations) were not dug until phase 3 - between 4 000 and 2 500 years ago. The land use became more intensified, marked by a closely reticulated grid of drains enclosing small plots, from phase 4 - 2 000-1 200 years ago (Bayliss-Smith *et al.* 2005). Phase 5 ended with the catastrophic eruption of Long Island at A.D. 1665 or 1666; it spread ash over 84 000 km² of mainland Papua New Guinea. Horticulture in the region today is dominated by the pre-European but still relatively recent cultivation of the high-producing sweet potato *Ipomoea batatas*. It is eaten by human beings but is also important in the raising of pigs and is a key economic driver of Highland exchange systems. Sweet potato can only have come late to the Kuk sequence since it is most likely to have come from the east through Polynesia from the Americas. It would have been welcomed in the crop inventory of the relatively cool highlands of Papua New Guinea as it was in the sub-tropical domains of Polynesia such as Hawaii, Rapa Nui and New Zealand.

Current land use:

At first European contact in 1933, Kuk Swamp had been abandoned by its traditional owners, the Kawelka - a Meldpa speaking group in Western Highlands Province. The wetland was drained from 1969 for a Tea, then Agricultural Research Station which was in operation until the early 1990s. Following effective “mothballing” by the government, the Station was reoccupied by traditional Kawelka landowners who continue to occupy the site and engage in traditional cultivation practices.

Significance of the landscape:

The early agricultural site at Kuk has evidence of a significant stage of technological development of humanity worldwide, namely the early and independent development of agriculture, specifically Pacific agriculture. Kuk is the best documented local landscape with ancient cultivation of the Papuan staple taro (*Colocasia esculenta*). It pre-dates most other world evidence of the domestication of crops, whether in China, the Middle East or the Americas. In its later phases, Kuk represents the late advent of sweet potato to Papua New Guinea from trans-Pacific sources, ultimately from continental South America. Papua New Guineans were therefore among the world’s earliest agriculturists. The antiquity and independent genesis of agriculture in New Guinea are generally accepted by international archaeological and scientific communities. This technological leap shaped the numbers of humans, their food supply, and their cultures throughout Oceania. Kuk contains the oldest evidence in Oceania, as well as successive phases, of manipulation of the environment for plant exploitation and agriculture. Relic time-slices of these interactions are preserved underground at Kuk and they continue to evolve through contemporary practices at the site.

The findings at Kuk have broader significance because they: signify the diversity of historical trajectories following the inception of early agriculture; decouple debates about ‘origins of agriculture’ and ‘rise of civilizations’; and confront unilinear, often Eurocentric, evolutionary and teleological interpretations of human history. Traditional societies in the highlands of

New Guinea are characterised by ‘big-men’, leaders whose influence is acquired and manifested through discussion, persuasion and consensus.¹²⁰

Threats/authenticity:

Archaeological artifacts and features, as well as plant macrofossil and microfossil evidence and palaeosols, associated with plant exploitation and early agriculture dating from the early Holocene to the present are well-preserved at Kuk. Although there is evidence for alteration of deposits, primary attributes associated with former cultivation practices remain well-preserved at the site.

Traditional gardening, or agricultural activities, which are being undertaken and which have been undertaken for thousands of years at Kuk, do not seriously compromise the archaeological remains at the site. Cultivation practices and rooting of most grown crops are too shallow to seriously compromise the buried materials. Only following deep-drainage in the late 1960s and 1970s, where ditches lowered the water table below most of the buried archaeological remains, has there been alteration of the upper stratigraphy at the site, although recent research shows that these older and deeper remains have largely remained unaltered. As the ditches associated with construction of the Kuk Station in the 1960s and 1970s have filled in, the water table has risen and returned to pre-drainage levels.

Providing the water table is not deeply drained and the swamp dried out, either by removing the vegetation cover and exposing the area to evaporation, or by draining the swamp at a lower point, or both, the integrity of the site will be preserved. Similarly, the planting of deep-rooting trees, digging below 0.5m and mechanical cultivation would cause substantial alteration of the stratigraphy and the buried archaeological materials contained therein.

See Figure 4.17.

¹²⁰ Bayliss-Smith, T., J. Golson, P. Hughes, R. Blong and W. Ambrose. 2005. Archaeological evidence for the Ipomoean Revolution at Kuk Swamp, upper Wahgi Valley, Papua New Guinea. Ch. 11. In: C. Ballard et al. (eds) *The Sweet Potato in Oceania: A Reappraisal*. (Ethnology Monographs 19; Oceania Monograph 56.) Pittsburgh University; University of Sydney.

Denham, T.P., Haberle, S.G., Lentfer, C., Fullagar, R., Field J., Therin, M., Porch N. and B. Winsborough. 2003. Origins of agriculture at Kuk Swamp in the Highlands of New Guinea. *Science* 301: 189-193.

Golson, J. 1977. No room at the top: agricultural intensification in the New Guinea Highlands. In J. Allen, J. Golson and R. Jones, eds, *Sunda and Sahul: prehistoric studies in southeast Asia, Melanesia and Australia*, pp. 601-38. London, Academic Press.

Muke, J., Denham T.P. and V. Genorupa. (In press). Nominating and managing a World Heritage site in the highlands of Papua New Guinea. *World Archaeology*.

The Arawe Islands, Western New Britain - an ancestral Austronesian village landscape

State Party: Papua New Guinea. Not on Tentative List.

Location: 6° 10' S 148° 56' E

Land tenure: Customary land

General description:

The Arawe Islands cluster in a small bight of about 100 km² on the south-west side of New Britain. A total of 40 islands, six inhabited (the largest 5 km²), are set in a complex system of reef flats, barrier islands and lagoon channels with many sheltered shorelines. The largest islands form a barrier to the sea to the south and are named Kaupitmete, Maklo, Kumbun, Adwe and Pililio. Today all the islands are cultivated or used for pig forage. The islands' people, who are affiliated to the widespread Arawe language group of West New Britain, also maintain cultivations on the mainland.

The islands are composed of coralline limestone. The New Britain region is volcanically active. Ash falls are common in the east, from Rabaul and Ulawan and Pango, and in the areas of the volcanoes to the north, Talasea, Ritter and Langila. On the Willaumez Peninsula on the north of the island, numerous sites including Pleistocene ones are buried under generally well dated ash showers. However, the Arawe Is are on the windward (southern) side of the islands and the ash showers appear not to be a discrete component of the visible stratigraphy of sites as they are on the Willaumez Peninsula.

New Britain has become increasingly deforested in some parts over the last few decades. The original forest would have been Malesian in composition, as in New Georgia or on Bellona and Rennell.

