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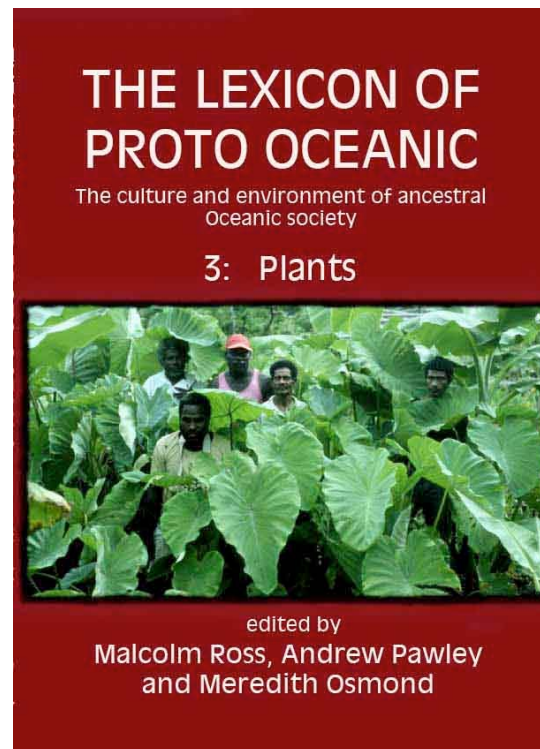
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The Lexicon of Proto Oceanic: The culture and environment of ancestral Oceanic society 3. Plants

Malcolm Ross, Andrew Pawley and Meredith Osmond, editors
PL 599



This is the third in a series of six volumes on the lexicon of Proto Oceanic, the ancestor of the Oceanic branch of the Austronesian language family. Each volume deals with a particular domain of culture and/or environment and consists of a collection of essays each of which presents and comments on lexical reconstructions of a particular semantic field within that domain.

Volume 3 examines the terms that Proto Oceanic speakers used to name plants and parts of plants. After the general introduction to the series, Chapter 2 places Proto Oceanic plant naming within its biogeographic and ethnographic context, Chapter 3 examines its major plant categories from an ethnobotanical standpoint, and Chapter 4 reconstructs terms for parts of plants. Chapters 5-8 present reconstructed names of wild plants, organised by vegetation habitat: the coastal strand, mangrove swamp, rain forest and secondary forest. Chapters 9-13 investigate the naming of cultivated plants: staple foods, green vegetables, nut and fruit trees, the coconut and a variety of cultivated non-food plants.

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3 Plants

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Meredith Osmond

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Abbreviations

A	actor	PEOc	Proto Eastern Oceanic
ACD	Blust (1998c)	PL	plural
Adm	Admiralties	PMM	Proto Meso-Melanesian
ADJ	adjective	PMP	Proto Malayo-Polynesian
ADV	adverb	Pn	Polynesian
APNI	Australian Plant Names Index	PNGOc	Proto New Guinea Oceanic
APPL	applicative	POc	Proto Oceanic
ART	article	POLLEX	Biggs & Clark (1993)
CEMP	Central/Eastern Malayo-Polynesian	POLLEX2	Clark & Biggs (2006)
CMP	Central Malayo-Polynesian	PPn	Proto Polynesian
CSTR	construction marker	PROc	Proto Remote Oceanic
esp.	especially	PSOc	Proto Southern Oceanic
exp	expected	PT	Papuan Tip
Fij	Fijian	PWMP	Proto Western Malayo-Polynesian
IPNI	International Plant Names Index	PWOc	Proto Western Oceanic
k.o.	kind of	SG	singular
Mic	Nuclear Micronesian	s.o.	someone
MM	Meso-Melanesian	sp.	species (SG)
N	noun	spp.	species (PL)
NCal	New Caledonia	s.t.	something
NCV	North/Central Vanuatu	SES	Southeast Solomonian
NNG	North New Guinea	SJ	Sarmi/Jayapura
NOM	nominaliser	SV	South Vanuatu
OBJ	object	TM	Temotu
OED	<i>Oxford English Dictionary</i>	U	undergoer
PAn	Proto Austronesian	v	verb
PASS	passive	VI	intransitive verb
PCEMP	Proto Central/Eastern Malayo-Polynesian	VT	transitive verb
PCP	Proto Central Pacific	W.Guad.	West Guadalcanal
PEMP	Proto Eastern Malayo-Polynesian	WMP	Western Malayo-Polynesian

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¹ Bethwyn Evans acknowledges help she has received in a footnote at the beginning of each of her chapters.

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The figures in this volume are from a number of sources. Those from Henderson & Hancock (1988) were drawn by Sue Wickison, those from French & Bridle (1978) by Celia Bridle, and I am grateful to both of them for allowing me to reproduce their superb drawings here.

Published sources of figures are as follows: Barrau (1962): 9.3, 9.7; Barrau (1965): 9.4, 13.9; Conn (1995): 5.11 right; Danielsson & Danielsson (1983): 12.1; Evans (1999): 11.1 right, 11.3 (labels only); French & Bridle (1978): 9.1, 9.2, 9.5; French (1986): 7.3, 11.7; Gilman & Watson (1993): 7.7, left A; Henderson & Hancock (1988): 5.2, 5.7, 5.9, 5.12, 5.14, 6.2, 7.6, 7.5 right, 7.7 right, 7.9, 7.10, 7.11, 8.1, 8.3, 9.8, 10.1, 10.3, 10.4, 10.5, 10.6, 11.1 left, 11.2, 11.4, 11.5, 11.8, 11.9, 11.10, 11.11, 13.1, 13.3, 13.6, 13.10 left; Henty (1969, drawn by Damaris Pearce): 8.5 (left and right); Hopkins & Menzies (1995): 5.1 left, 5.6, 5.13, 5.15; Jebb (1992, drawn by Rosemary Wise): 11.3 (drawing only); Johns (1976): 6.6, 7.1, 7.2, 7.4, 7.5. left B & C, 7.7, left B & C, 7.8; Laycock (2003): 12.2; Merrill (1946): 5.1 right, 5.4, 5.5, 5.8, 5.11 right, 6.4, 8.2, 13.8, 13.10 right; J. Parham (1972): 6.5, 8.4.

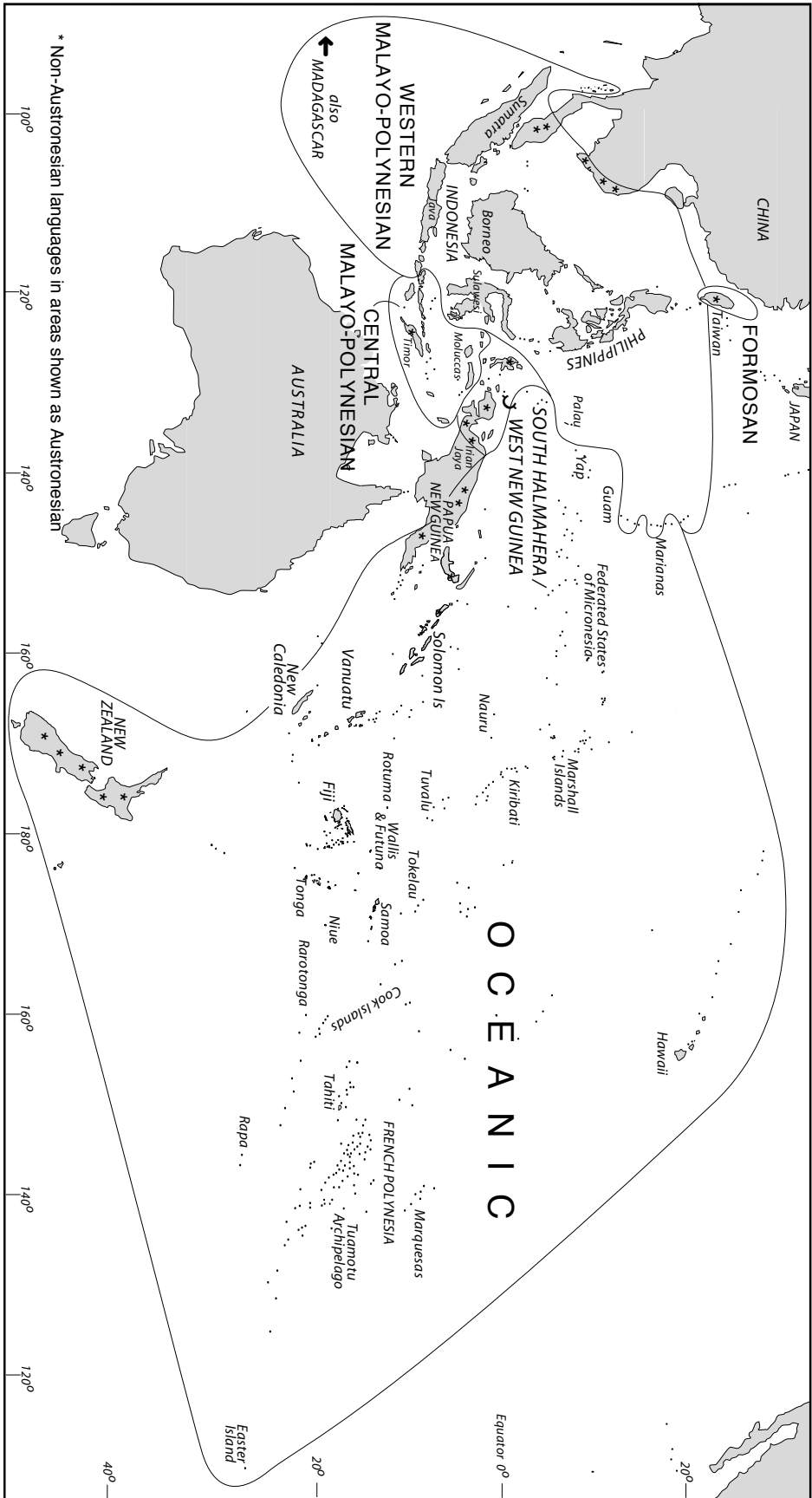
The following figures are from internet sources accessed in December 2007: 8.5 (middle) (<http://www.weblio.jp/>), 12.3 (<http://waynesword.palomar.edu/terminfl.htm>), 13.4 B (<http://www.ntbg.org/>), 13.2 (<http://membres.lycos.fr/verdammi/>), 13.4 C & D (<http://www.nationaalherbarium.nl/>, drawn by Anna Walsmit Sachs), 13.5 (<http://www.desert-tropicals.com/>). One figure is from an internet source accessed in August 2008: 10.2 (<http://www.tropilab.com/amaranth.html>).

I drew the maps, and the figures in chapters 1 and 3 and figures 5.3 (after a drawing in Peekel 1984: 193), 6.1, 6.3, 7.5, left A (after a photograph in Thomson 2006*a*), 11.6 (after a drawing in French 1986: 210), 13.7. The source of figure 5.10 is unknown.

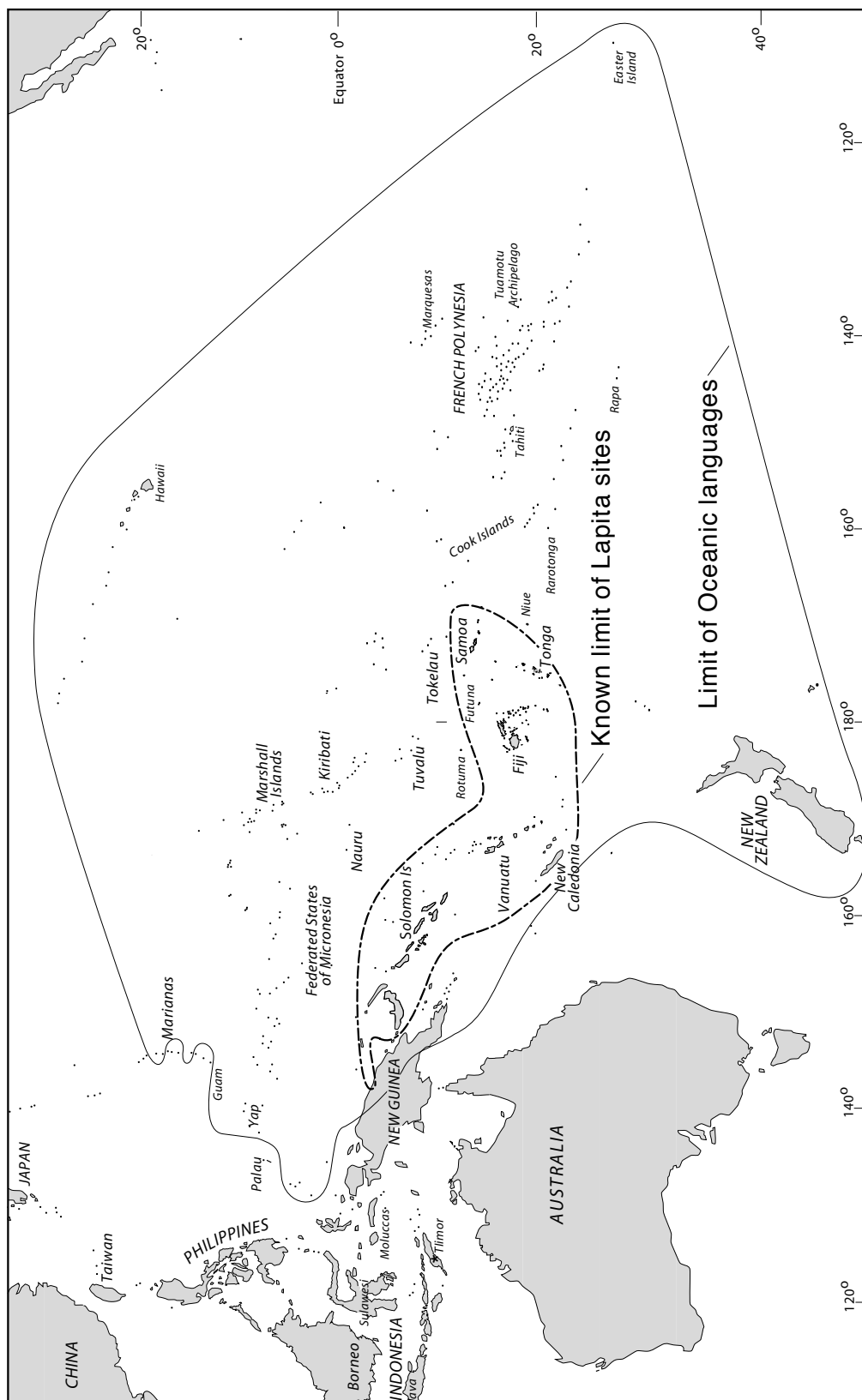
The cover photograph, by R. Michael Bourke, shows men in a garden of giant taro (*Cyrtosperma merkusii*) and banana plants at Tinputz in northeast Bougainville.

Malcolm Ross

Canberra, 4th September 2008



Map 1 The Austronesian language family and major subgroups



Map 2 Geographic limits of historically known Oceanic speakers and of presently documented Lapita sites (after Kirch 1997:17, 54)

1 *Introduction*

MALCOLM ROSS, ANDREW PAWLEY AND MEREDITH OSMOND

1 Aims

This is the third in a series of volumes bringing together the results of recent work on the lexicon of the Proto Oceanic (POc) language.¹ POc is the immediate ancestor of the Oceanic subgroup of the Austronesian language family (see Map 1). This subgroup consists of all the Austronesian languages of Melanesia east of 136° E, together with those of Polynesia and (with two exceptions) those of Micronesia—more than 450 languages in all.² Extensive arguments for the existence of Oceanic as a clearly demarcated branch of Austronesian were first put forward by Otto Dempwolff in the 1920s, and the validity of the subgroup is now recognised by virtually all scholars working in Austronesian historical linguistics.

The development and break-up of the POc language and speech community were stages in a truly remarkable chapter in human prehistory—the colonisation by Austronesian speakers of the Indo-Pacific region in the period after about 2000 BC. The outcome was the largest of the world's well-established language families and (until the expansion of Indo-European after Columbus) the most widespread. The Austronesian family comprises more than 1,000 distinct languages. Its eastern and western outliers, Madagascar and Easter Island, are two-thirds of a world apart, and its northernmost extensions, Hawaii and Taiwan, are separated by 70 degrees of latitude from its southernmost outpost, Stewart Island in New Zealand.

It is likely that the divergence of Oceanic from its nearest relatives, which are the Austronesian languages spoken around Cenderawasih Bay and in South Halmahera (Blust 1978*a*), began when Austronesian speakers from the Cenderawasih Bay area moved eastwards along the north coast of New Guinea and into the Bismarck Archipelago. There is a strong school of opinion that associates the subsequent break-up of POc with the rapid colonisation of Island

¹ The project has been jointly directed by Andrew Pawley and Malcolm Ross, with research assistance from Meredith Osmond, in the Department of Linguistics, Research School of Pacific and Asian Studies at the Australian National University. Bethwyn Evans, who has contributed to the present volume, was employed as a Research Associate under a grant to the project from the Australian Research Council. Originally, five volumes were planned, but the large amount of material on plants and animals has led to the splitting of the planned volume 3 into two.

² The listing in Tryon (1995) contains 466 Oceanic languages, many of which are subdivisible into dialects.

Melanesia and the central Pacific by bearers of the Lapita culture between about 1200 and 900 BC (see Map 2 and volume 2, chapter 2).

The present project aims to bring together a large corpus of lexical reconstructions for POc, with supporting cognate sets, organised according to semantic fields and using a standard orthography for POc. We hope that this thesaurus will be a useful resource for culture historians, archaeologists and others interested in the prehistory of the Pacific region. The comparative lexical material should also be a rich source of data for various kinds of purely linguistic research, e.g. on semantic change and subgrouping in the more than 400 daughter languages.

Volume 1 of *The lexicon of Proto Oceanic* dealt with material culture. Volumes 2, 3 and 4 examine relevant sets of cognate terms in order to gain insights into how POc speakers viewed and exploited their environment. Volume 2 dealt with the geophysical or inanimate environment, the present volume treats plants and volume 4 animals. Volume 5, as it is planned at the time of writing, will deal with terminologies centring on people and society, including the body and human conditions and activities, and social organisation, belief systems, rituals, recreation and other elements of non-material culture. Volume 6 will treat closed categories including adjectives, pronouns, and number. It will also include a review of the main findings of the project, especially comparing the evidence from archaeology and historical linguistics concerning the culture and dispersal of Austronesian speakers into and across the Pacific Islands. Volume 6 will also provide an index to the POc and other reconstructions presented in the whole work, as well as an English-to-POc finderlist and a list of all languages cited, together with their subgroups.³

The organisation of the present volume is as follows. Chapter 2 is an introduction to the present volume, discussing plant classifications and plant names. It also provides a rationale for the organisation of this volume. Chapter 3 reconstructs major categories of POc ethnobotanical classification. Chapter 4 deals with POc terms for the parts of trees and other plants. Chapters 5–8 present reconstructed names for wild trees and plants of the bush. They are organised according to vegetation habitat. Chapter 5 treats plants of the coastal strand, chapter 6 plants of the mangrove swamp, chapter 7 primary lowland rain forest plants and chapter 8 plants that are found mainly in secondary lowland rain forest and grassland. Chapters 9–12 present reconstructed names for cultivated food plants.⁴ Chapter 9 deals with staple foods, chapter 10 with green vegetables, chapter 11 with nut- and fruit-bearing trees and plants and chapter 12 with the coconut palm and its products. Finally, chapter 13 treats trees and plants that are cultivated for purposes other than food production.

2 The relation of the current project to previous work

Reconstructions of POc phonology and lexicon began with Dempwolff's pioneering work in the 1920s and 1930s. Dempwolff's dictionary of reconstructions attributed to Proto Austronesian (PAn) (1938) — but equivalent in modern terms to Proto Malayo-Polynesian (PMP) — contains some 600 reconstructions with reflexes in Oceanic languages.

³ This Introduction incorporates much of the material in the Introductions to Volume 1 and 2. We replicate this material here in order that each volume can be used independently. There are, however, some changes in the subgrouping of Oceanic languages.

⁴ Terms associated with horticultural practices are presented in chapter 5 of volume 1.

Since the 1950s, POc and other early Oceanic interstage languages have been the subject of a considerable body of research. However, relatively few new reconstructions safely attributable to POc were added to Dempwolff's material until the 1970s. In 1969 George Grace made available as a working paper a compilation of reconstructions from various sources amounting to some 700 distinct items, attributed either to POc or to early Oceanic interstages. These materials were presented in a new orthography for POc, based largely on Biggs' (1965) orthography for an interstage he called Proto Eastern Oceanic. Updated compilations of Oceanic cognate sets were produced at the University of Hawaii in the period 1977–1983 as part of a project directed by Grace and Pawley. These compilations and the supporting data are problematic in various respects and we have made only limited use of them.

Comparative lexical studies have been carried out for several lower-order subgroups of Oceanic: for Proto Polynesian by Biggs (resulting in Walsh & Biggs 1966, Biggs et al. 1970 and subsequent versions of the POLLEX file, including Biggs & Clark (1993) and Clark & Biggs (2006));⁵ for Proto Micronesian by scholars at the University of Hawaii (Bender et al. 1983, Bender et al. 2003); for Proto North-Central Vanuatu by Clark (1996, 2008);⁶ for Proto Southern Vanuatu by Lynch (1978, 1996, 2001); for New Caledonia by Ozanne-Rivierre (1992), Haudricourt & Ozanne-Rivierre (1982) and Geraghty (1989); for Proto SE Solomonic by Levy (1980) and František Lichtenberk (1988); for Proto Central Pacific by Hockett (1976), Geraghty (1983, 1986, 1996 together with a number of unpublished papers); for Proto Eastern Oceanic by Biggs (1965), Cashmore (1969), Levy & Smith (1970), and Geraghty (1990); and for Proto Central Papuan by Pawley (1975), Lynch (1978, 1980), and Ross (1994*b*).

Robert Blust of the University of Hawaii has, in a series of papers (1970, 1980, 1983–84, 1986, 1989) published extensive, alphabetically ordered, lexical reconstructions (with supporting cognate sets) for interstages earlier than POc, especially for Proto Austronesian, Proto Malayo-Polynesian and Proto Eastern Malayo-Polynesian. He has also written several papers investigating specific semantic fields (1980, 1982, 1987, 1994). At the time of writing, Blust has a major work in progress, the Austronesian Comparative Dictionary (ACD), which will bring together all his reconstructions for Proto Austronesian and lower-order stages. This is stored in electronic form at the University of Hawaii. The version to which we refer dates from 1998.

Several papers predating our project systematically investigated particular semantic domains in the lexicon of POc, e.g. Milke (1958), French-Wright (1983), Pawley (1982, 1985), Pawley & Green (1985), František Lichtenberk (1986), R. Walter (1989), and the various papers in Pawley & Ross (1994). Ross (1988) contains a substantial number of new POc lexical reconstructions, as well as proposed modifications to the reconstructed POc sound system and the orthography.

These earlier works have provided valuable points of reference, both inside and outside the Oceanic group, and we are indebted particularly to Biggs and Clark (1993), Clark (1996*a*), Lynch (2001*c*) and Blust (ACD). However, previous Oceanic lexical studies were limited both

⁵ We have mostly referred to Biggs & Clark (1993) in our work, as Clark & Biggs (2006) became available only late in the preparation of this volume. We have referred to the latter in just a few cases.

⁶ The manuscript of Clark (2008) became available only after this volume was nearing completion, and is not otherwise referred to here.

by large gaps in the data, with a distinct bias in favour of ‘Eastern Oceanic’ languages, and by the technical problems of collating large quantities of data. Although most languages in Melanesia remain poorly described, there are now many more dictionaries and extended word lists, particularly for Papua New Guinea, than there were in the 1980s. And developments in computing hardware and software now permit much faster and more precise handling of data than was possible then. A list of sources and a summary of the Project’s collation procedures is found in Appendix 1.

As the present project proceeded, we came to realise that the form in which preliminary publications were presented—namely as essays, each discussing cognate sets for a particular semantic field at some length—would also be the best form for the presentation of our final synthesis. A discursive treatment of individual terminologies, as opposed, say, to a dictionary-type listing of reconstructions with supporting cognate sets, makes it easier to relate the linguistic comparisons to relevant issues of culture history, language change, and methodology. Hence each of the present volumes has as its core a collection of analytic essays. Some of these have been published or presented elsewhere, but are printed here in revised form. In some cases we have updated the earlier versions in the light of subsequent research, and, where appropriate, have inserted cross-references between contributions. Authorship is in some cases something of a problem, as a number of people have had a hand in collating the data, doing the reconstructions, and (re)writing for publication here. In most chapters, however, one person did the research which determined the structure of the terminology, and that person appears as the first or only author, and where another or others had a substantial part in putting together the paper itself, they appear as the second and further authors.

3 Reconstructing the lexicon

The lexical reconstructions presented in these volumes are arrived at using the standard methods of comparative linguistics, which require as preliminaries a theory of subgrouping (§3.2) and the working out of systematic sound correspondences among cognate vocabulary in contemporary languages (§3.3). As well as cognate sets clearly attributable to POc, we have included some cognate sets which at this stage are attributable to various interstage languages, particularly Proto Western and Proto Eastern Oceanic (but see §3.2 for definitions). We have set out to pay more careful attention to reconstructing the semantics of POc forms than has generally been done in earlier work, treating words not as isolates but as parts of terminologies.

3.1 Terminological reconstruction

Our method of doing ‘terminological reconstruction’ is as follows. First, the terminologies of present-day speakers of Oceanic languages are used as the basis for constructing a hypothesis about the semantic structure of a corresponding POc terminology, taking account of (i) ethnographic evidence, i.e. descriptions of the lifestyles of Oceanic communities and (ii) the geographical and physical resources of particular regions of Oceania. For example, by comparing terms in several languages for parts of an outrigger canoe, or for growth stages of a coconut, one can see which concepts recur and so are likely to have been present in POc. Secondly, a search is made for cognate sets from which forms can be reconstructed to

match each meaning in this hypothesised terminology. The search is not restricted to members of the Oceanic subgroup; if a term found in an Oceanic language proves to have external (non-Oceanic) cognates, the POc antiquity of that term will be confirmed and additional evidence concerning its meaning will be provided. Thirdly, the hypothesised terminology is re-examined to see if it needs modification in the light of the reconstructions. There are cases, highlighted in the various contributions to these volumes, where we were able to reconstruct a term where we did not expect to do so and conversely, often more significantly, where we were unable to reconstruct a term where we had believed we should be able to. In each case, we have discussed the reasons why our expectations were not met and what this may mean for Oceanic culture history.

Blust (1987: 81) distinguishes between conventional ‘semantic reconstruction’, which asks, “What was the probable meaning of protomorpheme X?”, and Dyen and Aberle’s (1974) ‘lexical reconstruction’, where one asks, “What was the protomorpheme which probably meant ‘X’?” At first sight, it might appear that terminological reconstruction is a version of lexical reconstruction. However, there are sharp differences. Lexical reconstruction applies a formal procedure: likely protomeanings are selected from among the glosses of words in available cognate sets, then an algorithm is applied to determine which meaning should be attributed to each set. This procedure may have unsatisfactory results, as Blust points out. Several reconstructions may end up with the same meaning; or no meaning may be reconstructed for a form because none of the glosses of its reflexes is its protomeaning.

Terminological reconstruction is instead similar to the semantic reconstruction approach. In terminological reconstruction the meanings of protomorphemes are not determined in advance. Instead, cognate sets are collected and their meanings are compared with regard to:

- their specific denotations, where these are known;
- the geographic and genetic distribution of these denotations (i.e. are the glosses from which the protogloss is reconstructed well distributed?);
- any derivational relationships to other reconstructions;
- their place within a working hypothesis of the relevant POc terminology (e.g., are terms complementary —‘bow’ implies ‘arrow’; ‘seine net’ implies ‘floats’ and ‘weights’? Are there different levels of classification—generic, specific, and so on?).

For example, it proved possible to reconstruct the following POc terms for tying with cords (vol.1, ch.9, §10):

POc **buku* ‘tie (a knot); fasten’

POc **p^wita* ‘tie by encircling’

POc **paqu(s)*, **paqus-i-* ‘bind, lash; construct (canoe +) by lashing together’

POc **pisi* ‘bind up, tie up, wind round, wrap’

POc **kiti* ‘tie, bind’

In each of the supporting cognate sets from contemporary languages there are a number of items whose glosses in the dictionaries or word lists are too vague to tell the analyst anything about the specific denotation of the item, and in the case of **kiti* this prevents the assignment of a more specific meaning. The verb **buku* can be identified as the generic term for tying a knot because of its derivational relationship (by zero derivation) with a noun whose denotation is clearly generic, **buku* ‘node (as in bamboo or sugarcane); joint; knuckle; knot in wood, string or rope’ (vol.1, ch.4, §3.2). Reconstruction of the meaning of **p^wita* as ‘tie by encircling’ is supported by the meanings of the Lukep, Takia and Longgu reflexes, respectively

‘tie by encircling’, ‘tie on (as grass-skirt)’, and ‘trap an animal’s leg; tie s.t. around ankle or wrist’: Lukep and Takia are North New Guinea languages, whilst Longgu is SE Solomonic. Reconstruction of the meaning of **paqu(s)*, **paqus-i-* as ‘bind, lash; construct (canoe +) by tying together’ is supported by the meanings of the Takia, Kiribati and Samoan reflexes, respectively ‘tie, bind; construct (a canoe)’, ‘construct (canoe, house)’, and ‘make, construct (wooden objects, canoes +)’: Takia is a North New Guinea language, Kiribati is Micronesian, and Samoan is Polynesian. The meaning of **pisi* is similarly reconstructed by reference to the meanings of its Mono-Alu, Mota, Port Sandwich, Nguna and Fijian reflexes.

Often, however, the contributors have often been less fortunate in the information available to them. For example, Osmond (vol.1, ch.8, §9) reconstructs six POc terms broadly glossed as ‘spear’. Multiple terms for implements within one language imply that these items were used extensively and possibly in specialised ways. Can we throw light on these specialised ways? Unfortunately, some of the word lists and dictionaries available give minimal glosses, e.g. ‘spear’, for reflexes of the six reconstructions. What we need to know for each reflex is: what is the level of reference? Is it a term for all spears, or perhaps all pointed projectiles including arrows and darts? Or does it refer to a particular kind of spear? Is it noun or verb or both? If a noun, does it refer to both the instrument and the activity? Most word lists are frustratingly short on detail. For this kind of detail, ethnographies have proved a more fruitful source of information than many word lists.

Another problem is inherent in the dangers of sampling from over 450 languages. The greater the number of languages, the greater are the possible variations in meaning of any given term, and the greater the chances of two languages making the same semantic leaps quite independently. Does our (sometimes quite limited) cognate set provide us with a clear unambiguous gloss, or have we picked up an accidental bias, a secondary or distantly related meaning? Did etymon *x* refer to fishhook or the material from which the fishhook was made? Did etymon *y* refer to the slingshot or to the action of turning round and round?

3.2 Subgrouping and reconstruction

3.2.1 Subgrouping

Although the subgrouping of Austronesian languages and questions about which protolanguage was spoken where remain in some cases somewhat controversial, it is impossible to proceed without making some assumptions about these matters. Figures 1.1 and 1.2 are approximate renderings of our subgrouping assumptions. The upper part of the tree, shown in Figure 1.1, is due to Blust, originally presented in Blust (1977*b*) and repeated with additional supporting evidence in subsequent publications (1978, 1982, 1983–84, 1993).⁷ The diagram of the lower (Oceanic) part of the tree in Figure 1.2 shows nine primary subgroups of Oceanic. Its rake-like structure indicates that no convincing body of shared innovations has been found to allow any of the nine subgroups to be combined into higher-order groupings. Sections 3.2.2, 3.2.3, and 3.2.4 offer some commentary on our subgrouping, and in §3.2.3 we explain how we handle the rake-like structure in making reconstructions.

⁷ For commentaries on Austronesian subgrouping, see Ross (1995) and Adelaar (2005).

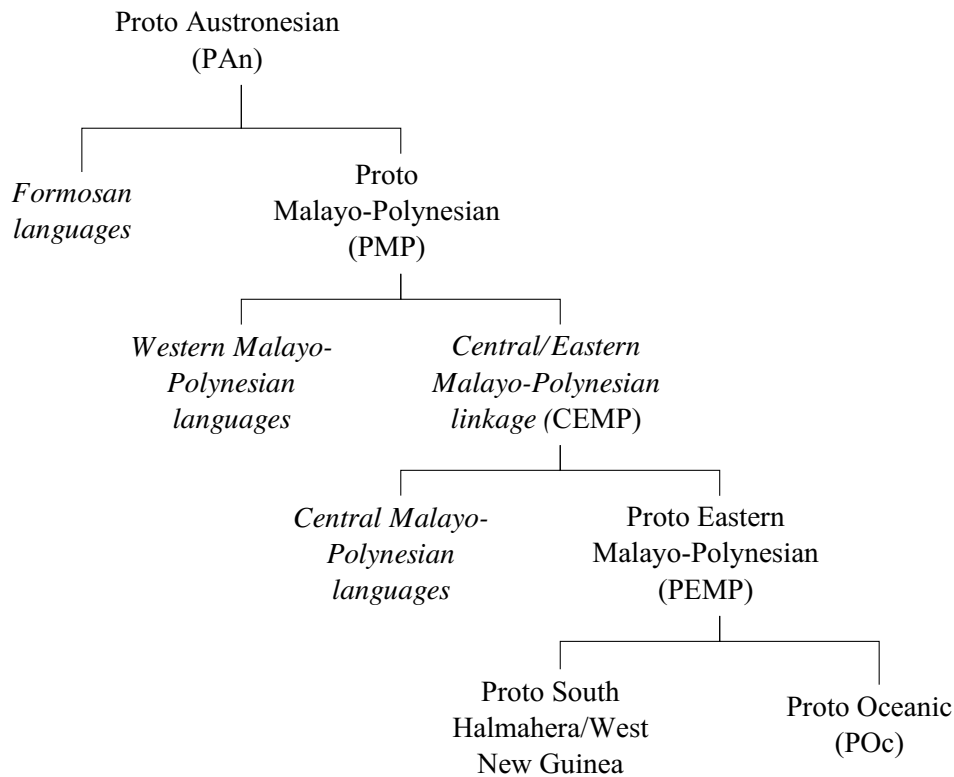


Figure 1.1 Schematic diagram showing higher-order subgroups of Austronesian languages.

3.2.2 Kinds of subgroup

In Figures 1.1 and 1.2 each node is either a single language,⁸ usually a reconstructed protolanguage, or, in italics, a group of languages.

Where a node is a protolanguage, its descendants form a proper subgroup (in the technical sense in which historical linguists use the term ‘subgroup’). A proper subgroup is identified by innovations shared by its member languages, i.e. it is ‘innovation-defined’ in the terminology of Pawley & Ross (1995). These innovations are assumed to have occurred just once in the subgroup’s protolanguage, i.e. the exclusively shared ancestor of its members. Thus languages of the large Oceanic subgroup of Austronesian share a set of innovations relative to the earlier Austronesian stages shown in Figure 1.1 (Dempwolff 1934).⁹ By inference these innovations occurred in their common ancestor, POc, and the claim that they are innovations is based on a comparison of reconstructed POc with reconstructed PMP. The innovations may be phonological (e.g. PMP **e*, pronounced [ə], and PMP **aw* both became POc **o*), morphological (e.g. POc acquired a morphological distinction between three kinds of possessive relationship: food, drink and default), or lexical (e.g. PMP **limaw* ‘citrus fruit’ was replaced by POc **molis*).

⁸ The two very closely related languages Mussau and Tench form a minor exception.

⁹ Chapter 4 of Lynch et al. (2002) gives a recent account of these innovations.

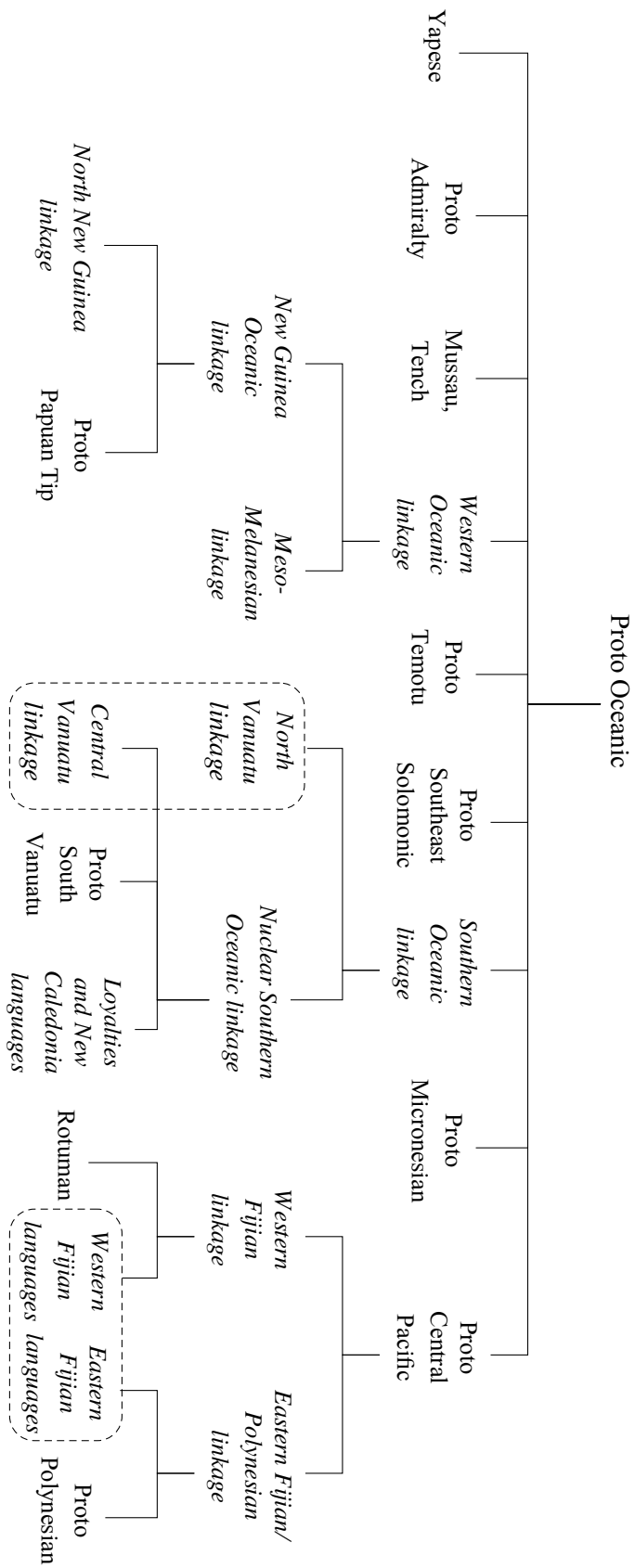


Figure 1.2 Schematic diagram showing the subgrouping of Oceanic Austronesian languages.