Despite the proximity of the Bismarck Archipelago to New Guinea and the existence of small islands that appear to be the remnants of a land bridge, the island arc was never connected to the mainland. Most of the islands are made up of volcanic (acidic) soils and limestone[...]. Overall diversity of tree species is not impressive when compared with that of mainland New Guinea. Major lowland rain forest tree genera include Pometia (Sapindaceae), Octomeles (Datiscaceae), Alstonia (Apocynaceae), Campnosperma (Anacardiaceae), Canarium (Burseraceae), Dracontomelon (Anacardiaceae), Pterocymbium (Sterculiaceae), Crytocarya (Lauraceae), Intsia (Leguminosae), Ficus (Moraceae), and Terminalia (Combretaceae)[...]. Other forest types in the lowlands include freshwater swamp and mangrove forests. (www.worldwildlife.org/wildworld/profiles/terrestrial/aa/aa0111_full.html)

History and culture:

Although there may have been earlier settlement, archaeological and geomorphological studies show that the southern or outer Arawe Islands were intensively occupied by Lapita people in the period 3500 to 2000 B.P. Summerhayes (2000) has recently re-analysed the remarkably varied and intricate Lapita decorative styles of the Arawe Islands in the context of a complicated broader argument. The essence is whether the Austronesian ancestors of the Lapita people stopped and settled in West New Britain (which would have had many advantages), developing new styles in close interaction with the existing Papuan settlers, or

simply “passed through” in a rapid movement to the islands to the east (the large islands of the Solomon Islands) and ultimately to remote Oceania (the Reef/Santa Cruz Islands and eastwards). Summerhayes concluded that there was a sustained period of settlement in West New Britain with the establishment of localized (village-based) pottery making. Nevertheless the Lapita villages over a wide area in the New Britain region were linked in an “elaborate and cohesive social networks that can be measured by ceramic homogeneity.”

There was a clustered settlement pattern in stilt-house villages built in the shallow waters of the lagoon at the foot of the hill slopes or low cliffs at the edge of the islands of Maklo, Kumbun and Pililo. They were built as much as 40-60 m from the high water mark and at high tide would have stood in about 2 m of water. The stilts were lightly founded in sand or on coral heads rising from the lagoon floor. The villages were in the lee (away from the prevailing winds) of the islands, not all that far from the modern villages. The ancient stilt-house villages caused the build-up of beach sand, today preserved as low beach ridges by a fall in relative sea level of less than one metre. On Adwe the village appears to have been isolated out on the lagoon flat and a sand spit built up which connected the village area to the island. The sea level changes are graphically fossilised in the form of a series of notches cut into the coralline cliffs. (The long linear notches form 2 m-deep overhangs just at High Water Mark; they originate from grazing of chiton shell fish and wave action at this upper tidal level.) The sand bed which formed under the houses contains artefactual evidence of the Lapita occupation. There is a relative wealth of finely decorated pottery sherds. There is also a single human burial in the intertidal sediments from one of the stilt-house settlements.

As the sea level fell relative to the land, the stilt-village deposits formed a barrier to sediments eroded from the hills in the long course of firing and cultivation. This led to a build-up of 1-2 m of clay behind the beach ridges and sealed the village deposits beneath. The cliffs are a relatively long-lived geomorphological feature and the Lapita peoples’ and subsequent land uses led to erosion which further sealed the remains of the ancient villages. Gosden (1989, 1994) argued that “Thus during the Lapita period many of the features of the lowland portions of the islands as they exist today were created by human patterns of land use.”¹²¹

Significance of the landscape:

The Arawe Islands are the best preserved suite of Lapita villages so far discovered and they demonstrate a remarkable adaptation to the near-shore marine setting which has some parallels in parts of Oceania and island South-east Asia today. They exist in an easily interpreted island landscape context. In this tectonically active region even the extent of relative rise in land level can be easily visualised from the coralline limestone cliff faces. The variety of well preserved and intricate decorative motifs on the ceramics has also allowed for detailed stylistic analysis of the cultural affinities, trading and exploring behaviours of the Arawe Is Lapita people.

¹²¹ Gosden, C. (1989). "Prehistoric social landscapes of the Arawe Islands, West New Britain Province, Papua New Guinea." *Archaeology in Oceania* 24: 45-58.

Gosden, C., and J. Webb. 1994. The creation of a Papuan New Guinea landscape: archaeological and geomorphological evidence. *Journal of Field Archaeology* 21 (1): 29-51.

Summerhayes, G.R. 2000. Far Western, Western, and Eastern Lapita: a re-evaluation. *Asian Perspectives* 39 (1-2): 109.

Although the villages are not sealed by easily recognised volcanic ash showers, they are well sealed by a combination of uplifted sand beach ridges interleaved with terrestrial sediments on the landward side. The terrestrial sediments reflect in part the long history of cultivation and environmental conditions on these islands and are of interest in their own right.

Threats/authenticity:

The village deposits are well sealed and represent a good example of an ideal opportunity to preserve good samples of remarkable early Lapita settlement pattern and artefacts. The potential for further archaeological discovery at these sites is well proven.

The hill fortifications and traditional villages of Palau

State Party: Republic of Palau. Some sites on Tentative List.

Location: 7° 30' S 134° 25' E

Land tenure: Traditional land tenure.

General description:

Babeldaob Island is 363 km² in area and is by far the largest island of Palau. It is predominantly of volcanic origin and has a fringing reef platform and in places a lagoon. The cultural landscape of Babeldaob Island has two distinct and geographically discrete components: (1) the early (A.D. 100-1200?) fortified and terraced hill crests such as Ngemeduu where the earliest phases are 1300-1700 years old; (2) following an apparent hiatus, the late (A.D. 1500-1900) traditional or 'stone-paved road' villages are established. These are the settlements from which the modern village pattern has developed and to which they are adjacent. Recent evidence from its southern islands, suggests that Palau may have been settled from about 1000 B.C..

History and culture:

The early fortified hill terraces are found all over Babeldaob Island. They are prominent in any view of the grass- and Pandanus-covered hills of that island. Upper terraces are sometimes "brimmed", i.e. they have an outer rim. Other terraces are more step-like, while some have a distinct slope down towards the rear of the terrace. The function of the terraces banks and scarps appears to be for "ring-ditch" type fortification usually on the crest of ridges or the top of the hills. The lower terraces would have had rainwater and soil conservation functions as well as being habitation areas. There are no oral traditions of the history of these terraced hills and as the radiocarbon dates indicate there may be a hiatus between the terrace settlements and the later traditional villages. The single settlement documented in a terraced landscape and of an age contemporaneous with that landscape is the "megalithic" site of Badrulchau. These large upright stones appear to be roof supports for very large community houses not unlike *bai* (see below).

At first European contact in the eighteenth century, Palau was a highly politically stratified society, divided into many "districts" (now the states of modern Palau); each had a paramount chief and a number of village chiefs. There appears to have been some form of political hegemony over the whole island, shown by the ability to mount a war fleet out of the area of what is now Koror and Melekeok states against the southern Pelelieu Island.¹²²

¹²² Masse, B.W., D. Snyder and G.J. Gumerman. 1984. Prehistoric and historic settlement in the Palau Islands, Micronesia. *New Zealand Journal of Archaeology* 6: 107-127.