Italics are used in Figures 1.1 and 1.2 to indicate a group of languages which is not a proper subgroup, i.e. has no identifiable *exclusively* shared parent. Thus *Formosan languages* in Figure 1.1 indicates a collection of languages descended (along with PMP) from PAN. They are spoken in Taiwan, but do not form a subgroup. There was no ‘Proto Formosan’, as Formosan languages and language groups are all descended directly from PAN.

Some of the italicised labels in Figures 1.1 and 1.2 include the term *linkage*. A linkage (an ‘innovation-linked group’ in the terminology of Pawley & Ross 1995) is a collection of usually quite closely related languages or dialects,¹⁰ speakers of which were in sufficient contact at one time or another during their history for innovations to pass from one language to the next, often resulting in a pattern such that the domains of various innovations overlap but are not coterminous.¹¹ A number of Oceanic linkages were recognised during the 1980s (Geraghty 1983, Pawley & Green 1984, Ross 1988).¹² A linkage may arise in at least three ways, but distinguishing between them is often impossible.

First, what would otherwise be a proper subgroup may happen to lack exclusively shared innovations, perhaps because the parent did not exist as a unit for long enough to undergo any innovations of its own.¹³

Second, a linkage may consist of some but not all of the languages descended from a single parent. The Western Oceanic linkage reflects the innovations of POc, but no innovation is common to the whole of Western Oceanic (although the merger of POc **r* and **R* comes close). However, the languages of its three component linkages—North New Guinea, Papuan Tip and Meso-Melanesian—display complex patterns of overlapping innovations. The Western Oceanic linkage appears to be descended from the dialects of POc that were left behind in the Bismarck Archipelago after speakers of the languages ancestral to the other eight primary subgroups in Figure 1.2 had moved away to the north or east. After these departures various innovations occurred. Each arose somewhere in the Western Oceanic dialect network and spread to neighbouring dialects without reaching every dialect in the network.

The third type of linkage is the result of contact among languages descended from more than one immediate parent. An example is the Fijian linkage, which represents a reintegration of parts of earlier Western and Eastern Fijian linkages (Geraghty & Pawley 1981, Geraghty 1983, Pawley 1996b).¹⁴ Geraghty reconstructed the history of the Fijian linkage by painstaking analysis of innovations from at least two stages in its history. From the earlier period Western Fijian languages share innovations with Rotuman and Eastern Fijian with Polynesian. From a more recent period Western Fijian and Eastern Fijian languages share innovations

¹⁰ In what follows, ‘language’ is used to mean ‘language or dialect’.

¹¹ One or more innovations may spread right across the languages of the linkage. In this case it becomes virtually impossible to distinguish it from a proper subgroup.

¹² Recent work in Indo-European appeals to the concept of linkage: Garrett (2006) suggests that the dialects ancestral to Greek were not dialects of ‘Proto Greek’ but a collection of Nuclear Indo-European dialects drawn together by relations between the communities ancestral to the Greek city states, across which spread the innovations which characterise Ancient Greek.

¹³ A situation in which a subgroup is both proper (i.e. defined by exclusive innovations) and a linkage (displaying overlapping patterns of innovations) is of course possible, the exclusively shared innovations having occurred in the parent, the others after the break-up of the parent. It so happens that we have no need of this construct here.

¹⁴ ‘Eastern Fijian linkage’ in Figure 1.2 is our label for Geraghty’s (1983) ‘Tokalau Fijian’.

with each other, reflecting their reintegration into a single linkage, within which the present Western/Eastern boundary has shifted relative to the (fuzzy) boundary of the earlier period.

For most of the linkages noted in Figures 1.1 and 1.2 this kind of analysis is not available. For example, Blust (1993) indicates that CEMP was a linkage. But its history is far from clear. Was there perhaps a PCEMP that was so shortlived that it underwent no innovations of its own? Or does CEMP perhaps include some languages that share history with languages to their west and others that share history with those to their north? The North/Central Vanuatu linkage, long assumed to be some sort of genealogical unit, appears to reflect the partial reintegration of at least two dialect networks, North Vanuatu and Central Vanuatu, that probably never diverged greatly from each other, but the details of this history are difficult to elucidate (Lynch 2000a).¹⁵

The languages of a linkage have no identifiable exclusively shared parent. Yet we have found many instances in which a cognate set is limited to one of the linkages in Figures 1.1 and 1.2: CEMP, Western Oceanic, New Guinea Oceanic, Southern Oceanic or the reintegrated North and Central Vanuatu linkage. As with PEOc and PROc (§3.2.3), we think it is preferable to attribute these reconstructions to a hypothetical protolanguage rather than to a higher node in the tree. Hence there are reconstructions labelled PCEMP, PWOC and so on. Again these apparent lexical innovations offer only the weakest evidence for the protolanguage to which they are attributed. In addition to the explanations of the kinds offered for PEOc and PROc etyma in §3.2.3 it is possible, for example, that an innovatory ‘PWOC’ etymon arose when the Western Oceanic dialect network was still close-knit, and spread from dialect to dialect before the network broke into the two networks ancestral to its present-day first-order subgroups.

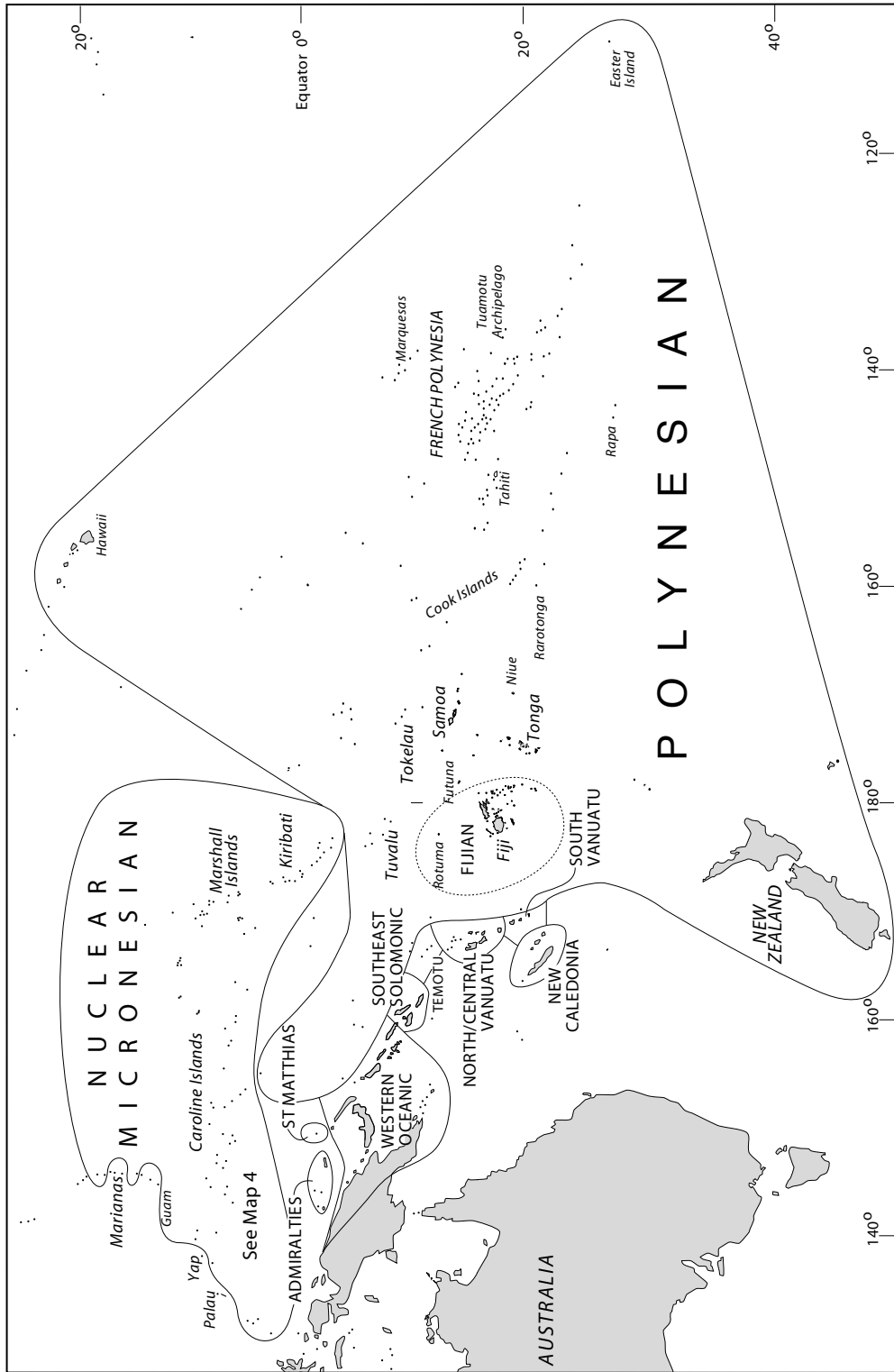
3.2.3 Criteria for reconstruction

The strength of a lexical reconstruction rests crucially on the distribution of the supporting cognate set across subgroups. The *distribution* of cognate forms and agreements in their meanings is much more important than the *number* of cognates. It is enough to make a secure reconstruction if a cognate set occurs in just two languages in a family, with agreement in meaning, provided that the two languages belong to different primary subgroups and provided that there is no reason to suspect that the resemblances are due to borrowing or chance. The PMP term **apij* ‘twins’ is reflected in several western Malayo-Polynesian languages (e.g. Batak *apid* ‘twins, double (fused) banana’) but only a single Oceanic reflex is known, namely Roviana *avisi* ‘twins of the same sex’. Because Roviana belongs to a different first-order branch of Malayo-Polynesian from the western Malayo-Polynesian witnesses and because there is virtually no chance that the agreement is due to borrowing or chance similarity, this distribution is enough to justify the reconstruction of PMP **apij*, POc **apic* ‘twins’.

The rake-like form of Figure 1.2 almost certainly reflects the very rapid settlement of Oceania out of the Bismarcks,¹⁶ but it confronts us with a methodological question. If we follow the rubric that we make a reconstruction if a cognate set occurs in languages of just

¹⁵ For a history of scholarly views of the subgrouping of North and Central Vanuatu languages see Clark (2008: §1.3). For arguments supporting a NCV grouping, see Clark (2008: ch.4).

¹⁶ Approximate dates are as follows. The Bismarcks themselves were settled by around 1400 BC. Archaeology has the Lapita culture in the Temotu Archipelago by about 1200 BC, in New Caledonia by 1100 BC, in Fiji and Tonga by 1000 BC and in Samoa by 900 BC (Green 2003).



Map 3 Groups of Oceanic languages used in cognate sets

two primary subgroups, then reflexes of an etymon in, say, a SE Solomonian language and a Micronesian language would be sufficient evidence for a POc reconstruction and the absence of reflexes in Admiralty and Western Oceanic would be irrelevant. Given what we know about the location of the POc homeland (in the Bismarcks; vol.2, ch.2) and the early eastward spread of Oceanic speakers, this is too loose a criterion. Instead, we assume two hypothetical nodes not shown in the tree in Figure 1.2.¹⁷ These are

- Remote Oceanic, comprising Southern Oceanic, Micronesian and Central Pacific;
- Eastern Oceanic, comprising SE Solomonian and Remote Oceanic.¹⁸

If a cognate set occurs in two or all three of the groups in Remote Oceanic, the reconstruction is attributed to Proto Remote Oceanic (PROc). If a cognate set occurs in one or more of the groups in Remote Oceanic and in SE Solomonian, it is attributed to Proto Eastern Oceanic (PEOc). In this way we acknowledge that such reconstructions may represent an innovation that postdates the spread of the early Oceanic speech community. There are enough PROc and PEOc reconstructions to suggest that such lexical innovations indeed occurred. This in turn provides weak evidence for Remote Oceanic and Eastern Oceanic subgroups, but evidence that is too weak to be relied on, for at least two reasons. First, it is quite possible that some of our PROc and PEOc reconstructions will be promoted to POc as more Admiralty and Western Oceanic data become available. Second, it is reasonable to assume that some of our PROc and PEOc etyma are of POc antiquity but happen to have been lost in Proto Admiralty and Proto Western Oceanic. Without supporting phonological or morphological evidence we are unwilling to treat PROc or PEOc as anything other than convenient hypotheses which allow us to retain rigorous criteria for a POc reconstruction.

In volumes 1 and 2 a reconstruction here labelled ‘PROc’ would have been labelled ‘PEOc’, but the absence of SE Solomonian reflexes from among its reflexes indicates that it has the same status as a PROc reconstruction in the present volume. Two factors have led to the distinction between PEOc and PROc here. One is that, because the primary biogeographic divide in Oceania is between Near and Remote Oceania (see vol. 2, Map 5), i.e. between the Solomon Islands and Vanuatu, the question of whether or not a plant name includes a SE Solomonian reflex is significant, and there are many plant names that do not (and are thus attributed to PROc). The other is that the historical separateness of SE Solomonian from both Western Oceanic and the groups treated as Remote Oceanic has become increasingly clear through recent research (Pawley 2007).

Our criterion for recognising a reconstruction as POc is that the cognate set must occur in at least two out of four criterial groupings: Admiralties (or Yapese or Mussau), Western Oceanic, Temotu and our hypothetical Eastern Oceanic. Both here and at the hypothetical interstages defined above, no reconstruction is made if there are grounds to infer borrowing

¹⁷ We included these nodes in the corresponding tree in Figure 1 of volumes 1 and 2, but this was too easily interpreted as a statement of our views on subgrouping, so we abandon it here and in Appendix 2.

¹⁸ The term ‘Eastern Oceanic’ and the search for evidence of an Eastern Oceanic subgroup has a relatively long pedigree in Oceanic linguistics (Biggs 1965, Pawley 1972, Pawley 1977, Lynch & Tryon 1985, Geraghty 1990). However, by the time volume 1 of the present work was published in 1998 it was already evident that innovations supporting the existence of an Eastern Oceanic subgroup were not forthcoming, as Pawley & Ross (1995: 79) had mentioned in a footnote. Our use of the term here is more inclusive than most, resembling more closely the ‘Central/Eastern Oceanic’ of Lynch & Tryon (1983) (the published version of which, Lynch & Tryon 1985, presents a less inclusive version of Central/Eastern Oceanic) and of Lynch et al. (2002: 94–96), who also express reservations about its status.

from one of these groupings to another.¹⁹ We also reconstruct an etymon to POc if it is reflected in just one of the four criterial groupings and in a non-Oceanic Austronesian language (a member of one of the subgroups on the left branches in Figure 1.1), as illustrated above by the reconstruction of POc **apic* ‘twins’.

These criteria are identical to those applied in volumes 1 and 2 except for the addition of Temotu (which figures in very few cognate sets). The establishment of Temotu as a primary subgroup (Ross & Næss 2007) postdates the publication of volumes 1 and 2. Temotu comprises the languages of the Reef Islands, Santa Cruz, Utupua and Vanikoro, located 400 km east of the main Solomons archipelago and to the north of Vanuatu (Map 3).

There are indications that Yapese (a single-language subgroup) and Mussau and Tench (a subgroup with two closely related languages) may be more closely related to Admiralty than to any other Oceanic subgroup,²⁰ and for this reason they are treated as Admiralty languages for the purposes of reconstruction. That is, the presence of a reflex in one or more of these languages and in Admiralty does not support a POc reconstruction, but the presence of a reflex in one or more of these languages and one of Western Oceanic, Temotu and Eastern Oceanic does support one.

In chapter 2 (§4) of volume 2 Pawley discusses Blust’s (1998) proposal that the primary split in Oceanic divides Admiralty from a subgroup embracing all other Oceanic languages. Pawley dubs the latter ‘Nuclear Oceanic’. If Blust’s subgrouping were accepted, then an etymon which lacked cognates outside Oceanic would need to be reflected both in an Admiralties language and in a non-Admiralties language for a POc reconstruction to be made. Etyma with reflexes in both Western and Eastern Oceanic, but not in the Admiralties, would be reconstructed as Proto Nuclear Oceanic. Under the criteria outlined above, however, we attribute these reconstructions to POc. These criteria were used in volumes 1 and 2, and we have thought it wise to maintain them throughout the volumes of this work. The reader who wishes to single out reconstructions attributable to a putative Proto Nuclear Oceanic (rather than to POc) can easily recognise them, however. They are those POc reconstructions for which (i) there are no Admiralties reflexes, and (ii) there is no higher-order reconstruction (i.e. PEMP, PCEMP, PMP or PAN), since the latter would be based on cognates outside Oceanic.

3.2.4 Further notes on subgroups

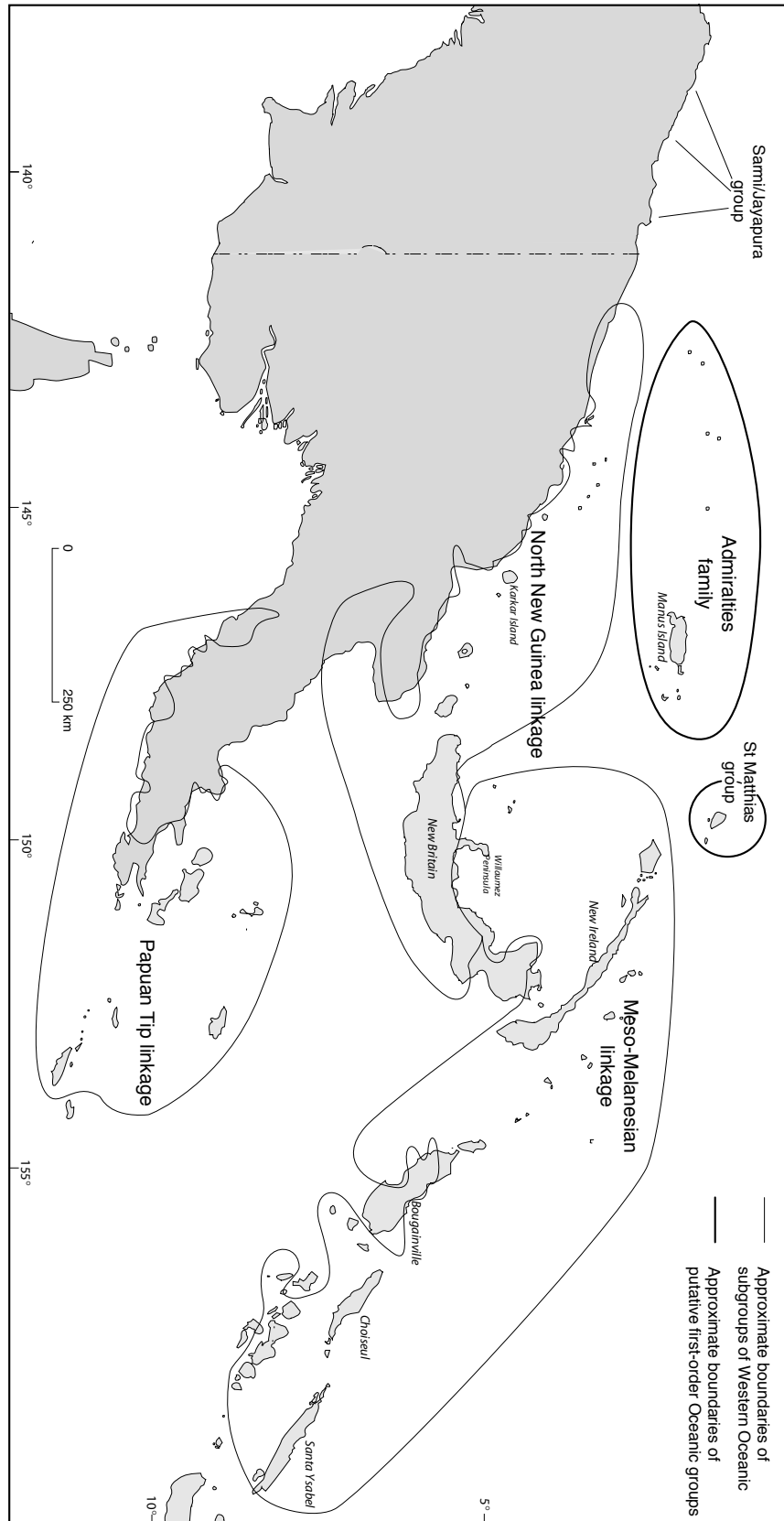
This section brings together brief notes on the subgroups in Figure 1.2 beyond those mentioned in the discussion in §§3.2.3–3.2.2.