Olsudong, R. 2006. Cultural heritage and communities in Palau. *Micronesian Journal of the Humanities and Social Sciences* 5 (1/2): 547-555.

Osborne, D. 1966. *The Archaeology of the Palau Islands, an Intensive Survey*. (Bernice P. Bishop Museum Bulletin 230.) Honolulu, Bernice P. Bishop Museum.

Phear, S., G. Clark and A. Anderson. 2003. A radiocarbon chronology for Palau. Pp. 255-263. In: C. Sande (ed.) *Pacific Archaeology: Assessments and Prospects*. (Les Cahiers de l'Archéologie en Nouvelle-Calédonie 15.)

Nouméa, Service des Musées et du Patrimoine de Nouvelle-Calédonie.

Phear, S. 2004. *The Monumental Earthworks of Palau: A Landscape Perspective*. PhD, Australian National University.

Each traditional village is characterised by a well elaborated town plan with intersecting paved paths or roads, an assemblage of stone faced platforms at the intersections which fronted clan houses and supported chiefs' and warriors meeting houses (*bai*) and which were carefully graded by position and rank. House platforms were used for the burial of high-ranking individuals and burials are still a part of the no longer inhabited villages. In addition there are garden areas, bathing areas, streams, and docks excavated and enhanced on the harbour's edge. Tree crops were grown in the villages and species of taro in elaborate irrigated pondfields on the valley floor and near the coast. Almost all the villages had immediate access to sea through mangroves and across the reef platform or lagoon. Some *bai* have been reconstructed in recent decades.

Some good examples of the traditional villages are as follows. *Old Ngerkeai* traditional village and *bai* in Aimeliik state, the latter built on one of several older stone faced platforms. *Melekeok* traditional village and *bai* (Melekeok State). *Ngerutechhei* (part of the Imeong conservation area on the existing tentative list) and the *Imeong* traditional villages (not in the tentative list area) (both Ngeremlengui state). Imeong traditional village has fine ascending stone pathways, rest platforms, other stone platforms and modern burials, *Airai bai* and traditional village (Airai state) has very good stone-paved roads meeting at a cross roads, *bai* platforms, modern cemeteries, a dock and bathing pool. *Chelab* traditional village (Ngaraard state) has very fine narrow stone causeways and stone-faced mounds, drained and stone-faced roadways, high-sided (4 m tall) cuttings and platforms for up to three *bai* (not extant). All the traditional villages have been used as cemeteries in recent decades and are well maintained as ceremonial open spaces adjacent to the modern settlements.

The *Badrulchau* monolith assemblages (Ngarchelong state) are in two main groups of up to 20 in double rows with some intermediate stones. The monoliths are up to 2 m tall and .4 x 1.2 m in horizontal section many eroded and some with a distinct notch on top for rafter logs. The houses would have been large, up to 20 x 6 m in plan area. These monolith assemblages are probably an unusual and well preserved rafter supports from an earlier form of *bai*.

Current land use:

Some traditional villages are carefully curated as ceremonial places and as venues for tourism. The hill fortifications and terraces are in forest or open grassland maintained by fire.

Significance of the landscape:

The *bai* (traditional houses) with their “long house” architecture and painted wooden interior beams and external panelling reflect Palauan architecture and social and cultural practices. The paintings are lively narratives depicting key incidents in the founding ideologies of Palauan society. The traditional villages reflect the ceremonial plan of the settlements of the ancient society. The traditional villages are associative with the chiefly institutions of Palau which have their own forms of dialogue and negotiation with the modern political institutions set up at the cessation of the former US trust territories of Micronesia.

Threats/authenticity:

The traditional villages are archaeological sites which for the most part are located in close proximity to the modern townships but are not overwhelmed by them. The *bai* (traditional meeting houses) that have been reconstructed in the last few decades are based on well known and documented historical models with rituals, craftsmanship and painting techniques that follow and perpetuate the traditional building knowledge. In the past re-building would have been a regular process. Further investigation is desirable as to whether there has been an hiatus in *bai* building on Palau and whether this can be construed as an issue affecting the authenticity of the modern buildings.

PART 5: The Way Forward

Susan Denyer, Kevin L. Jones and Anita Smith

This section reviews issues that have emerged in the course of compiling this Thematic Study, considers the management, conservation and protection needs of cultural landscapes, and recommends further research and documentation to support nominations of cultural landscapes from the Pacific Region.

FINDINGS OF THE STUDY

At Port Vila in 2005, representatives of Pacific Island countries and territories agreed on three themes that were a priority for thematic studies in the region.¹²³ These were:

- Associative cultural landscapes of stories that explain the origin and development of social structures in the Pacific
- Cultural landscapes related to cultivation in the Pacific
- Lapita Expansion

As discussed in Part 2, the focus of this study has been the first two of these themes. Lapita pottery archaeological sites and other sites of first landing have not been fully covered in this study. The only landscapes discussed for their primary Lapita associations are the Reef Santa Cruz and Arawe Islands.

It has not been the aim of this study and indeed it would be an impossible task to document all cultural landscapes and many seascapes of the Pacific Island region. Rather the aim has been to identify and discuss various kinds of tangible evidence that are likely to be present in the cultural landscapes of the region, the social and cultural knowledge and practices that give rise to them and the strong associations that Pacific Island peoples have with their environment. The gazetteer (Part 4) highlights some significant sites.

The study area represents over a quarter of the earth's surface and is therefore general and generalizing. However, notwithstanding the size and cultural diversity of the Pacific Islands, the study does provide substantial detail and a useful starting point from which more detailed studies at local, sub-regional and regional levels may be envisaged within more strongly delineated comparative frameworks. These could be thematic, typological, or even socio-linguistic. However to identify appropriate sub-regional comparative frameworks it may be useful to look at inter-island types as a major influence on subsistence and therefore on the character of the cultural landscape.

The study is underpinned by an immense wealth of published anthropological and historical data, and archaeological evidence. While this body of literature can provide substantial and detailed background information about the traditional variability of Pacific Island landscapes, the primary focus of this literature is on Pacific societies prior to or at European contact.

¹²³ <http://www.nwhf.insite.no/res/612006m5v8h3j24d7k/vanuatureport.pdf>

While providing an understanding of the historical processes that led to the development of cultural landscapes in the present, the usefulness of this literature for building a comparative framework for cultural landscapes is limited because for the most part it does not discuss the Pacific people and places of the present. The published information rarely details factors affecting and sustaining landscapes in the present.

This study has been a desktop study and although the voices of Pacific Island people have in some cases been quoted in the text, the study lacks first hand accounts from Pacific Island people about their landscapes, how they perceive them and their significance. This is especially relevant for the associative values of cultural landscapes, but also in regard to current horticultural practices, traditional knowledge of plants and their cultivation, continuity and change in social practices and their expression in villages, and land use practices and land tenure. To fully understand and assess the cultural significance of landscapes and seascapes in the Pacific, this contemporary information will need to be documented in relation to individual places. Good examples where such studies have been done are Tikopia and the Reef Santa Cruz Islands.