Admiralty is a proper subgroup (Ross 1988: ch.9).

Western Oceanic consists of the North New Guinea (NNG), Papuan Tip (PT), Meso-Melanesian (MM) linkages and the Sarmi/Jayapura (SJ) group (see Map 4). The last-named may belong to the NNG linkage, but this is uncertain (Ross 1996*b*). It is not shown in Figure 1.2 and its languages do not play a crucial role in reconstruction. It is likely that the

¹⁹ Cases where such an inference can be made occur mostly at the boundary (in the Solomon Islands) between Western and Eastern Oceanic. Borrowing is likely (and is often reflected in unexpected sound correspondences) where an etymon occurs (i) in Western Oceanic and only in SE Solomonic languages or (ii) in SE Solomonic languages and only in the NW Solomonic languages (a subgroup within the Meso-Melanesian linkage of Western Oceanic).

²⁰ On the positions of Yapese and Mussau, see respectively Ross (1996*a*) and Ross (1988: 315–316, 331).



Map 4 Oceanic language groups in northwest Melanesia: the Admiralties and St Matthias groups and the subgroups of Western Oceanic

NNG and PT groups form a super-group, the New Guinea Oceanic linkage, and so etyma reflected only in NNG and PT languages are attributed to a putative Proto New Guinea Oceanic (Milke 1958, Pawley 1978), and etyma reflected in either NNG or PT (or both) and in MM are labelled PWOc.

SE Solomonian was established as a proper subgroup by Pawley (1972: 98–110). Further support was provided by Levy (1979, 1980, n.d.), Tryon & Hackman (1983) and František Lichtenberk (1988).

The *Southern Oceanic* linkage as proposed by Lynch (1999, 2000, 2001, 2004) is characterised by complex overlapping innovations, but by none that are reflected in all its member languages and would qualify it as a proper subgroup (see discussion in Lynch et al. 2002: 112–114).²¹

Micronesian is a proper subgroup (Jackson 1983, 1986, Bender et al. 2003).

Central Pacific is a proper subgroup, but one defined by only a handful of shared innovations, indicating that the period of unity was short (Geraghty 1996). The high-order subgrouping of Central Pacific is due to Geraghty (1983), except for the position of Rotuman, due to Pawley (1996*b*). Within Central Pacific is another long recognised proper subgroup, *Polynesian*, for which Pawley (1996*a*) lists diagnostic innovations.

3.3 Sound correspondences

As we noted above, reconstruction depends on working out the systematic sound correspondences among cognate vocabulary in contemporary languages and on having a working hypothesis about how the sounds of POc have changed and are reflected in modern Oceanic languages. Working out sound correspondences even for twenty languages is a large task, and so we have relied heavily on our own previous work and the work of others. The sound correspondences we have used are those given by Ross (1988) for Western Oceanic and Admiralties; by Levy (1979, 1980) and František Lichtenberk (1988) for Cristobal-Malaitan, by Pawley (1972) and Tryon & Hackman (1983) for SE Solomonian; by Ross & Næss (2007) for Temotu; by Tryon (1976) and Clark (1996, 2008) for North and Central Vanuatu; by Lynch (1978, 2001) for Southern Vanuatu; by Geraghty (1989) and Ozanne-Rivierre (1992) for New Caledonia; by Jackson (1986) and Ross (1996*a*) for Nuclear Micronesian; by Geraghty (1986) for Central Pacific; by Biggs (1978) for Polynesian; by Ross (1996*a*) for Yapese; and by Ross (1996*b*) for Oceanic languages of Irian Jaya.

For non-Oceanic languages we have referred to sound correspondences given by Tsuchida (1976) for Formosan languages; by Zorc (1977, 1986) and Reid (1982) for the Philippines; by Adelaar (1992) and Nothofer (1975) for Malay and Javanese; by Sneddon (1984) for Sulawesi; by Collins (1983) for Central Maluku; and by Blust (1978*a*) for South Halmahera and Irian Jaya.

We are well aware that regular sound correspondences can be interfered with in various ways: by phonetic conditioning that the analyst has not identified (see, e.g., Blust 1996*a*), by borrowing (for an extreme Oceanic case, see Grace 1996), or, as recent research suggests, by the frequency of an item's use (Bybee 1994). We have tried at least to note, and sometimes to account for, irregularities in cognate sets.

²¹ Because it has only been recently proposed, Southern Oceanic does not appear in Figure 1 of volumes 1 and 2.

4 Conventions common to the series

4.1 Chapter format

Each of the contributions to these volumes concerns a particular POc ‘terminology’. Generally, each contribution begins with an introduction to the issues raised by the reconstruction of its particular terminology, and the bulk of each contribution consists of reconstructed etyma with supporting data and a commentary on matters of meaning and form.

The reconstruction of POc **kayu* ‘tree’ below, adapted from Chapter 3, §4.2, shows how reconstructions and supporting cognate sets are presented. Above it is Dempwolff’s earlier superordinate (PMP) reconstruction. Below it are supporting reflexes. Contributors vary in the degree to which they insert lower-order reconstructions like PPn **kau* below. Lower-order reconstructions are sometimes given to clarify the relationship of reflexes to the higher-order reconstruction: Southern Vanuatu languages, for example, have undergone so much phonological change that a Proto Southern Vanuatu reconstruction helps explicate the relationship between Southern Vanuatu reflexes and the POc reconstruction. In the set below the Proto Polynesian (PPn) reconstruction shows an extension in its meaning.

PMP **kayu* ‘tree, wood, timber’ (Dempwolff 1938)

POc **kayu* ‘tree or shrub: generic name for plants with woody stems and branches, probably not including palms or tree-ferns; wood, stick’

Adm:	Loniu	<i>ke</i>	‘tree, wood’
Adm:	Titan	<i>kei</i>	‘firewood’
NNG:	Lukep (Pono)	<i>kai</i>	‘tree, wood’
NNG:	Takia	<i>ai</i>	‘tree (generic), wood, firewood, plant’
PT:	Iduna	<i>ai</i>	‘tree, plant, wood, fire, light’
PT:	Motu	<i>au</i>	‘tree, firewood’
MM:	Patpatar	<i>ai-</i>	‘tree species, followed by name of species’
MM:	Mono	<i>au</i>	‘tree’
SES:	Bugotu	<i>yai-</i>	‘tree, shaft of spear’
SES:	Kwaio	<i>?ai</i>	‘branch, tree, stick; woody plant (shrub, tree)’
NCV:	NE Ambae	<i>kai</i>	‘tree, wood’
NCV:	Nguna	<i>na-kau</i>	‘tree’
SV:	Anejoñ	<i>in-yai</i>	‘tree, wood, often used for relatively small bushes’
NCal:	Xârâcùù	<i>k^wãã</i>	‘wood, tree (general term)’
Mic:	Kiribati	<i>kai</i>	‘wood (in general), tree, plant, stick’
Mic:	Ulithian	<i>-xæy</i>	‘counting classifier for trees’
Fij:	Kadavu	<i>kaðu</i>	‘tree, piece of wood, stick’
Fij:	Wayan	<i>kai</i>	‘wood; generic for trees and shrubs, and occasionally also low bushy plants; used in certain compounds as generic for all plants; piece of wood, stick’

PPn **kau* ‘wood, timber, stalk, stem, handle’ (POLLEX)

Pn:	Tongan	<i>kau</i>	‘stalk, stem’
Pn:	Hawaiian	<i>?au</i>	‘handle, staff, stem, bone of lower arm or leg’

Because our supporting data are drawn from such a wide range of languages, the convention is adopted of prefixing each language name with the abbreviation for the genealogical or geographic group to which the language belongs, so that the distribution of a cognate set is more immediately obvious. Table 1.3 is a key to the labels. Figure §1.2 shows the positions of these groups in the Oceanic tree. We have sought to be consistent in always listing these groups in the same order, but contributors vary in the ordering of languages within groups.

Lynch's recent research on Southern Oceanic (§3.2.4) renders the NCV group mildly anomalous, although there is no doubt that it is an integrated dialect network. There are a number of etyma whose reflexes are confined to North and Central Vanuatu, and so we continue to make 'Proto North/Central Vanuatu' reconstructions, even though these perhaps represent a Southern Oceanic term that has been lost in southern Vanuatu and New Caledonia. Where the distribution of reflexes requires it, the chapters in this volume include reconstructions for PROc and for PSOc. Etyma with these distributions were attributed to PEOc in volumes 1 and 2, but the distributions are transparent, thanks to the presence of the group labels in cognate sets.

In the interests of space we have not given the history of the reconstructions themselves, as this would often require commentary on the modifications made by others and by us, and on why we have made them. Where a reconstruction is not new, we have tried to give its earliest source, e.g. 'Dempwolff 1938' above, but this is difficult when earlier reconstructions differ in form and meaning.

In general, the contributions to these volumes are concerned with items reconstructable in POc, PWOC, PEOc, PROc and occasionally Proto New Guinea Oceanic (PNGOc). Etyma for PWOC, PNGOc and PEOc are reconstructed because these may well also be POc etyma for which known reflexes are not well distributed (see discussion in §3.2.3). The contributors vary in the degree to which they reconstruct etyma for interstages further down the tree.

Table 1.3 Abbreviations for the genealogical or geographic groups

Yap:	Yapese (one language)
Adm:	Admiralty and Mussau/Tench
SJ:	Sarmi/Jayapura
NNG:	North New Guinea
PT:	Papuan Tip
MM:	Meso-Melanesian
SES:	Southeast Solomonian
TM:	Temotu
NCV:	North/Central Vanuatu, i.e. the reintegrated network formed by the North and Central Vanuatu linkages
SV:	Southern Vanuatu
NCal:	Loyalty and New Caledonia
Mic:	Micronesian
Fij:	Fijian, i.e. the reintegrated network formed by Western and Eastern Fijian dialects
Pn:	Polynesian

Reconstructions for lower-order interstages are decreasingly likely to reflect POc etyma and may be the results of cultural change as Oceanic speakers moved further out into the Pacific.

Contributors have usually not sought to make fresh reconstructions at interstages superordinate to POc. What they have done, however, is to cite other scholars' reconstructions for higher-order interstages, as these represent a summary of the non-Oceanic evidence in support of a given POc reconstruction. These interstages are shown in Figure 1.1, together with their abbreviations.

Sometimes non-Oceanic evidence has been found to support a POc reconstruction where no reconstruction at a higher-level interstage has previously been made. In this case a new higher-order reconstruction is made, and the non-Oceanic evidence is given in a footnote.

Whilst we have tried to use the internal organisation of the lexicons of Oceanic languages themselves as a guide in setting the boundaries of each terminology, we have inevitably taken decisions which differ from those that others might have made. There are, obviously, overlaps and connections between various semantic domains and therefore between the contributions here. We have done our best to provide cross-references, but we have sometimes duplicated information rather than ask the reader repeatedly to look elsewhere in the book. Indexes at the end of each volume and in the final volume are intended to make it easier to use the volumes collectively as a work of reference.

4.2 Data

Data sources are listed in Appendix 1.

For some reconstructed etyma only a representative sample of reflexes is given. We have endeavoured to ensure, however, that in each case this sample not only is geographically and genetically representative, but also provides evidence to justify the shape of the reconstruction. Where only a few reflexes are known to us, this is usually noted.

Although there are accepted or standard orthographies for a number of the languages from which data are cited here, all data are transcribed into a standard orthography based on that used by Ross (1988: 3–4) in order to facilitate comparison.²² This means, for example, that the *j* of the German-based orthographies of Yabem and Gedaged becomes *y*, Yabem *c* becomes *ʔ*, Gedaged *z* becomes *ʔ* and so on; the *ng* of English-based orthographies becomes *ŋ*; and Fijian *g*, *q* and *c* become *ŋ*, *g* and *ð* respectively.

Unless otherwise indicated, the following symbols have their usual phonetic values: *ð*, *g*, *ɔ*, *ɣ*, *h*, *k*, *l*, *ʔ*, *ʎ*, *m*, *n*, *ŋ*, *ɲ*, *p*, *q*, *χ*, *ɾ*, *r*, *s*, *t*, *w*, *x*, *z*, *ʔ*, *a*, *æ*, *e*, *ɛ*, *ə*, *i*, *ɪ*, *o*, *œ*, *ɔ*, *ʌ*, *u*, *u*. The voiced stops *b*, *d*, *g* and the voiced bilabial trill *ʙ* are prenasalised in some languages, but prenasalisation is not written unless it is phonemically distinctive. Other orthographic symbols (with values in IPA) are:

<i>f</i>	[ɸ, f]	voiceless bilabial or (less often) labio-dental fricative
<i>v</i>	[β, v]	voiced bilabial or (less often) labio-dental fricative
<i>c</i>	[ts], [tʃ]	voiceless alveolar or palatal affricate
<i>j</i>	[dʒ], [dʒ]	voiced alveolar or palatal affricate
<i>y</i>	[j]	palatal glide
<i>dr</i>	[ⁿ r]	prenasalised voiced alveolar trill (as in Fijian)

²² The main reason for retaining Ross' orthography was that the electronic files initially used in this project were drawn in large part from those used in the research reported in Ross (1988).

ö	[ø]	rounded mid front vowel
ü	[y]	rounded high front vowel

Other superscripts and diacritics are as follows:

- contrastive long vowels are represented by a macron, e.g. *ā*;
- contrastive vowel nasalisation in New Caledonian languages is represented by a circumflex, e.g. *â*;
- labialisation is marked by a superscript *w*, e.g. *p^w*;
- velarisation is marked by a superscript *u*, e.g. *p^u*;
- contrastive aspiration is marked by a superscript *h*, e.g. *p^h*;
- apicolabials are represented by the corresponding apical symbol and the linguolabial diacritic (the ‘seagull’), e.g. *t̪*;
- retroflexes are represented by the corresponding apical symbol with a dot beneath, e.g. *ṛ*.

Except for inflexional morphemes, non-cognate portions of reflexes, i.e. derivational morphemes and non-cognate parts of compounds, are shown in parentheses (...). Where an inflexional morpheme is an affix or clitic and can readily be omitted, its omission is indicated by a hyphen at the beginning or end of the base. This applies particularly to possessor suffixes on directly possessed nouns (vol.1, ch.2, §3.2). Where an inflexional morpheme cannot readily be omitted, then it is separated from its base by a hyphen. This may happen because of complicated morphophonemics or because the morpheme is always present, like the adjectival *-n* in some NNG and Admiralties languages and prefixed reflexes of the POc article **na* in scattered languages. When a reflex is itself polymorphemic (i.e. the morphemes reflect morphemes present in the reconstructed etymon) or contains a reduplication, the morphemes or reduplicates are also separated by a hyphen.

Languages from which data are cited in this volume are listed in Appendix B in their subgroups, together with an index allowing the reader to find the subgroup to which a given language belongs. Appendix B also includes alternative language names. The difficulty of deciding where the borderline between dialect and language lies, combined with the fact that these volumes contain work by a number of contributors, has resulted in some inconsistency in the naming of dialects in the cognate sets (cf the cognate set supporting POc **kayu* on ch.3, §4.2). Some occur in the form ‘Kara (E)’, i.e. the East dialect of the Kara language, or ‘Lukep (Pono)’, i.e. the Pono dialect of the Lukep language, whilst others are represented simply by the dialect name, e.g. Iduna, noted in Appendix B as ‘Iduna (= dialect of Bwaidoga)’.

4.3 Conventions used in representing reconstructions

Reconstructions are marked with an asterisk, e.g. **kayu* ‘tree’, in keeping with the standard convention in historical linguistics. POc reconstructions, and also PWOC, PEOc and PNGOC reconstructions, are given in the orthography of §3.4. For reconstructions at higher-order interstages the orthographies are those used by Blust in his various publications and the ACD. Reconstructions at lower-order interstages are given in the standard orthography adopted for data (§4.2). Geraghty’s (1986) PCP orthography, for example, is based on Standard Fijian spelling, and is converted into our standard orthography in the same way as Fijian spelling is. In practice, this means that the orthographies for PROc and PCP are the same as for POc, except that a distinction between **p* and **v* is recognised and **R* is absent. Biggs and Clark’s PPn

Table 1.4 Bracketing and segmentation conventions in protoforms

(<i>x</i>)	it cannot be determined whether <i>x</i> was present
(<i>x,y</i>)	either <i>x</i> or <i>y</i> was present
[<i>x</i>]	the item is reconstructable in two forms, one with and one without <i>x</i>
[<i>x,y</i>]	the item is reconstructable in two forms, one with <i>x</i> and one with <i>y</i>
<i>x-y</i>	<i>x</i> and <i>y</i> are separate morphemes
<i>x-</i>	<i>x</i> takes an enclitic or a suffix
< <i>x</i> >	<i>x</i> is an infix

reconstructions are in any case written in an orthography identical to our standard. Bracketing and segmentation conventions in protoforms are shown in Table 1.4.

PMP final consonants are usually retained in POc. However, it happens fairly often that the final consonant in a higher-order reconstructed etymon (e.g. *-*R* in PMP **kamaliR* ‘men’s house’) is not evidenced in any Oceanic reflex because POc final consonants are regularly lost in all the daughter languages from which reflexes are drawn, and we therefore have no evidence as to whether or not the final consonant was retained in the POc etymon in question. In such cases the consonant is reconstructed in brackets (e.g. POc **kamali(R)*).

In presenting words that display anomalies of form, it is often necessary to posit an expected form. For example, in ch.2, §5, the Gela form *ao* is presented in support of PEOc **wao* ‘forest’. Given the reconstruction, however, we would expect the Gela form to be *wao*. In this volume we use a less widely employed convention and mark expected forms with a dagger, e.g. †*wao*, to distinguish them both from reconstructions and real data.²³

There are occasions on which we need to posit a hypothetical form in a reconstructed protolanguage. In such cases the dagger and asterisk conventions are used together. For example in ch.4, §2.4, POc **lali(c,t)* ‘buttress roots’ is reconstructed. This is a reflex of PMP **dali*, but the first consonant has undergone assimilation to the second in POc: the expected (but unattested) POc form would be †**ralic*.

When historical linguists compile cognate sets they commonly retain word for word the glosses given in the sources from which the items are taken. However, again in the interests of standardisation, we have often reworded (and sometimes abbreviated) the glosses of our sources, while preserving the meaning. Where glosses were in a language other than English we have translated them. In the interests of space and legibility, and because data often have multiple sources, we have given the source of a reflex only when it is not included in the listings in Appendix A.

In glosses we use the conventional abbreviations ‘k.o.’ (as in ‘k.o. yam’) for ‘kind of’, ‘s.o.’ for ‘someone’, ‘s.t.’ for ‘something’, ‘sp.’ for a species and ‘spp.’ for more than one species.

In putting together cognate sets we have quite often found apparent reflexes which do not quite ‘fit’ the set: either they display an unexplained phonological irregularity or their meaning is just a little too different from the rest of the set for us to assume cognacy. Rather

²³ Another convention sometimes used for this purpose is a double asterisk, e.g. ***wao*: we prefer the dagger on aesthetic grounds.

than eliminate them our authors often include them below the cognate set under the rubric ‘cf. also’.

5 Data sources and conventions specific to this volume

5.1 Cognate sets and reconstructions

As explained in §4.1, a cognate set is almost always headed by a reconstruction for the highest-order Oceanic protolanguage that the set allows us to infer. In this volume these reconstructions are mostly for Proto Oceanic, Proto Western Oceanic, Proto Eastern Oceanic or Proto Remote Oceanic, and less often for Proto Southern Oceanic or Proto Central Pacific. Since Oceanic speakers spread across the Pacific from the Bismarck Archipelago to Fiji with remarkable speed, reconstructions at any of these interstages are likely to be early. Proto Admiralty, Proto New Guinea Oceanic and Proto Meso-Melanesian reconstructions are also listed in the few cases where they occur, as there is a fair probability that they are also of early Oceanic antiquity. ‘Proto North/Central Vanuatu’ reconstructions are given where reflexes are restricted to North/Central Vanuatu, even though it is improbable that these languages form an exclusive subgroup (§3.2.2). A PNCV reconstruction is more likely to represent a PSOc term that has not survived in southern Vanuatu and New Caledonia.

Proto Polynesian and Proto Micronesian terms that are not reconstructable to an earlier interstage are not given here, partly because they are likely to represent significantly later developments than the interstages enumerated in the previous paragraph, and partly because they are available elsewhere (Proto Polynesian in POLLEX and Proto Micronesian in Bender et al. 2003).

Lower-order reconstructions are also given *within* a cognate set in certain circumstances. If a term has undergone formal change or has been reapplied to a different plant at a particular point in its history, then a reconstruction is given for the relevant interstage. Also often included are Proto Southern Vanuatu reconstructions from Lynch (2001*c*, 2004*a*), as the phonological histories of Southern Vanuatu languages are far from transparent and the reconstruction often helps to illuminate the cognacy of SV items.

5.2 Botanical and ethnographic information and vernacular names

Sources of the Oceanic plant-name data used to make the reconstructions in this volume are listed in Appendix 1 after general data sources. Four works which provide Austronesian plant names in non-Oceanic languages have been of particular use in the search for cognates which allow the reconstruction of higher-order (PCEMP and PMP) plant names. These works are:

- *A dictionary of Philippine plant names* by Domingo A. Madulid (= Madulid 2001*a*, Madulid 2001*b*);
- *De nuttige planten van Indonesië* [The useful plants of Indonesia] by K. Heyne (= Heyne 1950): this is a catalogue of the useful plants of Indonesia, and includes indigenous plant names from various Indonesian languages of Indonesia;
- *Dictionary of Manggarai plant names* by Jilis A.J. Verheijen (= Verheijen 1982);
- *Dictionary of plant names in the Lesser Sunda Islands* by Jilis A.J. Verheijen (= Verheijen 1990).

Certain works which catalogue plants and give information about their forms, habitats and uses have been consulted over and over again, as will be obvious from the recurrence of certain references. They are:

- *Flora of the Bismarck Archipelago for naturalists* by P.G. Peekel (= Peekel 1984), translated by E.E. Henty from the unpublished German manuscript *Illustrierte Flora des Bismarck-Archipels für Naturfreunde*, compiled by Peekel in New Ireland during the 1930s and completed at Vunapope (Gazelle Peninsula, New Britain) in 1947.
- *A guide to the useful plants of Solomon Islands* by C.P. Henderson and I.R. Hancock (= Henderson & Hancock 1988)
- *Na masu'u 'i Kwara'ae—Our forest of Kwara'ae* by Michael Kwa'ioloa and Ben Burt (= Kwa'ioloa & Burt 2001)
- *Kiladi oro vivineidi ria tingitonga pa idere oro pa goana pa Marovo—Reef and rainforest: An environmental encyclopaedia of Marovo Lagoon, Solomon Islands* by Edvard Hviding (= Hviding 2005)
- *Some common trees of the New Hebrides and their vernacular names* by Sheila Gowers (= Gowers 1976)
- *A guide to the common trees of Vanuatu: With lists of their traditional uses and ni-Vanuatu names* by J.I. Wheatley (= Wheatley 1992)

All six works contain vernacular plant names. Since the Bismarck Archipelago is central to the study of POc plant names, it is a pity that there is no modern work dealing with the plants of the region parallel to, say Henderson & Hancock (1988) for the Solomons or Wheatley (1992) for Vanuatu. The *Guide to the trees of Papua New Guinea* website (Conn & Damas 2006) has been helpful, but still has many gaps in its coverage of the Bismarck Archipelago. Peekel's coverage is excellent and includes all plants (even seagrasses). Indeed his coverage is considerably better than that of either Henderson & Hancock (1988), which covers 'useful plants', or Wheatley (1992), which is restricted to trees. The ethnobotanical works on the Solomons, Kwa'ioloa & Burt (2001) and Hviding (2005), also provide good coverage, but this is balanced by rather thin information about many plants.

Pacific food plants have a literature of their own, and here three works were extensively consulted in addition to those listed above:

- *Les plantes alimentaires de l' Océanie : origines, distribution et usages* [Food plants of Oceania: origins, distribution and uses] by Jacques Barrau (= Barrau 1962)
- *Food plants of Papua New Guinea* by Bruce R. French (= French 1986)
- *Fruits of Oceania* by Annie Walter and Chanel Sam (= Walter & Sam 2002)

Of these only the last provides vernacular terms, with a strong bias towards Vanuatu.

5.3 Scientific plant names

The scientific names of plants are a minefield for the non-botanist, as there are often synonyms and the accepted name for a plant may change over time. In order to keep track of synonyms frequent use was made of the *International plant names index* (IPNI = IPNI 2004) and the *Australian plant names index* (APNI = APNI 1991).

Linnaean families have undergone recent changes. For present purposes the most important is that Leguminosae are subdivided into Cisalpinaceae (formerly Cisalpinioideae), Fabaceae (formerly Papilionatae) and Mimosaceae (formerly Mimosoideae). Other changes relevant here are that Gramineae (grasses) are now Poaceae, and Palmae are now Arecaceae.

5.4 English and Pacific pidgin plant names

Wherever plant names in English and/or one of the three major Pacific pidgins are available, they are included in the section titles in chapters 5 to 13. Names in the three pidgins are marked with an abbreviation. Together with major sources of names, these are:

TP: Tok Pisin (New Guinea pidgin), Mihalic (1971), French (1986)

P: Pijin (Solomons pidgin), Jourdan (2002)

B: Bislama (Vanuatu pidgin), Gowers (1976), Wheatley (1992), T. Crowley (1995)

The pidgin names are given to help some readers to recognise the plant under discussion. In Papua New Guinea it is common for both indigenous people and expatriates to know a plant by its Tok Pisin name but to know neither an English nor a scientific name. The situation is presumably similar in the Solomon Islands and Vanuatu.

5.5 Indexes

The volume has four indexes. The first, as in previous volumes, is an index of reconstructions arranged by their protolanguages. The second is an alphabetical list of reconstructions, the third an index of plants by genus and species, the fourth by botanical family.

2 *Introducing Proto Oceanic plant names*

MALCOLM ROSS

1 Floristic regions

The western Pacific is divided by botanists into two floristic regions, northwest Melanesia and southeast Melanesia. NW Melanesia includes New Guinea, the Bismarck Archipelago (New Britain, New Ireland and the Admiralties) and the Solomons archipelago including Buka and Bougainville but excluding the Reef and Santa Cruz Islands. SE Melanesia includes the Reef and Santa Cruz Islands, Vanuatu, New Caledonia and the Loyalties, and Fiji. The boundary between NW and SE Melanesia thus corresponds with the boundary between Near and Remote Oceania (vol.2, ch.2, §2).

Within NW Melanesia there is a gradual reduction in the number of genera and species as one moves east- and southeastward through the islands, but there are no major new genera. In SE Melanesia, on the other hand, we encounter genera that are not represented or hardly represented in the islands of NW Melanesia, for example the genus *Agathis*, to which the kauri species of SE Melanesia belong.

In this chapter, indeed in this volume, we are mainly concerned with NW Island Melanesia (i.e. NW Melanesia other than New Guinea), and particularly with the Bismarck Archipelago, as this is where the POc homeland was located (vol.2, ch.2).

2 Ways of classifying plants

There are a number of ways in which one might classify plants as a basis for dividing this book into chapters. Ideally the classification should be one which has some basis in POc terminologies, since the reconstruction of these terminologies is what we are about. Some obvious ways of classifying Oceanic plants are:

- a. by use;
- b. by ethnobotanical category;
- c. by vegetation habitat;
- d. by whether the plant is wild, tended or cultivated.

2.1 Classification by use

Although use forms the basis of an important work on the plants of the Solomon Islands (Henderson & Hancock 1988), so many named plants have multiple uses that this criterion is not a suitable basis for classification. Plants may provide food (starch, greens, fruit or nuts), construction materials (housing timber, canoe components, cordage), firewood, caulking, adornment, perfume, medicines, fish poison, parcelling, baskets and mats and more. The extent of multiple usages is highlighted by Thaman (1994), who analyses the uses of 140 plant species commonly found in the habitats of the Oceanic-speaking Pacific.¹ He finds that the 140 species have a mean of 7.3 uses each, the coconut palm having the maximum of 125 uses and just two species having no uses. The most frequently reported use was medicinal, with 113 species out of 140 being used medicinally. Sixty species provided construction timber (including 54 out of 62 tree species). Thirty-four species were used in canoe- or boat-building (including 30 tree species). Fifty-one species were used as firewood (including 43 tree species). Thirty species provided dyes. Twenty-eight were used in making fishing equipment. And so on. The picture presented by Powell (1976) for New Guinea is similar.

There is a vast literature on the medicinal uses of plants in Oceanic societies, but no attempt is made to review it in the pages of this book. Many plants have many different medicinal uses, often varying from place to place, and, conversely, similar maladies are treated with preparations from many different plants in different places. This means that there is no real likelihood of reconstructing the medicinal uses to which early Oceanic speakers put individual plants. In chapters 5–8 medicinal uses of plants are mentioned for those Island NW Melanesian and niVanuatu societies for which a substantial body of ethnobotanical information is available (sources are listed in ch 2, §5.2), but this is intended as a sample, not a survey.

2.2 Classification by ethnobotanical category

The second possibility is ethnobotanical classification. In chapter 3 Evans reconstructs five major first-order categories of plant distinguished by POc speakers: **kayu* ‘tree, shrub’, **waroc* ‘vine’, **pali[s,ji]* ‘grass’, **taliŋa* ‘mushroom’ and **limut* or **lumut* ‘moss, algae’. A classification on this basis is certainly possible, but, as Evans points out, there are residual categories like palms (ch.3, §4.3), ‘clumps’, bamboos, ferns and pandanus (ch.3, §4.8) which may or may not have been counted as **kayu* by POc speakers. Thus there were quite possibly a number of fairly small first-order categories in addition to the five for which Evans is able to reconstruct labels above. Candidates are **qauR*, generic for bamboos (ch. 13, §3.1), and **padran*, generic for pandanus species as well as denoting the coastal pandanus, *Pandanus tectorius* (ch.11, §2.5.1).

The largest problem with using ethnobotanical classification as a basis for categorising the reconstructions in this book, however, is practical: **kayu* is a huge category, in need of subdivisions for which Evans finds no linguistic warrant.

¹ A number of the species listed by Thaman do not appear to occur in NW Island Melanesia, but species selected from this floristic region would produce similar results.

2.3 Classification by vegetation habitat and cultivation status

The third and fourth classificatory approaches form the basis of the chapter divisions from chapter 5 onward. Vegetation habitats, described in §3, §4 and §5 are the basis for chapters on wild plants, while plants that are generally tended or cultivated occur in separate chapters which have as a partial basis the ingredients of a typical Oceanic meal, described in §6.

This mixed classification reflects the primary POc land use division between **qutan* ‘bushland, hinterland; inland’, where wild plants grow, and **quma* ‘garden, plantation’, where plants are cultivated.

Wild plants are then divided primarily by vegetation habitat: coastal strand vegetation, mangrove swamp, primary lowland rain forest, and secondary lowland rain forest and grassland. This has the virtue of placing plants in their environments and in relationship to one another within the environment. Oceanic languages have names for types of location (even though the reconstruction of POc names for them is somewhat problematic, partly because the best described Oceanic environments are rather different from one another: see vol.2, ch.3, §1), and we can assume that this arrangement is at least not radically at odds with POc speakers’ conceptualisations of their environment,

Food plants are divided first into the two major categories of the POc menu: **kanan* ‘starchy food, staples’ and **tamaji* ‘additional ingredients to accompany starchy food’. The latter is included in three chapters, on green vegetables, nut and fruit trees, and the coconut palm. The last is treated in a separate chapter because of the complexity of its associated terminology. A further chapter treats plants that are cultivated, but not primarily for food.

The two chapters following this one, chapters 3 and 4, are by Bethwyn Evans, who treats the POc primary ethnobotanical classification and POc terms for parts of plants. The remaining chapters follow the outline just provided:

5. plants of the coastal strand
6. plants of the mangrove swamp
7. plants of primary lowland rain forest
8. plants of secondary lowland rain forest and grassland
9. staple food sources
10. green vegetables
11. nut and fruit trees
12. the coconut palm
13. other cultivated plants

The placing of plants in the first four of these chapters is at times a little arbitrary, as the same plant may occur in more than one habitat type. Crossreferences are provided to take account of this.

The agronomic boundary between bush and garden is fuzzy in Oceanic food production and was almost certainly just as fuzzy in POc agriculture (§4). The distinction between trees that are tended or transplanted and those which aren’t is somewhat clearer, and the presence of a chapter on nut and fruit trees is a response to this fact, as most of these are trees that are at least tended in some Oceanic societies and likely to have been tended by POc speakers. This chapter is placed after the chapters on cultivated plants in recognition of the fact these trees form part of the overall agroforestry systems of NW Island Melanesian societies.

3 Vegetation habitats in NW Island Melanesia

Five natural vegetation habitats are recognised by botanists in NW Island Melanesia. The types and their descriptions are drawn mainly from Mueller-Dombois & Fosberg (1998: 50–72).² Four of these are:

1. coastal strand vegetation:
 - a) herbaceous zone
 - b) beach scrub
 - c) littoral forest
2. mangrove forest
3. freshwater swamp forest
4. primary lowland rain forest

The fifth is the montane rain forest of New Britain, New Ireland and Bougainville, but this probably played little role, if any, in the lives of POC speakers and is not discussed further in this volume.

In addition there are three anthropogenic vegetation habitats:

1. garden vegetation
2. secondary lowland rain forest
3. grassland

These vegetation habitats are briefly described below, each with a listing of the species of which it is typically composed.

3.1 Natural vegetation habitats

3.1.1 Coastal strand vegetation

Coastal strand vegetation falls into three zones, a herbaceous zone, beach scrub, and littoral forest.

3.1.1.1 *Herbaceous zone*

On sandy beaches and beach ridges,³ vegetation begins at the high-water mark on the seaward slope with a herbaceous cover of creeping plants such as *Ipomoea pes-caprae*, *Canavalia rosea* (syn. *C. maritima*) (no reconstruction) and *Wedelia biflora*, as well as grasses and sedges, including *Thuarea involuta*.

² Descriptions of regional vegetation habitats are common in the botanical literature on the Pacific islands. One of the earliest (and surprisingly comprehensive) is Warburg (1899). Others include Barrau (1955), Paijmans (1976) and Mueller-Dombois & Fosberg (1998: 59). I have mostly followed the last, as it treats NW Island Melanesia as a separate floristic region and subdivides it into the Bismarcks, Bougainville and the Solomons. Paijmans (1976) sometimes provides significant additional detail, but he writes about ‘New Guinea’ without distinguishing between the mainland as a whole and the Bismarcks and Bougainville.

³ Where the coast is being built up outwards by sand, a succession of ridges develops, parallel to the beach. Ridges are typically about 2 m high closer to the beach. On their inland side they merge into gently undulating flats (Paijmans 1976: 27–28).

3.1.1.2 Beach scrub

Next to or overlapping the herbaceous zone comes bush scrub with shrubs such as *Pemphis acidula* and *Scaevola taccada* and low-growing bushy-crowned trees like *Hibiscus tiliaceus*, *Thespesia populnea* and *Tournefortia argentea* often densely tangled by climbers like *Flagellaria indica*. There is a ground layer of ferns, grasses, gingers and herbs including *Crinum asiaticum*.

3.1.1.3 Littoral forest

On its landward side beach scrub borders, gradually or abruptly, on littoral or coastal strand forest. This is often dominated by evergreen broadleaf trees like *Barringtonia asiatica*, *Terminalia catappa*, *Heritiera littoralis* and *Calophyllum inophyllum* (and in the Solomons archipelago *Cerbera manghas*) or the screwpine *Pandanus tectorius*, (on coral *P. dubius*) or sometimes *Casuarina equisetifolia*. On beaches where the ridge formation has been eroded, the littoral forest borders immediately on the beach, and *Barringtonia asiatica* predominates. On coral islands where mixed littoral forest covers the whole island, the forest may include *Diospyros*, *Myristica* and *Rhus* species. In the Solomons the lower storey includes *Diospyros* species, *Ficus austrina*, *Hibiscus tiliaceus*, *Kleinhovia hospita*, *Morinda citrifolia* and *Premna corymbosa* (Paijmans 1976: 29–20, Henderson & Hancock 1988: 321, Mueller-Dombois & Fosberg 1998: 50, 59, 70).

As Barrau (1955: 17) notes, in many areas the littoral forest has been replaced by coconut palms.

3.1.2 Mangrove forest

Mangrove forests occur on stretches of coastline sheltered from wave action or along estuaries or even on protected coral reefs, and especially in areas where there is regular rainfall which washes salt out of the soil. The mangrove forest may extend from seawater salinity on the seaward side to almost freshwater conditions on the landward side, where there is usually an abrupt transition to freshwater swamp forest. Mangrove forests are located in the intertidal zone, so the seaward margin undergoes much deeper twice-daily inundation than the landward margin. On the seaward margin species include *Avicennia marina*, *Sonneratia caseolaris*, *S. alba* and occasionally *Ceriops tagal*. Further landward *Rhizophora* and then *Bruguiera* species take over and the canopy assumes a forest stature. Towards its landward border the mangrove forest becomes more diverse, forming a canopy up to 25 m in height, and in the Bismarcks includes *Lumnitzera littorea*, *Xylocarpus granatum*, *Excoecaria agallocha*, *Camptostemon schultzei*, *Heritiera littoralis*, *Intsia bijuga* and *Inocarpus fagifer*. *Intsia bijuga* and *Inocarpus fagifer* are also common lowland rain forest and swamp forest trees. The more landward mangrove forest is more open and has an undergrowth of shrubs and low-stature trees including *Dolichandrone spathacea* and *Myristica hollrungii*. The *Nypa fruticans* palm also grows on the landward side of estuarine swamps (Paijmans 1976: 31–34, Mueller-Dombois & Fosberg 1998: 50–51).