Also lacking from this study and in the literature in general, is detailed mapping and recording of particular cultural landscapes that could relate spatial patterning in the landscape to specific horticultural, agricultural, social and cultural practices. Alongside this is the practical limitation of extremely limited recording of Pacific Island places within a cultural landscape framework. More focused or detailed studies of particular kinds of cultural landscapes will require field recording. This should be a priority for future work.

The approach taken in the study is that it is not always possible or meaningful, to identify individual cultural or historical themes or a types of landscapes that each South Pacific landscapes represents. Although this study has used the idea of ‘transported landscapes’ as a conceptual framework with which to recognise the shared characteristics of landscapes across the region, the idea of ‘transported landscapes’ should provide only a baseline from which to explore the ways in which different Pacific Island societies have developed from this shared origin and in response to the variety of environments and how this is expressed in the tangible evidence and intangible associations of specific landscapes. At particular issue here is the great diversity of social systems and environments within Melanesia which it has not been possible to illustrate fully in the examples provided in this study. In Melanesia, linguistic diversity is matched by diverse social practices that defy comparative frameworks beyond the most general. Comparative analysis of cultural landscapes in Melanesia will be challenging and will need to carefully articulate the social and cultural characteristics on which comparison is being undertaken.

The primary focus of the study has been organically evolved landscapes and in particular the horticultural practices that are expressed in cultural landscapes across the region. To a lesser extent the study has looked at the social patterning of the landscapes through land tenure systems, villages and other built structures. This focus has been due to the large amount of published sources around these topics especially in comparison to the information available about associative values of particular landscapes. This is for two reasons: Firstly, anthropological data concerning ritual, spiritual belief systems and cosmologies is plentiful but is not commonly discussed in the literature in relation to specific landscape features. Secondly, this knowledge is traditional knowledge and commonly held within the community and protected through this process.

A detailed study of associative cultural landscapes in the region would need to recognise this and establish protocols by which specific knowledge or understandings can be recorded. Notwithstanding the added time and resources such a study would require, it would be of great value in recognising the interwoven tangible and intangible elements that create cultural landscapes. Of particular value to understanding the cultural patterning in the biodiversity of the region's ecosystems would be further intensive study of traditional and customary practices in the management of natural resources.

In the Pacific Islands the various factors that contribute to the creation of cultural landscapes cannot be easily compartmentalised. A framework for comparative analysis of cultural landscapes needs to accommodate multiple but regionally shared landscape characteristics, within which it is possible to identify diversity in the expression of these elements at a regional and sub-regional level. For example Manono Island, Samoa, included on Samoa's Tentative List is a small circular island divided into four wedge-shaped land tenure units each with a village (Apai, Salua, Lepuiai and Faleu) connected by a narrow path along the coast. Other paths lead through the gardens that cover much of the island. Fish traps, boats, jetties, nets and other fishing gear are found along the beaches in front of each village. At the highest point in the centre of the island is a *tia 'ave* or star mound and associated ditch fortifications and various other stone features, probably in use at European contact. Archaeological excavations have located sites on the beaches containing undecorated ceramics from the period immediately after the initial colonisation of the archipelago.¹²⁴ Oral histories, monuments and early churches on the island attest to the power of the *matai* of Monono Island in the early historic period. They used the small island's strategic location between the two main islands of Samoa to control sea, movement of people and trading between the main islands. The people of Manono continue to live according to *fa'a Samoa* or the Samoan way of life based on the *aiga*, the extended family with a common allegiance to the *matai*, or family chief.¹²⁵

The cultural landscape of Manono Island is representative of Samoan and Polynesian continuing cultural landscapes with, like all places, a specific and unique history expressed in various ways in the landscape, giving it strong associations. A comparative framework for assessing cultural landscapes across the Pacific needs to recognize the way land management is inextricably linked with social and cultural associations and not try and separate unnecessarily evolving landscapes from associative landscapes: most cultural landscapes in the Pacific Islands are a fusion of both these types.

PROTECTION, CONSERVATION AND MANAGEMENT

Evolving cultural landscapes and associative ones reflect processes of interaction between people and their environment that are still shaping the landscapes. And it is these processes of interaction, as well as the physical reflections of these processes, that combine to give landscapes their significances, and for some their outstanding universal value.

For World Heritage sites, which demonstrate particularly strong and distinctive interactions, sustaining these landscapes means sustaining these processes in such a way that their values

¹²⁴ Smith, A. 2002. *An Archaeology of West Polynesian Prehistory*. Terra Australis 18. Canberra: Pandanus Press

¹²⁵ Department of Environment, Samoa. Draft Tentative List submitted to UNESCO World Heritage Centre, January 2007.

persist. This does not mean that these landscapes will not change, but that change should respect their significances. Many landscapes of the Pacific Islands are managed according to customary practices and these practices will be the key to sustaining their values. However it is also often the case that customary practices need to be given support from protective policies and thus successful management and protection will often be a combination of both traditional and legal instruments.

Customary land management in the Pacific context may be defined as the contemporary land management which has evolved out of traditional practices without reference to central government laws or land administration. Central or national governments have existed in the Pacific for over a hundred years.

Although central governments and some of the former colonial governments have been wary of playing a direct role in customary land management, there are systems of private title/ownership in some countries such as the Federated States of Micronesia (dating back to the German and Japanese colonies) and New Zealand (since the 1840s). There are other forms of land rights such as the Tongan system where all land is owned by the Crown but allocated on a permanent basis to users. In these countries and others there is an ongoing negotiation between central government and the people and their chiefs who have a customary interest in the use of land and the conservation of its values.

The *Operational Guidelines for the implementation of the World Heritage Convention* acknowledge, that customary land management can provide an appropriate assurance of sustained conservation management but only where there is a “thorough shared understanding of the property by all stakeholders” (*Operational Guidelines* 2 February 2005 s. 111 (a)). Also the guidelines require “a cycle of planning, implementation, monitoring, evaluation and feedback” (s. 111 (b)) and “an accountable, transparent description of how the management system functions” (s. 111 (f)).

“Conservation-focused” customary land management would allow for economic (commercial or subsistence) use of the land but the World Heritage system would need to be assured of the following:

- customary guardians are aware of the World Heritage values and actively support them;
- reliance is placed on the good judgement of customary guardians about protection;
- relatively informal monitoring and reporting protocols are in place, e.g., new finds are reported to the national museum or other research agency;
- harmful effects beyond the control of the local community are reported promptly so that corrective action can be taken;
- part of the negotiation between national governments and local communities must involve the resourcing of local protection of the World Heritage value.

Customary land management is therefore of primary importance in maintaining all the forms of cultural landscape and seascape identified in this thematic study. To sustain it and to ensure its continuity, may need partnerships between local communities and national governments.