In the Solomons *Lumnitzera littorea*, *Ceriops tagal* and *Dolichandrone spathacea* occur towards the landward border of the mangrove forest. Inland of these are *Sonneratia* species and *Xylocarpus granatum* and as the ground becomes less saline *Calophyllum inophyllum*, *Fagraea racemosa*, *Heritiera littoralis*, *Intsia bijuga* and *Pandanus* species, with an understorey of ferns and the shrub *Acanthus ebracteatus* (Henderson & Hancock 1988: 319).

3.1.3 Freshwater swamp forest

Freshwater swamp forests occur on larger islands in areas where the water table, often brackish, is near the surface and during high-rainfall seasons sometimes above it. These locations are typically flat areas near the coast with poorly drained soils. In NW Island Melanesia, all large tracts of freshwater swamp forest are found in Bougainville and the Solomons. They are few and small in the Bismarcks: there are patches on the north coast of New Britain, two deltas in the south of New Ireland, and a small amount (about 7%) on Manus Island and Los Negros (Paijmans 1976: 37-48, Mueller-Dombois & Fosberg 1998: 51-52, 60, 71, Freyne & Bell 1982). Since the homeland of POc speakers was quite clearly in the Bismarcks, no chapter in the present volume is devoted to freshwater swamp forest. The trees characteristic of this habitat are in any case all found elsewhere, usually in lowland rain forests.

3.1.4 Primary lowland rain forest

The most widely distributed natural vegetation habitat in NW Island Melanesia is lowland tropical rain forest. Its most important species belong to the genera *Calophyllum*, *Campnosperma*, *Canarium*, *Cryptocarya*, *Dracontomelon*, *Ficus*, *Intsia*, *Octomeles*, *Pometia*, *Pterocymbium* and *Terminalia*, along with *Eucalyptus deglupta*.

In Bougainville *Pometia pinnata* and *Vitex cofassus* form a forest with a tall canopy up to 35 m, and other genera include *Alstonia*, *Celtis*, *Cryptocarpus*, *Dysoxylum*, *Elaeocarpus* and *Sterculia*. The understorey in Bougainville includes trees of the genera *Diospyros*, *Garcinia*, *Gnetum*, *Myristica*, *Syzygium* and palms of the genera *Areca*, *Caryota* and *Licuala*, as well as bamboos, tree ferns (*Cyathea*) and *Pandanus* (Paijmans 1976: 64-65, Mueller-Dombois & Fosberg 1998: 60-61).

Lowland tropical rain forests are more species-rich than other kinds of vegetation but nonetheless grow poorer as one moves southeastward. In the Solomons there are twelve species of big (canopy) trees: *Calophyllum kajewskii*, *Calophyllum pseudovitiense*, *Campnosperma brevipetiolatum*, *Dillenia salomonensis*, *Elaeocarpus sphaericus*, *Endospermum medullosum*, *Gmelina moluccana*, *Maranthes corymbosa*, *Parinari salomonensis*, *Pometia pinnata*, *Schizomeria serrata* and *Terminalia calamansanai*. Where forests have been broken by cyclones or man, colonising species include *Canarium* species and *Vitex cofassus*. Lower tree and shrub layers consist of *Barringtonia* and *Boerlagiodendron* species, *Leea indica* and *Areca catechu*. The herb layer is patchy, but where gaps occur in the canopy, species of *Calamus*, bamboos and gingers predominate (Henderson & Hancock 1988: 320)

In the few locations in NW Island Melanesia where there is a marked dry season *Garuga floribunda* occurs alongside *Terminalia* and *Ficus* species (Paijmans 1976: 52).

3.2 Anthropogenic vegetation habitats

Much of the vegetation in NW Island Melanesia today is anthropogenic. It falls into three categories: garden vegetation, secondary lowland rain forest and grasslands.

3.2.1 Garden vegetation

Lapita villages were apparently typically located on or immediately behind the beach, as many modern villages in the Bismarcks still are. When a contemporary village is on the beach, however, the gardens often lie a distance away in the rainforest, sometimes in the submontane

foothills. Villagers in rain forest areas of NW Island Melanesia typically follow a system which has been labelled ‘bush fallowing rotation’. The forest is cleared, the garden is planted and harvested for about a year, then left fallow for 10–15 years. During the first two years of the fallow period, some crops continue to be harvested from the garden. Typically a family is entitled to use a number of garden plots which have been cleared by earlier generations and which are at different stages of fallowing rotation. Children are taught which plots the family may use, which places are good for taro, which for yams, and so on, across the whole fallow area used by the family as well as in current gardens (Kwa’ioloa & Burt 2001: 30). If a family has enough garden plots, then there is no need to create new plots by clearing primary forest. If not, then either plots will be used more frequently (not an ideal choice) or a new plot will be created by clearing forest. If the fallow period is long enough and rainfall is sufficient, then primary regrowth occurs and the garden plot more or less merges back into the primary forest. If the land is reused too early, then eventually secondary forest replaces primary regrowth. In drier areas it is replaced by grassland (Barrau 1955: 17, 31, 1962: 45–47).

Garden vegetation today includes planted trees and sometimes wild trees that were present when the forest was cleared and are tended *in situ* (chapter 11), as well as the various staples (chapter 9) and plants grown as green vegetables (chapter 10). Trees vary from place to place but include breadfruit (*Artocarpus altilis*), mango (*Mangifera indica*), Malay apple (*Syzygium malaccense*), golden apples (*Spondias cytherea*), dragon plums (*Dracontomelon dao* and *D. vitiense*), canarium almonds (*Canarium indicum* and *C. salomonense*), *Barringtonia edulis*, *Citrus* (mostly recent introductions), guava (another recent introduction) and coconut palms (chapter 12).

3.2.2 Secondary lowland rain forest

Henderson & Hancock (1988: 323) give an account of the regrowth sequence in the Solomons. Secondary rain forest trees tend to be more light-demanding species, which include *Acalypha grandis*, *Alphitonia incana*, *Hibiscus tiliaceus*, *Macaranga* species, *Melochia umbellata*, *Pipturus argenteus* and *Schleinitzia novo-guineensis*, alongside planted species of *Musa* and *Heliconia*. As the fallow progresses, they lose their dominance to species typical of older regrowth such as *Falcataria moluccana*, *Cananga odorata*, *Ficus* species, *Kleinhovia hospita*, *Rhus taitensis* and *Trichospermum psilocladum*, along with the breadfruit and the mango and treeferns like *Cyathea brackenridgei* and *C. lunulata*. Ginger occurs in the shrub layer, along with the palms *Areca catechu* and *Caryota rumphiana*. Finally, some of the large tree species of primary forest return, especially *Pometia pinnata* and *Vitex cofassus*.

Mueller-Dombois & Fosberg (1998: 63) describe forest regrowth in Bougainville, but their stages are less clearly delineated than Henderson & Hancock’s. Regrowth vegetation includes wild varieties of cultivated plants, along with *Heliconia indica*, ginger, *Caryota* palms, grasses (*Imperata cylindrica*, *Paspalum*, *Pennisetum macrostachium*), *Kleinhovia hospita*, *Hibiscus tiliaceus*, and species of *Macaranga* and *Ficus* (Mueller-Dombois & Fosberg 1998: 63). Important secondary growth is dominated by species of *Glochidion*, *Macaranga* and *Mallotus*, along with species of *Trema*, *Alphitonia*, *Casuarina*, *Trichospermum* and *Hibiscus*, and the species *Leucaena leucocephala*, *Kleinhovia hospita*, *Paraserianthes falcataria*, *Melanolepis multiglandulosa* and *Burckella obovata*. There are also primary forest trees that have not been removed: *Canarium* and *Barringtonia* species, breadfruit and *Pangium edule*. In older secondary forest *Cananga*, *Endospermum*, *Canarium*, *Euodia*, *Laportea* and *Sterculia* occur (Paijmans 1976: 59).

3.2.3 Grassland

Grasslands are quite rare in most of NW Island Melanesia, but occupy extensive areas of north Guadalcanal. They are dominated by kangaroo grass (*Themeda australis*), sword grass (*Imperata cylindrica*) and *Pennisetum polystachion*. They are usually maintained by regular burning. In less frequently burned areas *Saccharum spontaneum* and *Miscanthus floridulus* also occur. *Phragmites karka* and *Cyperus* species appear in more poorly drained areas (Henderson & Hancock 1988: 318–319, Mueller-Dombois & Fosberg 1988: 56–57).

4 The relationship between garden and bush in Proto Oceanic society

The division of vegetation habitats into natural and anthropogenic reminds us that human beings have brought substantial changes to their NW Melanesian island habitats. Recent scholarly work on the agriculture of the region has emphasised that there is no clearcut agronomic boundary between garden and bush. As noted above, gardens sometimes include fruit- or nut-bearing trees that survive from the earlier primary forest, or forest tree species that have been planted in the garden. Sometimes fruit or nut trees are planted near the village as well. Some species are tended in their natural forest habitat.

Kennedy & Clarke (2004) argue that there is no sensible line to be drawn between crops grown in gardens and crops acquired from the bush, because they together constitute an integrated system of resource management. They examine the literature on sago, canarium, pandanus, breadfruit and bananas, and show that all five have long been tended and transplanted in ways that have fundamentally altered the landscape. They list other plants with similarly long-term relationships with human beings: *Gnetum gnemon*, *Inocarpus fagifer*, *Pangium edule* and *Pometia pinnata*. We can add to this list at least *Barringtonia edulis*, *B. novae-hiberniae*, *B. procera*, *Burckella obovata*, *Dracontomelon* species, *Spondias cytherea*, *Syzygium malaccense*, *S. aqueum*, *Terminalia catappa* and *T. kaernbachii* (A. Walter 1994).

Breadfruit (*Artocarpus altilis*) and canarium almond (*C. indicum* and *C. salomonense*) trees are usually individually owned and tended where they have grown in the forest, either naturally or from planted suckers. Forest growth is cleared away from around the base of the breadfruit tree, and it may be fenced. Breadfruit seedlings are often also transplanted to village areas and older plants may be propagated by planting—depending on location—seeds, root cuttings or suckers.⁴ In the Solomons most canarium trees are planted near villages, but some grow wild. *Terminalia catappa* and *T. kaernbachii* are also often planted, whilst other *Terminalia* species with edible kernels (*T. copelandii*, *T. impediens*) are harvested from the forest. Several *Syzygium* species have edible fruit (*S. malaccense*, *S. aqueum*) and are either tended within the forest or planted. *Barringtonia edulis* is commonly planted as a village fruit tree in the Solomons (Paijmans 1976: 123–124, Evans 1999: 1).

The importance of tree crops to Pacific Islanders was first stressed by Barrau (1955, 1963) and reinforced by Yen (1974a). They pointed out that fruits and nuts that were reported simply to be gathered were in fact tended in varying degrees as part of the agricultural system. This has been reaffirmed by other scholars, e.g. Thaman (1989), Flavelle (1991), A. Walter (1994), McEldowney (1995), Hviding & Bayliss-Smith (2000: 23), Chowning (2001: 77–78), Walter & Sam (2002: 76–77) and McClatchey et al. (2006a). For example, on Baluan Island

⁴ Kennedy & Clarke (2004) give a summary of locations and cite sources.

(Admiralties) McEldowney found 23 tree crops, 17 of which were fruit- or nut-bearing. All occurred in three different types of location: near villages, in orchards, and scattered across gardened land. Kennedy & Clarke (2004) point out that the situation is sometimes even more complicated, as the status of a crop can range from wild through tended to cultivated, i.e. planted and cloned, and wild varieties are often used alongside domesticated plants, i.e. propagated vegetatively by cuttings or by planting suckers.

Before the introduction of steel implements tree crops are known to have had greater nutritional significance on the islands off the north coasts of New Guinea and New Britain and on the Mussau Islands than they have today, and it is likely that this is true at least of small islands throughout NW Island Melanesia. For example on Karkar Island, very important food sources included coconut, canarium almonds, breadfruit (*Artocarpus altilis*), Tahitian chestnut (*Inocarpus fagifer*), Indian chestnut (*Terminalia catappa*), dragon plum (*Dracontomelon dao*) and the fruit of *Pouteria maclayana*. Arable agriculture has increased in significance since the introduction of metal tools 80 or so years ago (Bourke 1996, Allen et al. 1994), but from my own observation it is clear that these nuts and fruits retain traditional significance.

Because agriculture is centred on what are conventionally called ‘gardens’ in English, the distinction between the English terms ‘horticulture’ and ‘agriculture’ is largely irrelevant in a Pacific context (Brookfield 2001: 6, Kennedy & Clarke 2004). However, recent literature calls the use of either term into question because of the absence of a clear boundary between garden and forest in Pacific agriculture. Pinning down exactly whether a particular crop should be regarded as wild or cultivated in a particular location is extremely difficult. In consequence Kennedy & Clarke (2004) adopt the term ‘agroforestry’ from Clarke & Thaman (1993).⁵ Whilst the reason for this decision is clear, however, there is still reason to retain ‘horticulture’ for activities in food gardens, as Meredith Osmond does in chapter 5 of volume 1, and to use ‘arboriculture’ for tree-tending activities in the forest.

The extent of agriculture in the Bismarck Archipelago before the arrival of POc speakers, i.e. Lapita people, is unknown, but there is reason to believe that the tending of bush trees and the planting of trees at convenient locations had been practised there long before the Lapita period. Before the arrival of Austronesian speakers, NW Island Melanesia was populated by groups who may or may not have cultivated a staple crop. However, as early as 20,000 years ago Allen (1993) and Gosden (1995) detect a gradual change in pattern in New Ireland, whereby people had started to move scarce resources to the locations where they lived instead of themselves moving from resource to resource. A species of *Phalanger* (possum) was imported into New Ireland, canarium trees were transplanted there from elsewhere, and obsidian (for making blades) was imported from the Willaumez Peninsula of New Britain. There was thus a move away from mobile hunting and gathering in the direction of what Spriggs (1997: 61) calls ‘wild food production’ and others label ‘foraging sedentism’. Bringing resources to people (rather than people moving from resource to resource) allowed a community a degree of sedentariness not available to hunters and gatherers. In pre-Lapita NW Island Melanesia, foraging sedentism evidently included activities like tending trees and transplanting seedlings.

LeBlanc (2002) argues that for a population to adopt agriculture, it is necessary for it already to be sedentary. If NW Island Melanesian populations encountered by arriving Austro-

⁵ The term is older, but is used, e.g., by (Flavelle 1991) principally to designate the cultivation of a village orchard rather than the whole system of plant cultivation including garden, orchard and tending forest trees.

nesian speakers in New Britain, New Ireland, Manus, Buka and Bougainville did not already practise agriculture, they were almost certainly sedentary and would probably have shifted fairly rapidly to agriculture. The language map of New Britain, New Ireland and the Solomons offers circumstantial support for a hypothesis that these populations either did not have agriculture or were agriculturally inferior to the new arrivals. There are today tiny scattered groups each speaking its own Papuan language, surrounded by numerous Oceanic languages, a number of which show signs of Papuan influence in their phonology or grammar.⁶ The implication of this linguistic geography is that there were once far more Papuan languages in NW Island Melanesia, but as their populations adopted agricultural practices from their Austronesian-speaking neighbours they also adopted their languages.

This does not mean that these populations simply shifted mode of subsistence. Foraging sedentism also seems to be a necessary precursor of agriculture (Cohen 2002), and we have no reason to suppose that populations acquiring agriculture simply abandoned their previous practices. Rather it is a reasonable inference that they retained their hunting and tree-tending practices and combined these with newly acquired cultivation practices. It is thus possible that the hunting and tree-tending practices of early Lapita culture reflect at least in part an inheritance from pre-Lapita inhabitants of the Bismacks. What is certain is that about 1.3 kg of *Canarium indicum* and about 130 grams of *Terminalia* have been found in Lapita archaeological contexts in the Arawe Islands (off the southwest coast of New Britain) (Matthews & Gosden 1997). This is of course not direct evidence of Lapita tree-tending, but it is direct evidence that canarium nuts in particular were an important item of consumption among POc speakers. Kirch (1989) found circumstantial evidence for arboriculture in a Lapita assemblage on Mussau Island which included shells of *Aleurites moluccana*, *Burckella*, *Canarium*, coconut, *Spondias cytherea*, and *Terminalia*, pericarp of *Inocarpus fagifer* and seeds of *Pometia pinnata*.

We cannot take it for granted that agriculture in the POc period was the same as it is today, but there is reasonable evidence that it was not very different. Presumably the area of forest that had been turned into gardens was less than it is today, and the areas of anthropogenic vegetation habitats were therefore also less extensive. But linguistic evidence (§5) indicates that bush fallowing was already well established in NW Island Melanesia by the time POc broke up into daughter-languages.

5 Proto Oceanic terms for types of vegetation and land use

POc had terms denoting the contrast between land with natural primary vegetation and land cleared for gardening:

- **qutan* ‘bushland, hinterland; inland’ (vol.1, ch.5, §3.3; vol.2, ch.3, §5.1 and ch.8, §2.2.1)
- **quma* ‘garden; to clear land for a garden’ (vol.1, ch.5, §3.1)

⁶ Madak (New Ireland) shares phonological features with its Papuan neighbour Kuot that are largely not shared by neighbouring Oceanic languages (Ross 1994a). Several languages of western and southwest New Britain (Bebeli, Sengseng, Kaulong) mark human gender in certain ways that are otherwise unknown in Oceanic languages.

In a few languages the reflex of **qutan* means ‘garden’ (Mussau *utana*, Banoni *yitana*, Tolo *uta*, Nese *na-ut*), a seemingly odd reversal of meaning—odd until one recognises that a secondary sense of **qutan* was ‘inland’ (vol.2, ch.8, §2.2.1), itself a natural outcome of the fact that the bush is always inland in relation to a coastal village. Since gardens were also inland from a coastal village, and sometimes quite a distance inland, the inference that **qutan* is a metonymous term for ‘garden’ entails only a small jump.

Contrasting with **quma* along the bush fallowing cycle was POc **talū(n)* ‘old garden, fallow land, land returning to secondary growth’ (vol.1, ch.5, §3.1; vol.2, ch.3, §5.1).