When a property is nominated for the World Heritage List, it must demonstrate that it has a management system in place and that it is adequately protected. As explained above this may mean some sort of formalisation of customary management and partnerships between local communities and the national government who has the responsibility for ensuring the protection of World Heritage sites to provide structured monitoring and feedback. And in the

face of potential development, properties will need to demonstrate that they have adequate legal protection for both the core site and the buffer zone.

A key issue is the need for Pacific Island countries to build their capacity to manage cultural sites and landscapes so that they continue to have a strong prospect of successful inscription.

Both authenticity and integrity have to be satisfied as part of the assessment of outstanding universal value (*Operational Guidelines for the implementation of the World Heritage Convention* 2005 ss 79-95). *Authenticity* means that cultural value is “truthfully and credibly expressed through a variety of attributes” such as materials, use, traditions and setting (s. 82). *Integrity* means that the nominated property must be whole or be large enough to give expression to its outstanding universal value and is not overwhelmed by ancillary or neighbouring development (s. 88) which might impact on its setting.

RECORDING AND DOCUMENTATION

For a property to be successfully inscribed on the World Heritage List, there needs to be a record of what has been nominated in order to justify its outstanding universal value and to provide a base-line for future monitoring. As has been outlined above, this level of documentation does not yet exist for many of the significant cultural landscapes of the Pacific Islands.

RECOMMENDATIONS FOR FUTURE WORK

- It would be highly advisable for future studies of Pacific Island cultural heritage places to involve a fieldwork component that would provide a record and assessment of the current conservation of places considered. The present study has demonstrated that there is insufficient current relevant data about the extent, condition, authenticity and integrity of cultural heritage places in the Pacific Islands. While recognising this has resource implications, a field recording component which involves Pacific Island people would be highly appropriate for future studies at the local or sub-regional level.
- Future studies should include substantial consultation with representatives of Pacific Island states in their development and review. It would also be valuable for Pacific Island people to be involved in the writing of such studies. At present there are few people in the Pacific Islands with training in cultural heritage, and involvement in the development and writing of cultural landscape studies may offer the opportunity to build this capacity within the region.
- There are coral reef and marine World Heritage initiatives under way in the central Pacific (the Line Islands including Kiritimati which is discussed in the Part 4 portfolio) and in the Solomon Islands (Marovo, also discussed in Part 4). The current UNESCO-sponsored reports on these projects contain only brief reference to the cultural values of these marine regions which are potentially very important. All such areas need careful review for their values as cultural landscapes or seascapes. Work could be conducted to set a cultural context for such marine nominations.
- Pacific Island countries should consider the potential for cultural landscapes to be on their Tentative Lists and to be nominated for inscription on the World Heritage List. The landscapes discussed in this thematic study may have potential to be considered

as World Heritage sites but this will require far more detailed research and field recording. The landscapes included in this study are only indicative examples and represent some of the many landscapes worthy of further investigation.

- The Melanesian and Micronesian nations are under-represented in the discussions in the thematic study and in the landscape portfolio. While there is a great wealth of anthropological data from these sub-regions, landscapes are rarely the focus. The great diversity of cultures and environments in Melanesia does not readily lend itself to comparative frameworks beyond the most general. To address this, a future study should specifically investigate how the cultural and linguistic diversity of Melanesia is reflected in cultural landscapes across the region. Micronesia is characterised by very small land areas and great expanses of ocean. It would be appropriate for future thematic studies in the sub-region to focus on the ways in which Micronesian societies and their heritage places reflect the constraints and opportunities offered by this environment.
- In Polynesia, it would be desirable if a study on the traditions relating to discovery and voyaging could be under taken. This would identify places throughout the Polynesia that, like Taputapuātea (French Polynesia) which has been discussed in this study, are representative of the origin and inter-connectedness and shared history of Polynesian communities.
- Associative cultural landscapes have not been dealt with in sufficient detail in this study due to the lack of published research on stories landscapes in the region. This could be the subject for future study. This could recognise that the associations people have with their landscapes and seascapes are commonly part of traditional knowledge systems, and community cultural rights and ownership of this knowledge will need to be respected in the recording these associations. Such a study should need to take a holistic approach to understanding traditional associations with the landscape and seascape including spiritual associations and traditional knowledge of the environment and natural resources.
- Cultural landscapes of the colonial era have been briefly discussed in this study but were not a focus. A number of Pacific Island nations have now included historic sites or landscapes on their Tentative Lists. While not a current priority for many Pacific Island nations, landscapes of the colonial era do reflect diverse and shared histories and values of the many cultural groups that make up the Pacific Island communities in the present. Although many histories of the Pacific have been published, there is very little data available about the heritage places that reflect these histories. In the future it could be worthwhile to consider a regional study of colonial landscapes.
- Managing dynamic, evolving cultural landscapes presents many challenges in the 21st century and to address these, customary management often needs to be set within a protective framework and strong partnerships developed both locally and with national authorities. Although the World Heritage Committee strongly supports customary management where this sustains outstanding universal value, such management needs to be formalised to the extent that a desired state of conservation, and monitoring and feedback systems are in place, and that adequate legal protection can be demonstrated. There is clearly a need to build capacity in Pacific Islands in order to achieve a satisfactory level of management and protection in order to optimise the success of future nominations.

Annex I - References

- Allen, J. 1997 The impact of Pleistocene Hunter Gatherers on the Ecosystems of Australia and Melanesia. In P. Kirch and T. Hunt (eds) *Historical Ecology in the Pacific Islands: prehistoric environmental and landscape change*. New Haven, Yale University Press.
- Anderson, A. 2005. Subpolar settlement in South Polynesia. *Antiquity* 79:791-800.
- Anderson, A. and Y. Sinoto 2002. New radiocarbon ages of colonization sites in East Polynesia. *Asian Perspectives* 41(2):242-257.
- Anderson, A., P. Wallin, H. Martinsson-Wallin, B. Fankhauser and G. Hope. 2000. Towards a first prehistory of Kiritimati (Christmas) Island, Republic of Kiribati. *Journal of the Polynesian Society* 109 (3): 273-291.
- Anonymous. 1993. *Kiribati National Environmental Strategy*. Chapter 2: The Setting.
- Australia ICOMOS nd. 'Associative Cultural landscapes in the Asia-Pacific Region. Sydney Opera House, 27 – 29 April 1995' A report by Australia ICOMOS to the World Heritage Committee.
- Bahn, P., and J. Flenley. 1992. *Easter Island—Earth Island*. London, Thames and Hudson.
- Ballard, C. 2005. Still good to think with: the sweet potato in Oceania. In C. Ballard, P. Brown, R.M. Bourke and T. Harwood (eds). *The Sweet Potato in Oceania: a Reappraisal*. Ethnology Monographs 19, Oceania Monograph 56.
- Bayard, D.E. 1976. *The Cultural Relationships of the Polynesian Outliers*. (University of Otago Studies in Prehistoric Anthropology vols 9-10.) Dunedin, University of Otago.
- Bayliss-Smith, T., E. Hviding and T. Whitmore. 2003. Rainforest composition and histories of human disturbance in Solomon Islands. *Ambio* 32 (5): 346-352.
- Bayliss-Smith, T., J. Golson, P. Hughes, R. Blong and W. Ambrose. 2005. Archaeological evidence for the Ipomoean Revolution at Kuk Swamp, upper Wahgi Valley, Papua New Guinea. Ch. 11 in C. Ballard et al. (eds) *The Sweet Potato in Oceania: A Reappraisal*. (Ethnology Monographs 19; Oceania Monograph 56.) Pittsburgh University; University of Sydney.
- Beaglehole, J.C (ed) 1969. *The Journals of Captain James Cook on his voyagers of discovery* Cambridge: Cambridge University Press Book II:252 Bellwood, P. 1978. *Archaeological Research in the Cook Islands*. (Pacific Anthropological Records 27.) Honolulu, B.P. Bishop Museum.
- Bellwood, P. 1978. *Man's Conquest of the Pacific: the Prehistory of Southeast Asia and Oceania*. Auckland, Collins.
- Bickler, Simon and Baiva Ivuyo. 2002. Megaliths of Muyuw (Woodlark Island), Milne Bay Province PNG *Archaeology in Oceania* 37:22-36.
- Binney, J. (ed.). 2007. *Te Kerikeri 1770-1850: The Meeting Pool*. Wellington, Bridget Williams Books.