The term **qutan* appears to have denoted uncultivated land in general, whether it was **talū(n)*, land returning to secondary growth after cultivation, or bushland that had never been brought under cultivation. The term for the latter appears to have been POc **[waRu]waRu*—‘appears’ because there are phonological problems in the data. On one hand Misima, Proto Malaita-Makira and PPn all reflect the reconstructed form regularly, assuming that final **-o* of PPn **wao* reflects assimilation. On the other hand PMic medial **-l-* reflects POc **-l-*, not **-R-*. This irregularity is unexplained, but cannot be dismissed too lightly, as Proto Malaita-Makira **[walu]walu* could also reflect a form with POc **-l-*. I reconstruct POc **[waRu]waRu* because this explains a larger range of reflexes, but further data might lead to a revision.⁷

POc **[waRu]waRu* (?) ‘primary forest’ (French-Wright 1983: **wao*)⁸

PT: Misima *walu-walu* ‘the bush’

Proto Malaita–Makira **[walu]walu* ‘the world; uncultivated bush

SES: Kwaio *k^walu* ‘unusable bush’

SES: Sa’a *walu(malau)* ‘the world, all the islands’

SES: Arosi *waru-waru* ‘the inhabited world generally, all the known islands’

PPn **wao* ‘forest’

Pn: Tongan *vao* ‘forest, bushland, scrub, land in its natural uncultivated state’

Pn: Tahitian *vao* ‘wilds, wilderness’

Pn: Māori *wao* ‘forest’

cf. also:

SES: Gela *ao* ‘forest, land never brought under cultivation’

PMic **walu* ‘vegetation, forest’ (Bender et al. 2003)

Mic: Pohnpeian *wāl* ‘jungle, forest’

Mic: Mortlockese *wali-wel* ‘forest’

Mic: Chuukese *wāni-wān* ‘vegetation, bush’

Mic: Puluwatese *wāl* ‘forest, jungle’

Mic: Carolinian *wali-wal* ‘forest, jungle’

wal(lap) ‘dense forest, thickly forested area’

Fij: Rotuman *vao* ‘forest, large number of trees or big plants growing together’

⁷ Gela *ao* may not be cognate, as the expected Gela form is †*walu*.

⁸ This set is repeated in part from vol.1, ch.5, §3.3 and vol.2, ch.3, §5.1, where PEOc **wao* ‘forest’ was reconstructed, following French-Wright (1983).

In volumes 1 and 2 a number of other POc terms for landscape features were reconstructed which correspond very roughly to the vegetation habitats listed in §3. The correspondence is rough because the POc terms denote landscape features, not vegetation habitats in the botanical sense. Such terms are POc **b^(w)iker* ‘beach, esp. sandy beach’ (vol.2, ch.3, §3.1)⁹ and the three terms reconstructed in vol.2, ch.3, §5.2, denoting swamps. As we note there, we have no principled way of determining which term(s) denoted mangrove swamps and which freshwater swamps.

POc **[dr,r]ano* ‘lake, swamp’

POc **p^waca* ‘swamp’

POc **[g,k]opu* ‘pond, lagoon, swamp’

A minor piece of evidence that POc speakers recognised a division between wild and cultivated varieties of plants is that wild plant names are sometimes fully reduplicated forms of a cultivated variety or a similar cultivated plant species (§7.2).

6 The ingredients of an Oceanic meal

People in traditional Oceanic-speaking villages ate one cooked meal a day, usually after the day’s work. The meal typically consisted of starchy staples, made more appetising by the addition of coconut milk (ch.12, §4.2), leafy vegetables (ch.10) and sometimes some meat or fish. Today the meal is most often boiled. Traditionally, boiling would have been common in communities which had clay pots. Will McClatchey (pers. comm.) points out that it was also possible in communities without clay pots: a stone was heated in the fire and dropped into a container of water. Such containers might be (watertight) leaf baskets, a wooden bowl, a ground out rock or a large shell. Since boiling with such utensils can still be observed in parts of NW Island Melanesia, there is good reason to think that it occurred traditionally. Food was presumably also roasted in the fire or baked over it or—on special occasions—steamed in an earth oven (for food preparation methods, see vol.1, ch.6).

The lexicons of Oceanic languages usually distinguish two main categories of ingredient:

- starchy staples, including yams, taro, sweet potatoes and other root crops, cooking bananas and breadfruit;
- the additional ingredients: coconut milk, leafy vegetables and protein foods (meat, fish, shellfish).

Barrau (1955: 44) remarks on the existence of this division in New Caledonia, and translates the terms for the categories as ‘food’ and ‘condiments’.

Dictionary definitions do not always mention all three components of the ‘additional ingredients’ category, and it is difficult to know whether the definitions are sometimes deficient or whether the composition of the additional ingredients varies from one place to another. Among Takia speakers living inland on Karkar Island, for example, the additional ingredients often lack a protein food if no one has been hunting, as domestic animals (pigs and chickens) are slaughtered only for feasts.

⁹ POc **gone* ‘sand, sandy beach’ (vol.2, ch.3, §7.5) appears primarily to denote the sand rather than the location as part of an island.

The encoding of the two categories of ingredient in the lexicon varies from language to language, as is shown by the terms below from widely dispersed languages. Oceanic languages have quite complex terminologies to do with eating, and the terms listed below are limited to generic terms for eating and food and to terms which presuppose the distinction between staples and additions as categories of meal ingredient. I have omitted, for example, terms for ‘meat’ where these have the wider meaning ‘flesh’.

Mapos Buang (NNG) (Hooley n.d.)

VERBS	<i>-ya</i>	‘eat’ (POc * <i>kani</i>)
	<i>-rɔm</i>	‘eat mixed food including meat’
V & N	<i>tmul</i>	‘mix various kinds of food together and cook them’ (v); ‘a mixed stew’ (N)
NOUNS	<i>nos</i>	‘food (generic), but not including meat or greens’
	<i>ryu</i>	‘meat food’

Iduna (PT) (Huckett n.d.)

VERBS	<i>-a</i>	‘eat’ (POc * <i>kani</i>)
	<i>-a-k^wayak^waya</i>	‘eat meat alone’ (<i>k^wayak^waya</i> - ‘white’)
	<i>-kuda-taʔula</i>	‘eat starchy vegetables and meat together’ ¹⁰
V & N	<i>[-]onanaga</i>	‘crave for meat’ (v); ‘craving for meat’ (N)
NOUNS	<i>aʔa</i>	‘food (generic), cultivated crops’
	<i>kevakeva</i>	‘meat and fish, protein food’

Patpatar (MM) (Condra n.d.)

VERBS	<i>ian</i>	‘eat’ (VT) (POc * <i>kani</i>)
	<i>gama</i>	‘mix meat with starchy food’
	<i>bite, bui</i>	‘crave for meat’
NOUNS	<i>ni-an</i>	‘food’ (<i>ni</i> - NOMINALISER)
	<i>g<in>ama</i>	‘meat mixed with starchy food’ (< <i>in</i> > NOMINALISER)

Sursurunga (MM) (Hutchisson n.d.)

VERBS	<i>ani, ɲani</i>	‘eat’ (VT) (POc * <i>kani</i>)
NOUNS	<i>namnam</i>	‘food’
	<i>gemnai</i>	‘eat (s.t.) as an accompaniment to starchy food’
	<i>balbal</i>	‘starchy food, root vegetables’
	<i>gemgem</i>	‘meat, meat animals’

Ramoaina (MM) (Fritzell & Davies n.d.)

VERBS	<i>an</i>	‘eat’ (VT) (POc * <i>kani</i>)
	<i>wəŋan</i>	‘eat’ (VI) (POc * <i>paŋan</i>)
	<i>naŋin</i>	‘eat starch and meat together’
	<i>bet</i>	‘eat meat alone’

¹⁰ *-kuda* chew, *taʔula* ‘banana leaf under food’, the latter presumably a reference to the fact that vegetables and meat are eaten together at features where food is laid out on banana leaves.

	<i>odo</i>	‘eat greens alone’
NOUNS	<i>ni-an</i>	‘food’ (<i>ni-</i> NOMINALISER)

Arosi (SES) (Fox 1978)

VERBS	<i>ŋau</i>	‘eat’ (VT) (POc * <i>ŋau</i> ‘gnaw, chew’)
	<i>maŋa</i>	‘eat’ (VI) (POc * <i>paŋan</i>)
	<i>ŋau-konari</i>	‘eat one thing without relish’ (<i>konari</i> ‘empty’)
	<i>?onari</i>	‘eat only fish’
	<i>ŋau-b^wara-b^wara</i>	‘eat one thing with relish’ (<i>b^wara-b^wara</i> ‘fern sp.’)
	<i>mamu</i>	‘eat two kinds of food together’
	<i>ŋau-kokona</i>	‘eat only greens’ (<i>kokona</i> ‘smooth, slippery’)
NOUNS	<i>hinanŋa</i>	‘starchy foods’

Anejoñ (SV) (Lynch 2001a)

VERBS	<i>yiñ</i>	‘eat’ (VT) (POc * <i>kani</i>)
	<i>haŋ</i>	‘eat’ (VI) (POc * <i>paŋan</i>)
	<i>top^w-haŋ</i>	‘eat starch without additions’ (<i>top^w</i> ‘just, merely, only’)
	<i>leyley</i>	‘eat meat or fish without starch’
N & V	<i>aθepyañ</i>	‘eat meat or fish with taro’ (VI, VT); ‘meat or fish eaten with taro’ (N)
NOUNS	<i>in-haŋ</i>	‘food, meal’ (POc * <i>paŋan</i>)
	<i>ni-tai-yiñ</i>	‘food (generic)’ (lit. ART-thing-eat) (POc * <i>kani</i>)
	<i>ni-tai-haŋ</i>	‘food (generic)’ (lit. ART-thing-eat) (POc * <i>paŋan</i>)

Sye (SV) (T. Crowley 2000)

VERBS	<i>-eni</i>	‘eat’ (VT) (POc * <i>kani</i>)
	<i>-vaŋ</i>	‘eat’ (VI) (POc * <i>paŋan</i>)
	<i>-elat</i>	‘eat meat or fish’
	<i>-aŋot</i>	‘hungry for meat’ (lit. ‘itch’)
	<i>-etki</i>	‘eat meat or fish with starchy food’ ¹¹
NOUNS	<i>n-van</i>	‘food’ (POc * <i>paŋan</i>)
	<i>potninvan</i>	‘staples, including yam and banana’ (< <i>poti-n n-van</i> ‘base of food’)

Kosraean (Mic) (Lee 1976)

VERBS	<i>kimis</i>	‘eat’
	<i>kafa</i>	‘eat’
	<i>kiyɔyɔi</i>	‘eat one kind of food without side dish’
	<i>kokɔɛk</i>	‘eat main dish without side dish’
V & N	<i>moŋo</i>	‘eat’ (V); ‘food’ (N) (PMic * <i>m^wanau</i> ‘eat (staple food)’ (V); ‘staple food’ (N))
	<i>enat</i>	‘eat a side dish of (s.t.)’ (V); ‘side dish’ (N)
NOUNS	<i>kiyɔyɔ</i>	‘one kind of food eaten without side dish; naked’
	<i>ente</i>	‘side-dish’

¹¹ T. Crowley (2000) glosses *-etki* ‘eat something with something else’, but his example suggests the gloss given here.

Wayan (Fij) (Pawley & Sayaba 2003)

VERBS	<i>kani</i>	‘eat’ (VT) (POc <i>*kani</i>)
	<i>tovi</i>	‘crave for meat or fish’ (VT)
NOUNS	<i>mañiti</i>	‘food, something to eat; staples (root crops, bananas, breadfruit)’
	<i>ilava</i>	‘savoury food, preferably fish or meat, eaten with staples’
	<i>vidāg^wana</i>	‘protein food, especially seafood, and leafy vegetables eaten with staples’

Proto Polynesian (POLLEX)

VERBS	<i>*kai</i>	‘eat’ (POc <i>*kani</i>)
	<i>*samu</i>	‘eat only protein food’
NOUNS	<i>*kina, *kiki</i>	‘food eaten as a relish with other food’ ¹²

Aside from POc **kani* and **pañan*,¹³ which are widely reflected, the sets of semantically similar forms above contain no cognate sets that justify POc reconstructions. Other cognate sets are decidedly localised but similar meanings recur:

1	(V)	‘eat starchy food; eat (generic)’	(all)
	(N)	‘starchy vegetables’, also used hypernymously for ‘food (generic)’	Mapos Buang, Sursurunga, Arosi, Wayan
2	(V)	‘eat food consisting of starch and additional ingredients (coconut milk, leafy vegetables, fish or meat)’	Mapos Buang, Ramoaaina, Arosi, Anejoñ
	(V)	‘mix and/or cook food consisting of starch and additional ingredients’	Mapos Buang, Iduna, Patpatar
	(N)	‘food consisting of starch and additional ingredients’	Patpatar
3	(V)	‘eat (s.t.) as an addition to starch’	Sursurunga, Anejoñ, Sye, Kosraean
	(N)	‘fish or meat and leafy vegetables as an addition to starch’	Anejoñ, Kosraean, Wayan, PPn
4	(V)	‘eat fish or meat without starch’	Iduna, Ramoaaina, Arosi, Anejoñ, Sye, Kosraean, PPn
	(V)	‘crave fish or meat’	Iduna, Patpatar, Sye, Wayan
	(N)	‘fish and meat as food’	Mapos Buang, Iduna, Sursurunga
5	(V)	‘eat greens alone’	Ramoaaina, Arosi

The meanings above are categorised into those referring to (1) starchy vegetables and hypernymously to food in general; (2) food consisting of starch and additional ingredients (coconut milk, leafy vegetables, fish or meat); (3) the additions; (4) fish and meat without starch; (5) leafy vegetables.

In the languages above, only two verbs mean something like ‘eat starchy foods’. They are Arosi *ñau-konari* ‘eat one thing without relish’ and Anejoñ *top^w-han* ‘eat starch without

¹² Presumably with starchy food.

¹³ This is to my knowledge the only reconstructable POc verb pair to preserve an intransitive form reflecting PMP **paN-* (vol.1, ch.2, §3.1.3). **pañan* evidently also served as a (lexically causative) transitive meaning ‘feed (animals)’, to judge from its reflexes in Arosi and in Central Pacific languages.

additions'. Their literal meanings are instructive: Arosi 'eat empty', Anejoñ 'just eat'. They imply that the basic meaning of the verb 'eat' is 'eat starchy foods', and this appears to be true in other Oceanic languages too. All the verbs meaning 'eat' except Arosi *ŋau* (< POc **ŋau* 'gnaw') are reflexes of PMP **kaen*/POc **kani* 'eat', and all apparently refer primarily to eating starchy foods (although few dictionaries mention the fact). They have the generic meaning 'eat' by hypernymy. This inference is supported by the facts that (i) other verbs of eating never have this meaning; (ii) the form for 'starchy foods' in many Oceanic languages is or reflects a nominalisation of the reflex of this etymon; and (iii) reflexes in New Caledonian languages, e.g. Voh-Koné *cani*, Xârâcùù *kě*, still mean 'eat carbohydrates, eat tubers'.

A verb with the meaning 'crave fish or meat' is often found in Oceanic languages, reflecting the fact that in Oceanic speaking communities the main meal is often eaten without fish or meat.

Fewer languages appear to have terms referring to eating leafy vegetables alone. Ramoaa-ina *odo* and Arosi *ŋau-kokona* are the only instances found in a survey of Oceanic dictionary sources. In Ross (1996c) I distinguished two categories of meal ingredient, starchy staples and leafy greens. With more dictionary data, it has become clear that the primary categorisation of meal ingredients is into starch and additional ingredients, and that leafy vegetables are a subcategory of 'additional ingredients'.

The ubiquitousness of verbs and nouns which presuppose the 'starchy food' (§6.1) and 'additional ingredients' (§6.2) categories suggests strongly that these categories were already present in POc.

6.1 Starchy food

Staple food sources are easily grown starchy foods of vegetable origin that are high in food energy. Dictionary definitions of terms for 'staple food' or 'starchy food' in Oceanic languages are rarely exhaustive, sometimes referring to yams, sometimes to taro, sometimes to root crops in general. This is, of course, often due to variations in the staples consumed from one area to another: taro is grown in wetter regions, yams in drier areas, and breadfruit on atolls. For New Guinea Bourke (in preparation) lists *Colocasia* taro, yams (*Dioscorea esculenta* and *D. alata*), banana and sago as the most important staple foods before the arrival of the sweet potato. An early botanical account suggests that taro, some yam species, bananas and breadfruit probably formed the traditional staple foods of Pacific islanders (Guppy 1906: 412–415). Pawley & Sayaba (2003) define Wayan *maniti* as including the staples bananas and breadfruit as well as root crops, and knowledge of Oceanic eating habits justifies assuming definitions of this kind of breadth for the corresponding terms in many Oceanic languages. The sago palm is included with other staples in chapter 9 because it serves as a staple in some Oceanic societies and as a famine food in others.

Two POc forms are reconstructed with the probable meaning 'starchy food' and hypernymously 'food in general': **kanan* and **kuta*.

POc **kanan* and its variant **kanan*, both 'staple food, food in general', reflect PMP **kanan* 'dish, plate, meal'. This was a nominalisation of PMP **kaen* 'eat', or **kan* in the context of certain affixes. PMP had several nominalising affixes, among them **-en* and **-an*. PMP **-en* was reflected in POc only in a few fossilised contexts like **kanon* 'flesh, meat, coconut flesh' (ch.12, §4.2), from PMP **kan-en* 'something to be eaten, food'. PMP **-an* 'locative nominaliser', on the other hand, became POc **-an*/**-an*, a productive nominalising affix with

wider functions than in PMP. Because of this productivity, as the nominalising forms and strategies of Oceanic daughter-languages changed in various ways (vol.1, ch.2, §3.2.1), so lexical items formed by nominalisation sometimes retained their old forms and sometimes changed in accordance with the changes in nominalising morphology. Forms which reflect such changes are listed below under ‘cf. also’.¹⁴

PMP **kan-an* ‘dish, plate, meal’

POc **kanan*, **kanan* ‘staple food; food in general’

PAdm **kanana* ‘food’ (Blust 1996b)

Adm:	Wuvulu	<i>anana</i>	‘food’ (Blust 1996b)
Adm:	Mondropolon	<i>kanna</i>	‘food’ (Blust 1996b)
Adm:	Drehet	<i>kana</i>	‘food’
NNG:	Takia	<i>anan</i>	‘food’
		<i>an</i>	‘lesser yam, <i>Dioscorea esculenta</i> ’
NNG:	Lukep (Pono)	<i>kana-</i>	‘share of food, provisions’
NNG:	Matukar	<i>anan</i>	‘lesser yam, <i>Dioscorea esculenta</i> ’
NNG:	Manam	<i>kana-</i>	‘food’
NNG:	Mari	<i>gan</i>	‘taro’
NNG:	Adzera	<i>gan</i>	‘banana plant’
MM:	Bulu	<i>(y)ani(y)ana</i>	‘coconut flesh’
SES:	Gela	<i>yana</i>	‘food’
Fij:	Bauan	<i>kana</i>	‘meal’
		<i>kā-kana</i>	‘food’

cf. also:

PAdm **kani-an* ‘staple food’

Adm:	Nyindrou	<i>kani-a</i>	‘staple food’
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Proto North New Guinea **kani-ŋa* ‘food’

NNG:	Sengseng	<i>kini-ŋ</i>	‘food in general; animal protein in particular’ (A. Chowning, pers. comm.)
NNG:	Bariai	<i>an-ŋa</i>	‘food’
NNG:	Lukep (Pono)	<i>kani-ŋ</i>	‘yam’
NNG:	Bing	<i>ani-ŋ</i>	‘banana’
NNG:	Manam	<i>ani-ŋa</i>	‘food’
NNG:	Mangseng	<i>ani-ŋ</i>	‘food’
NNG:	Poeng	<i>kani-ŋ</i>	‘food’
NNG:	Hote	<i>ani-ŋ</i>	‘taro’

Proto Papuan Tip **kani-kani* ‘staple food’

PT:	Misima	<i>an-an</i>	‘yams; root crops, nuts and fruit; food’
PT:	Taboro	<i>yani-yani</i>	‘food’
		<i>yani</i>	‘short cooking banana’

¹⁴ In Ross (1996c) these forms were shown under POc **kani* (‘eat’) + NOMINALISER. I have changed their presentation here in recognition of the fact that they all in a sense reflect POc **kanan*, even though they also reflect changes in the nominalisation process.