- Bourke, R.M. 2005. In Ballard et al *The Sweet Potato in Oceania: a reappraisal*. Ethnology Monographs 19 Oceania Monographs 56.
- Brown, P. and H. Brookfield 2005. Sweet potato and the Chimbu of the Papua New Guinea Highlands. Pp. 131-136 in C. Ballard, P. Brown, R.M. Bourke and T. Harwood (eds). *The Sweet Potato in Oceania: a reappraisal*. Ethnology Monographs 19, Oceania Monograph 56.
- Burley, D. 1999. Tongan archaeology and the Tongan past 2850-150 BP. *Journal of World Prehistory* 12(3): 337-92.
- Burley, D.V. and J.T. Clark. 2003. The archaeology of Fiji/Western Polynesia in the post-Lapita era. Pp 235-254 in C. Sande (ed.) *Pacific Archaeology: Assessments and Prospects*. (Les Cahiers de l'Archéologie en Nouvelle-Calédonie 15.) Nouméa, Service des Musées et du Patrimoine de Nouvelle-Calédonie.
- Burley, D.V. and W.R. Dickinson. 2001. Origin and significance of a founding settlement in Polynesia. *Proceedings of the National Academy of Sciences* 98 (20): 11829-11831.
- Campbell, I.C. 2003. *Worlds Apart: A History of the Pacific Islands*. Christchurch N.Z.: University of Canterbury Press
- Campbell, M. 2006. Memory and monumentality in the Rarotongan landscape. *Antiquity* 80:102-117.
- Conte, E. 1988. *Les Techniques de Pêche Pre-Européennes et Leur Survivances en Polynésie Française ...* Université de Lille, Villeneuve d'Ascq.
- Conte, E. 1993. L'utilisation du milieu marin et récifal : Napuka. Planche 64 in Dupon, J.-F., J. Bonvallot and E. Vigneron (eds). *Atlas de la Polynésie Française*. Paris, ORSTOM.
- Conte, E., and J. Dennison. 1995. Tepoto burials. *Journal of the Polynesian Society* 104 (4): 397-427.
- Crocombe R. 1961. Land Tenure in the Cook Islands. Unpublished PhD thesis. Canberra: Australian National University.
- Davidson, J.W. 1967. *Samoa ma Samoa*. Melbourne: Oxford University Press. p.16
- Delgado, J.P., D.J. Lenihan and L.E. Murphy. 1991. *The Archaeology of the Atomic Bomb: ... the Sunken Fleet of Operation Crossroads at Bikini and Kwajalein Atoll Lagoons*. (Southwest Cultural Resources Centre Professional Papers 37). Santa Fe NM, National Park Service.
- Denham, T.P., Haberle, S.G., Lentfer, C., Fullagar, R., Field J., Therin, M., Porch N. and B. Winsborough. 2003. Origins of agriculture at Kuk Swamp in the Highlands of New Guinea. *Science* 301: 189-193.
- Di Piazza, A., and E. Pearthree. 2001. An island for gardens, and island for birds and voyaging: a settlement pattern for Kiritimati and Tabuaeran, two 'mystery islands' in the northern Lines, Republic of Kiribati. *Journal of the Polynesian Society* 110 (2): 149-170.
- Dickinson, W.R., D.V. Burley, P.D. Nunn, A. Anderson, G. Hope, A. De Biran, C. Burke and S. Matararaba. 1998. Geomorphic and archaeological landscapes of the Sigatoka dune site, Viti Levu, Fiji: interdisciplinary investigations. *Asian Perspectives* 37(1): 1-31.

- DiNardo, G., and F. Parrish (eds) *Northwestern Hawaiian Islands, Third Scientific Symposium*, November 2-4, 2004. (Atoll Research Bulletin, 543.) Washington D.C., National Museum of Natural History.
- Dupon, J.-F., J. Bonvallot and E. Vigneron (eds). *Atlas de la Polynésie Française*. Paris, ORSTOM.
- Elbert, S.H., and T. Monberg. 1965. *From the Two Canoes: Oral Traditions of Rennell and Bellona Islands*. Honolulu, University of Hawaii.
- Emory, K. 1928. *The Archaeology of Nihoa and Necker Islands*. (Bishop Museum Bulletin, 53.) Honolulu, BP Bishop Museum Press.
- Emory, K.P. 1934. *Tuamotuan Stone Structures*. (BP Bishop Museum Bulletin 118.) Honolulu, BP Bishop Museum.
- Emory, K.P. 1947. *Tuamotuan Religious Structures and Ceremonies*. (BP Bishop Museum Bulletin 191.) Honolulu, BP Bishop Museum.
- Field, J. 1998. Natural and Constructed Defences in Fijian Fortifications. *Asian Perspectives* Vol. 37:32-58
- Field, J. 2005. Land tenure competition and ecology in Fijian prehistory. *Antiquity* 70:586-600
- Field, J. S. 2003. Archaeological and GIS-based research in the Sigatoka Valley, Fiji. *Domodomo* 16: 7-32.
- Firth, R.W. 1936. *We, The Tikopia*. London, George Allan and Unwin. [Many subsequent editions.]
- Fischer, S. 2002. *A history of the Pacific Islands*. New York: Palgrave.
- Fosberg, F.R. 1990 Davidson, J.W. 1967. *Samoa ma Samoa*. Melbourne: Oxford University Press. p.16.
- Furey, Louise. 2006. *Maori Gardening. An archaeological perspective*. Wellington, Science & Technical Publishing, Department of Conservation.
- Golson, J. 1977. No room at the top: agricultural intensification in the New Guinea Highlands. Pp. 601-38 in J. Allen, J. Golson and R. Jones, eds, *Sunda and Sahul: prehistoric studies in southeast Asia, Melanesia and Australia*. London, Academic Press.
- Golson, J. 1997. From Horticulture to Agriculture in the New Guinea Highlands. A Case Study of People and their Environments. In P.V. Kirch and T. L. Hunt eds. *Historical ecology in the Pacific Islands : prehistoric environmental and landscape change*. New Haven, Yale University Press.
- Gosden, C. 1989. Prehistoric social landscapes of the Arawe Islands, West New Britain Province, Papua New Guinea. *Archaeology in Oceania* 24: 45-58.
- Gosden, C. 1994. *Social Being and Time*. Oxford, Blackwell Publishers.
- Gosden, C., and J. Webb. 1994. The creation of a Papuan New Guinea landscape: archaeological and geomorphological evidence. *Journal of Field Archaeology* 21 (1): 29-51.

- Green, R.C. 1995. Linguistic, biological and cultural origins of the initial inhabitants of Remote Oceania. *New Zealand Journal of Archaeology* 17: 5-27.
- Green, R.C., K. Green, R.A. Rappaport, A. Rappaport and J. Davidson. 1967. *Archaeology on the Island of Mo'orea, French Polynesia*. (Anthropological Papers of the American Museum of Natural History 51 (2).)
- Gumbley, W. 1997. *Archaeological mapping of pa in four Taranaki Historic Reserves*. (Science for Conservation 60.) Wellington, Department of Conservation.
- Herdich, D. and J. Clark. 1993. Samoan tia'ave and social structure: methodological and theoretical considerations. Pp. 53-71 in M. Graves and R. Green (eds) *The evolution and organization of prehistoric society in Polynesia*. Auckland: New Zealand Archaeological Association .
- Hicks, N. 1998. Environmental Protection in the Age of Economics - The Niue Experience. *Journal of South Pacific Law* Article 3 of Volume 2.
- Hviding, E. n.d. Marine Tenure and Resource Development in Marovo Lagoon, Solomon Islands. MS report, University of Bergen. [Originally published as South Pacific Forum Fisheries Agency as FFA Report no. 88/35.)
- ICOMOS. 2005. *The World Heritage List: Filling the Gaps – An Action Plan for the Future*, Paris: ICOMOS.
- Irwin, G. 1992. *The Prehistoric Exploration and Colonization of the Pacific*. Cambridge, Cambridge University Press
- Kennett, D. A. Anderson, M. Preeble, E. Conte and J. Southon. 2006. Prehistoric human impacts on Rapa, French Polynesia. *Antiquity* 80: 340-354.
- Kirch and Lepofsky 1993. Polynesian irrigation: archaeological and linguistic evidence for origins and development. *Asian Perspectives* 32:183-204
- Kirch P.V. 1994. *Wet and Dry: Irrigation and Agricultural Intensification in Polynesia*. Chicago: University of Chicago Press.
- Kirch, P.V. 2000. *On the Road of the Winds: an Archaeological History of the Pacific Islands before European Contact*. Berkeley, University of California Press.
- Kirch, P.V. 1984. *The Evolution of the Polynesian Chiefdoms*. Cambridge, Cambridge University Press.
- Kirch, P.V. 1985. *Feathered Gods and Fishhooks: an Introduction to Hawaiian Archaeology and Prehistory*. Honolulu, University of Hawaii Press.
- Kirch, P.V. 1996. *Legacy of the Landscape: an Illustrated Guide to Hawai'ian Archaeological Sites*. Honolulu, University of Hawaii.
- Kirch, P.V. 1997. *The Lapita Peoples*. Cambridge Mass., Blackwell.
- Kirch, P.V. and D. Yen. 1982. *Tikopia: The prehistory and ecology of a Polynesian Outlier*. Honolulu, Bernice P. Bishop Museum Bulletin 238.
- Kirch. P.V. 1984. *The Evolution of the Polynesian Chiefdoms*. Cambridge: Cambridge University Press

- Kulken, R. 2002. Intensive Agricultural Landscapes of Oceania. *Journal of Cultural Geography* 19(2):167.
- Latinis, D. Kyle. 2000. The development of subsistence system models for Island Southeast Asia and Near Oceania: the nature and role of arboriculture and arboreal-based economies. *World Archaeology* 32(1): 41–67.
- Leach, H. 1999. Intensification in the Pacific. *Current Anthropology* 40: 323-324.
- Lee, J. 1983. “*I have named it the Bay of Islands...*”. Auckland, Hodder and Stoughton.
- Lepofsky, D., P.V. Kirch and K.P. Lertzman. 1996. Stratigraphic and palaeobotanical evidence for prehistoric human-induced environmental disturbance on Mo'orea, French Polynesia. *Pacific Science* 50 (3): 253-273.
- Marshall, Y., A Crosby, S. Mataraba and S. Wood. 2000. Sigatoka: the Shifting Sands of Fijian Prehistory. Oxford, Oxbow Books.
- Masse, B.W., D. Snyder and G.J. Gumerman. 1984. Prehistoric and historic settlement in the Palau Islands, Micronesia. *New Zealand Journal of Archaeology* 6: 107-127.
- Mawar, Granville (1999). *Ahab's Trade: The Saga of South Seas Whaling*. St. Martin's Press New York.
- McCoy, P.C. 1990. Subsistence in a “non-subsistence” environment: factors of production in a Hawaiian alpine desert quarry. Pp. 85-119 in D.E. Yen and J.M.J. Mummery (eds) *Pacific production systems....* Canberra, Research School of Pacific Studies.
- McKern, W.C. 1929. *Archaeology of Tonga*. (BP Bishop Museum Bulletin 60.) Honolulu, BP Bishop Museum.
- Mele, E. I. Rakai, C. Ezigbalike and I. P. Williamson 1995 Traditional Land Tenure Issues for LIS in Fiji *Survey Review* 33 (258): 247-262.
- Mieth, A., and H.-R. Bork. 2004. *Easter Island—Rapa Nui: Scientific Pathways to Secrets of the Past*. Kiel, Christian-Albrechts-Universität.
- Muke, J., Denham T.P. and V. Genorupa. In press. Nominating and managing a World Heritage site in the highlands of Papua New Guinea. *World Archaeology*.
- National Biodiversity Team of the RMI, 1999. National Biodiversity Report: The Marshall Islands- Living Atolls Amidst the Living Sea. RMI Biodiversity Project, Majuro
- New Zealand Ministry of Foreign Affairs and Trade. 1997. *Nomination of East Rennell, Solomon Islands, by the Government of the Solomon Islands, for Inclusion in the World Heritage List of Natural Sites*. [Wellington, New Zealand Ministry of Foreign Affairs and Trade.]
- Olsudong, R. 2006. Cultural heritage and communities in Palau. *Micronesian Journal of the Humanities and Social Sciences* 5 (1/2): 547-555.
- Osborne, D. 1966. *The Archaeology of the Palau Islands, an Intensive Survey*. (Bernice P. Bishop Museum Bulletin 230.) Honolulu, Bernice P. Bishop Museum.

- Papahānaumokuākea Marine National Monument. Application for inclusion of a property in the U.S. World Heritage Tentative List. Honolulu, Hawai'i, Friday March 30, 2007. (http://home.nps.gov/_____oia/topics/worldheritage/Applications/Papahanaumokuakea.pdf)
- Parry, J.T. 1984. Air photo interpretation of fortified sites: ring-ditch fortifications in southern Viti Levu, Fiji. *New Zealand Journal of Archaeology* 6: 71-94.
- Parry, J.T. 1987. *The Sigatoka valley—Pathway into Prehistory*. (Bulletin of the Fiji Museum 9). Suva, Fiji Museum.
- Phear, S. 2004. The Monumental Earthworks of Palau: A Landscape Perspective. PhD, Australian National University.
- Phear, S., G. Clark and A. Anderson. 2003. A radiocarbon chronology for Palau. Pp. 255-263 in C. Sand (ed.) *Pacific Archaeology: Assessments and Prospects*. (Les Cahiers de l'Archéologie en Nouvelle-Calédonie 15.) Nouméa, Service des Musées et du Patrimoine de Nouvelle-Calédonie.
- Prickett, N. 1990. *Historic Taranaki: An Archaeological Guide*. Wellington, GP Books.
- Rainbird, P. 2004 *The Archaeology of Micronesia*. Cambridge: Cambridge University Press.
- Rössler, M. 2001 "World Heritage Cultural Landscapes in the Pacific Region" in *World Heritage Cultural Landscapes: a global perspective*, ICOMOS-UK, pp.38-45.
- Salmond, A. 1991. *Two worlds. First meetings between Maori and Europeans 1642–1772*. Viking, Auckland.
- Sand C. 2002. Melanesian Tribes vs. Polynesian Chiefdoms: Recent Archaeological Assessment of a Classic Model of Sociopolitical Types in Oceania. *Asian Perspectives* 41(2): 285-29.
- Sand, C. 1996. Recent developments in the study of New Caledonia's prehistory. *Archaeology in Oceania* 31:41-71.
- Sand, C., F. Valentin, T. Sorovi-Vunidilo, J. Bole, A. Ouetcho, S. Matararaba, J. Naucabalavu and L. Lagarde. 1999. *Cikobia-i-Ra. Archaeology of a Fijian Island*. Nouméa:Service des Musées et du Patrimoine.
- Secretariat of the Pacific Community. 2002 *Draft Framework for the Protection of Traditional Knowledge and Expressions of Culture*. Noumea: SPC Sheppard, P.J. and R. Walter. 1996. A revised model of Solomon Islands culture history. *Journal of the Polynesian Society* 115(1): 47-76.
- Smith A. 2002. *An Archaeology of West Polynesian Prehistory*. Canberra: Panadanus Books.
- Smith, A. 2007. Colonialism and the Bomb in the Pacific. Pp. 55-72 in J. Schofield and W. Cocroft (eds) *A Fearsome Heritage. Diverse Legacies of the Cold War*. California: Left Coast Press.
- Spennemann, D. 2006. Freshwater Lens, settlement patterns, resource se and connectivity in the Marshall Islands. *Transforming Cultures eJournal* 1(2):4-63.
- Spriggs, M. 1997. *The Island Melanesians*. Oxford, Blackwell.

- Steadman, D. G. Pregill and D. Burley 2002. Rapid prehistoric extinction of iguanas and birds in Polynesia. *Proceedings of the Nat Academy of Sciences* 99(6): 3673-3677.
- Summerhayes, G.R. 2000. Far Western, Western, and Eastern Lapita: a re-evaluation. *Asian Perspectives* 39 (1-2): 109.
- Tiraa, A. 2006 Ra'ui in the Cook Islands – today's context in Rarotonga. *SPC Traditional Marine Resources Management and Knowledge Information Bulletin* 19:11-15.
- UNESCO. 2005. The Canoe is the People. Indigenous Navigation in the Pacific. CD-rom produced by UNESCO Links Project www.unesco.org/links
- UNESCO World Heritage Centre. 1997. Report of the 3rd Global Strategy Meeting “Identification of World Heritage properties in the Pacific” Suva, Fiji 15-18 July 1997. (WHC-97/CON F.208/INF.8)
- UNESCO World Heritage Centre. 1999. Report of the Second World Heritage Global Strategy Meeting for the Pacific Islands region, Port Villa, Vanuatu 24-27 August 1999.
- UNESCO World Heritage Centre. 2004. *Central Pacific World Heritage Project: International Workshop Report 2-6 June 2003, Honolulu, Hawaii*. (WHC-2004/WS/4.)
- UNESCO World Heritage Centre. 2005. *Operational Guidelines for the Implementation of the World Heritage Convention*, Paris: UNESCO.
- UNESCO World Heritage Centre. 2005. Report, Thematic Framework for World Cultural Heritage in the Pacific 5-8 September 2005, Port Vila, Vanuatu. (<http://whc.unesco.org/uploads/activities/documents/activity-7-1.pdf>)
- UNESCO. 1992. *The Samoan Fale*. Apia: UNESCO Office for the Pacific States.
- Van Tilburg, J. A. 2003. *Among Stone Giants; the Life of Katherine Routledge and Her Remarkable Expedition to Easter Island*. New York, Scribner.
- Wallin, P. 1993. *Ceremonial Stone Structures: the Archaeology and Ethnohistory of the Marae Complex in the Society Islands, French Polynesia*. (Aun 18.) Uppsala, Societas Archaeologica Upsaliensis.
- Wallin, P., G. Clark and H. Martinsson-Wallin. 2002. *Test Investigations at the Pulemelei Mound Site, Vaitoa, Samoa*. (Kon-Tiki Museum Field Report Series No.6.).
- Walter, R. 1993. The community in Ma'auke prehistory. In M. Graves and R. Green (eds) *The evolution and organization of prehistoric society in Polynesia*. Auckland, New Zealand Archaeological Association.
- Yen, D.E. 1974. Arboriculture in the subsistence of Santa Cruz, Solomon Islands. *Economic Botany* 28: 247-284.

Additional reading

Fowler, P.J. 2003. World Heritage Cultural Landscapes 1992-2002. (World Heritage Papers no. 6.) Paris, UNESCO World Heritage Centre.

Lucas P.H.C. (Bing), 1992. *Protected Landscapes for Policy-Makers and Planners*. Chapman and Hall, London, UK.

Page R.R., Gilbert C.A. and Dolan S.A., 1998. *A Guide to Cultural Landscape Reports: Contents, Processes and Techniques*. US National Park Service, Washington DC, USA.

Romulus G. and Lucas P.H.C., From the Caribbean to the Pacific: Community Conservation in Small Island States. *The George Wright Forum*, 2000, 17:1.