PT:	Hula	<i>ani</i>	‘banana’
PT:	Motu	<i>ani-ani</i>	‘food’
PT:	Mekeo	<i>ani-ani</i>	‘food’

PMM **k<in>ani* ‘staple food’

MM:	Nakanai	<i>il-ali</i>	‘food’ (A. Chowning, pers. comm.)
MM:	Patpatar	<i>ni-an</i>	‘food’ ¹⁵
MM:	Ramoaaina	<i>ni-an</i>	‘k.o. yam; food’
MM:	Tolai	<i>ni-an</i>	‘food’
MM:	Nehan	<i>ni-eini</i>	‘food’
MM:	Roviana	<i>γ<in>ani</i>	‘food’

PNCV **k<in>ani-ana* ‘staple food’

NCV:	Raga	<i>γ<in>a-γani-ana</i>	‘food’
NCV:	Paamese	<i>ani-ene</i>	‘staple food, as opposed to meat and greens’
NCV:	Lewo	<i>k<in>ani-ena</i>	‘staple food, as opposed to meat and greens’

A further twist is reflected in the forms under ‘cf. also’ above. The base of PMP **kan-an* was **kan*. The base of the forms under ‘cf. also’ is POc **kani*. This reflects PMP **kan-i*, where **-i* is a reflex of the PAn suffix **-i* ‘location focus, atemporal’, reinterpreted as a transitiviser in POc (Pawley & Reid 1980; vol.1, ch.2, §§3.1.2–3) but lexicalised as part of the POc base when the erstwhile base, e.g. **kan*, was a monosyllable. As a result, the forms under ‘cf. also’ have the base **kani*, which never co-occurred with a nominalising affix in PAn and PMP.

Several reflexes of POc **kuta* denote a major staple in the language concerned, either banana or yam, suggesting that the POc term denoted ‘staple food’. However, it is also possible that **kuta* was originally a specialised verb of eating, as the Gumawana, Iduna, Gela and Tolo glosses imply.

POc **kuta* ‘staple food’ or ‘eat’ ?

NNG:	Lukep (Pono)	<i>kuta</i>	‘banana cultivar’
NNG:	Bing	<i>(aniŋ) kuta</i>	‘sweet banana cultivar’
PT:	Gumawana	<i>kuta</i>	‘chew sugar cane’
PT:	Molima	<i>?uta</i>	‘chew’
		<i>?uta?uta</i>	‘ <i>Dioscorea pentaphylla</i> ’
PT:	Iduna	<i>kuda</i>	‘chew’ (- <i>d</i> - for †- <i>t</i> -)
PT:	Ubir	<i>ut</i>	‘greater yam’
PT:	Gapapaiwa	<i>uta</i>	‘yam type’
SES:	Gela	<i>kut-i</i>	‘feed’ (used as causative of <i>vaŋa</i> ‘eat’; Fox 1955)
SES:	Tolo	<i>kuta</i>	‘eat’
SV:	Kwamera	<i>kə-kətə-n</i>	‘baked food’

¹⁵ The productive infix <in>, of PAn antiquity, is infixed after the initial consonant of a base if there is one, but becomes *ni-* with a vowel-initial base. In Patpatar, Ramoaaina, Tolai and Nehan the **k-* of **kani* is lost, giving a vowel-initial base.

6.2 Additional ingredients

The term POc **tamaji* ‘additional ingredients to accompany starchy food’ is presented here only because it supports the claim that POc speakers divided meal ingredients into ‘starchy food’ and ‘additional ingredients’ (§6).

Reflexes of **tamaji* with meanings supporting the reconstructed meaning are found in Mapos Buang (NNG), Gela, Longgu and Bauro¹⁶ (all SES) and perhaps Teop (MM). A larger number of reflexes support another meaning, ‘provisions for a journey’: they are found in Bariai, Takia (both NNG), Dawawa (PT) and Sursurunga (MM). However, these are all Western Oceanic reflexes, implying that this meaning may have developed in the west after Oceanic speakers had begun to spread out across Oceania.

POc **tamaji* ‘additional ingredients to accompany starchy food’

NNG:	Bariai	<i>tamad</i>	‘food for a journey’
NNG:	Mangap	<i>temen</i>	‘small meal prepared as expression of gratitude’
NNG:	Takia	<i>(la)tamad</i>	‘food for journey’ (<i>la</i> ‘move away from speaker; go around the island’; cf. vol.2, ch.8, §3.4.5)
NNG:	Mapos Buang	<i>tmul</i>	‘mix various kinds of food together and cook them; stew, soup’
PT:	Dawawa	<i>tamasi-na</i>	‘food for travel’
MM:	Sursurunga	<i>t<in>mas</i>	‘picnic lunch, food taken and eaten away from the house or on a journey’
MM:	Teop	<i>tamari</i>	‘prepared food’
SES:	Gela	<i>tamadi</i>	‘relish with vegetable food’
		<i>tamadi</i>	‘eat together different sorts of food’
SES:	Longgu	<i>amadi-a</i>	‘eat something as an accompaniment to something else’
		<i>amadi-na</i>	‘food that is eaten as an accompaniment to something else’
SES:	Bauro	<i>amasi</i>	‘eat two things together; use a relish, use betelpepper’
SES:	Arosi	<i>amadi</i>	‘betelpepper’
NCV:	Lonwolwol	<i>tamsi-</i>	‘small pieces of’

The concept of ‘additional ingredients’ was also lexicalised in PMic **ta(l,n)ia* ‘side dish of meat, fish, or sauce’ (Bender et al. 2003: 89).

7 Apparent encodings of plant categorisations in Oceanic plant names

A number of Oceanic languages appear to use prefixes or reduplication in plant names as a means of categorising the plant thus named. However, this categorisation is more apparent than real. The prefixes described in §7.1.1 and §7.1.4 and the reduplication described in §7.2 reflect strategies for creating new plant names rather than direct reference to categories of plant. The prefixes described in §7.1.3 are part of the debris left by an earlier numeral classifier system.

¹⁶ The Bauro gloss provides a clue as to why the Arosi cognate means ‘betelpepper’: it is an additive to betelnut.

7.1 Prefixes

Three kinds of prefix stand out in the history of some Oceanic plant names reconstructed in this book:

- prefixes reflecting POC **kayu* ‘tree, shrub’ (§§7.1.1–7.1.2);
- prefixes reflecting POC **puqu(n)* ‘base of tree; source, origin’ and **raun* ‘leaf’ (§7.1.3);
- the POC prefix **mala-* ‘resembling’ (§7.1.4);

The first two categories appear at first sight to be rather similar, but the evidence suggests that they are derived from different POC constructions and have different uses.

7.1.1 Reflexes of POC **kayu* ‘tree, shrub’

In several Western Oceanic languages some plant names begin with a prefix that means ‘tree or shrub’. Examples from three languages are given below, together with the protoforms which they reflect. The three prefixes are Yabem *ka-*, Muyuw *a-* and Patpatar *i-*, each of which is assumed to reflect POC **kayu* ‘tree’. Yabem *ka-* occurs on most tree names, Muyuw *a-* on many, and Patpatar *i-* on just a few.¹⁷

NNG: Yabem *ka-*:

<i>ka-toʔ</i>	‘mangrove’	POc	<i>*toŋoR</i>	ch.6, § 3.1
<i>ka-dada</i>	‘k.o. grassland shrub’	POc	<i>*jajal</i>	ch.13, §6.4
<i>ka-b^wεŋ</i>	‘ironwood’	PWOc	<i>*b^wana</i>	ch.7, §4.9
<i>ka-maʔ</i>	‘ <i>Cordyline</i> sp.’	PWOc	<i>*m^wa(r,R)ep</i>	ch.13, §6.2
<i>ka-bɔʔ</i>	‘k.o. mangrove tree’	PWOc	<i>*baul</i>	ch.6, §2.1

PT: Muyuw *a-*:

<i>a-m^wakot</i>	‘ <i>Dysoxylum</i> spp.’	POc	<i>*maqota</i>	ch.7, §4.5
<i>a-yayak</i>	‘ <i>Myristica schleintzii</i> ’	POc	<i>*(d,r)aRa(q,k)(a,i)</i>	ch.7, §5.9
<i>a-gi-gaway</i>	‘ <i>Ficus tinctoria</i> ’	POc	<i>*qayawan</i>	ch.10, §4
<i>a-nag</i>	‘ <i>Cordia</i> sp.’	PWOc	<i>*nagi</i>	ch.5, §4.1.1
<i>a-sim^wal(gayas)</i>	‘ <i>Glochidion</i> sp.’	PWOc	<i>*jim^(w)(a,i)R</i>	ch.8, §2.4
<i>a-kob^wow</i>	‘ <i>Macaranga tanarius</i> ’	PWOc	<i>*kobo</i>	ch.7, §2.5

MM: Patpatar *i-*:

<i>i-nas-nas</i>	‘ <i>Tournefortia aegentea</i> ’	POc	<i>*na[su]-nasu</i>	ch.5, §4.1.5
<i>i-walas</i>	‘ <i>Semecarpus forstenii</i> ’	POc	<i>*[wa]lasi</i>	ch.7, §6.1.6
<i>i-kon</i>	‘ <i>Heritiera littoralis</i> ’	POc	<i>*kayu (ni) gone</i>	ch.6, §4.4

A simple preliminary hypothesis is that these prefixes label their denotata as members of the POC **kayu* taxon, ‘trees and shrubs’ (ch.3, §4.2). But if this were so, we would expect to find the prefix on every tree name in these languages and we would also expect to find prefixes reflecting the other primary plant taxa, **waroc* ‘vine’, **pali[s,j]i* ‘grass’, **taliŋa* ‘mushroom’ and **[i,u]mut* ‘moss, algae’. Neither expectation is fulfilled.

¹⁷ Other NNG languages show fragmentary evidence of such a prefix, e.g. Mangap *kaiwos* ‘edible greens’ (< POC **wasa* ‘*Abelmoschus manihot*; green vegetables’, ch.10, §2.1) and Atui *kamutuk* ‘ripe coconut’ (< POC **matuqu* ‘ripe, brown coconut’, ch.12, §3.4). A number of PT languages have similar prefixes, but apparently not on all tree names, e.g. Molima *ai-*, Tawala *ke-*, Saliba *kai-*.

Data from other Oceanic languages suggest an alternative hypothesis, namely that a reflex of **kayu* occurs in cases where the following root is in some way descriptive of the tree, i.e. cases parallel to English ‘flame tree’, ‘rain tree’, ‘coral tree’, ‘bead tree’ and ‘canoe tree’, all coinages naming trees of the Pacific. Among the data above Patpatar *i-kon* ‘*Heritiera littoralis*’ is a strikingly obvious example of this. The cognate set below is presented in ch.6, §4.4, and it is argued there that it reflects POc **kayu qone*, which can be glossed ‘beach tree’ (**qone* ‘beach’).

POc **kayu qone* ‘*Heritiera littoralis*’

MM: Patpatar	<i>i-kon</i>	‘ <i>Heritiera littoralis</i> ’
MM: Tolai	<i>ka-kono</i>	‘ <i>Heritiera littoralis</i> ’ (Record 1945)
NCal: Nyelâyü	<i>k^hon</i>	‘ <i>Heritiera littoralis</i> ’

The two Oceanic languages for which the best information about plant names is available are the SE Solomonic language Kwara’ae and Wayan Fijian.¹⁸ Only a small number of Wayan tree names begin with a reflex of POc **kayu*. Pawley & Sayaba (2003) list the seven entries below.

<i>kaidam</i>	‘wild nutmeg, <i>Myristica chartacea</i> ’	<i>dam</i>	‘turn reddish’
<i>kaidrisi</i>	‘wild nutmeg, <i>Myristica chartacea</i> ’	<i>drisi</i>	‘be reddish’
<i>kailalālau</i>	‘thorny shrubs, <i>Caesalpinia</i> spp.’	<i>lau</i>	‘be pricked, wounded’
<i>kailō</i>	‘small trees, <i>Diospyros</i> spp.’	<i>lō</i>	‘be dark, secretive’
<i>kaimoðemoðe</i>	‘mimosoid tree taxon’	<i>moðemoðe</i>	‘have a short sleep’
<i>kaimoku</i>	‘creeper, <i>Mimosa pudica</i> ’	...	
<i>kaivula</i>	‘tree, probably <i>Endospermum macrophyllum</i> ’	<i>vula</i>	‘moon’

Significantly, for six out of seven the dictionary independently lists a meaning for the root. For four the descriptive meaning is clear. *Myristica chartacea* has red sap: *dam* and *drisi* mean respectively ‘turn reddish’ and ‘be reddish’. The term *kaimoðemoðe* denotes *Albizia saman* and *Serianthes vitiensis*, the leaflets of which fold together at night: *moðemoðe* means ‘have a sleep’. *Endospermum macrophyllum* Euphorbiaceae is a timber tree with pale yellow wood, which perhaps accounts for the name *kai-vula*, literally ‘moon tree’.

Kwa’ioloa & Burt (2001) list thirty-six names of trees, big and not so big, beginning with *?ai-*. Most of these are explicitly descriptive, according to Kwa’ioloa and Burt. The first eleven are listed below, and nine out of eleven are descriptive.

<i>?aibū</i>	‘tree, <i>Diospyros ebenum</i> ’	...	
<i>?aisarufi</i>	‘tree, <i>Eugenia effusa</i> ’	<i>sarufi</i>	‘big tree, <i>Litsea alba</i> ’
<i>?aisaliŋa</i>	‘big tree, <i>Aporosa papuana</i> ’	<i>aliŋa</i>	‘ear’
<i>?aisibu</i>	‘big tree, <i>Pimeleodendron amboinicum</i> ’	...	
<i>?aiuluulu</i>	‘big tree, <i>Vitex cofassus</i> ’	<i>uluulu</i>	‘bushy’
<i>?aikame</i>	‘big tree, <i>Putranjiva roxburgii</i> ’	<i>kame</i>	‘monitor lizard’
<i>?aikusi</i>	‘big tree, <i>Cryptocarya alleniana</i> ’	<i>kusi</i>	‘greybird’

¹⁸ For Kwara’ae see Henderson & Hancock (1988) and Kwa’ioloa & Burt (2001), as well as Deck’s 1934 grammar. For Wayan Fijian see Pawley & Sayaba (2003) and Gardner & Pawley (2006).

<i>?aika?o</i>	‘big tree, <i>Xylopia papuana</i> ’	<i>ka?o</i>	‘bamboo’
<i>?ailali</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’	<i>lali</i>	‘kidney’
<i>?airade</i>	‘trees, <i>Dysoxylum</i> ’ spp.	<i>rade</i>	‘stink’
<i>?aininiu</i>	‘big tree, <i>Horsfieldia irya</i> ’	<i>niniu</i>	‘palm, <i>Gulubia macrospadix</i> ’

In two cases, *?aisarufi* and *?aininiu*, the tree is named for a resemblance to another plant. The tree *?aisaliŋa*, literally ‘ear tree’, is so named because the leaf has ‘ears’ at its base. Two reasons are given for the name ‘monitor lizard tree’, *?aikame*: its bark is said to be like the skin of a monitor lizard, and the monitor lizard is said to take refuge in this tree when it is chased by a dog. The ‘greybird tree’, *?aikusi*, is so named because its leaf bloom is like the feathers of a *kusi* bird.

The most striking feature of Kwara’ae *?ai-* is its distribution: it is never prefixed to a reflex of a POc tree name. This implies that it is used productively for descriptive coinages and that it does not cooccur with roots that are felt to be tree names in their own right.

The inference to be drawn from these observations is that POc had a construction [**kayu* DESCRIPTOR] which was used for coining tree names. Kwara’ae and Fijian evidence suggests that [**waRoc* DESCRIPTOR] also occurred (**waRoc* ‘vine, creeper’ > Wayan *wā*, Kwara’ae *k^walo*), e.g. Wayan *wā bitubitu* ‘creeper taxon of strong-stemmed vines’, literally ‘bamboo creeper’; Kwara’ae *k^walo kakali* ‘wild passionfruit, *Passiflora foetida*’, literally ‘*Hornstedtia* vine’, because its seeds resemble those of the plant *Hornstedtia lycostoma*. Like Kwara’ae *?ai-*, Kwara’ae *k^walo* is used productively for new coinages like the name of the introduced passionfruit.

7.1.2 POc **ka-* in trisyllabic tree names

Among POc plant names trisyllables are rarer than disyllables, reflecting a pattern in POc stems generally. The first syllable of a number of trisyllables is reconstructed as **ka-*, with perhaps greater than chance frequency, and it seems probable that at least some of these also reflect the construction with **kayu* posited above. Examples are:

POc	<i>*kanawa(n)</i>	‘ <i>Cordia subcordata</i> ’	ch.5, §4.1.1
POc	<i>*katita</i>	‘the putty nut’	ch.7, §5.10
POc	<i>*kasiala</i>	‘a palm, <i>Caryota</i> sp.’	ch.7, §5.11.1
POc	<i>*kalaka</i>	‘ <i>Planchonella</i> sp.’	ch.7, §4.10
POc	<i>*kapika</i>	‘Malay apple’	ch.11, §3.7
PWOc	<i>*kasuwai</i>	‘mango’	ch.11, §3.4
PWOc	<i>*kapu(r,R)ik</i>	‘k.o. wild melon’	ch.13, §7.4
POc	<i>*[ka]ŋaRi</i>	‘canarium almond’	ch.11, §2.1
POc	<i>*[ka]timun</i>	‘cucurbit (generic)’	ch.13, §7.4

The inference that **ka-* was indeed a prefix is strengthened by the fact that in the last two cases there are reflexes of forms with and without **ka-*, i.e. **kaŋaRi* vs **ŋaRi*, **katimun* vs **timun*, implying either that **ka-* was an omissible prefix, or that **ka-* was part of the stem but was reanalysed as an exemplar of the prefix and hence deleted.

The Bola (MM) reflex of POc **[ka]ŋaRi* is *taŋari*, implying either replacement of one (perceived) prefix by another or some form of wordplay. The Kairiru (NNG) reflex of **kalaka*

is *lalak*, apparently a reduplication of suffixless **laka*. POc **[ja]latoŋ* ‘nettle tree’ has reflexes with and without POc **ja-*, and **ja-* is replaced in PNCV by **ga-* (ch.7, §6.3.2). Again this implies prefix replacement or wordplay.

7.1.3 Reflexes of POc **puqu(n)* ‘tree, shrub’ and **raun* ‘leaf’

In certain NCV languages tree names occur with one of two prefixes. In Tamambo, stems naming trees and large bushes (but not other plant types) are regularly prefixed with *vu-* ‘tree’, e.g. *vu-mambue* ‘chestnut tree’, *vu-niu* ‘coconut palm’, *vu-ŋai-ŋai* ‘canarium nut tree’ (Jauncey 1997). Vines, ferns, tubers and grasses are not prefixed with *vu-*, but Jauncey observes that ‘some large kinds of bushes are marked as trees, but only if they do have a main central trunk’. This supports her inference that *vu-* reflects POc **puqu(n)* ‘base of tree; source, origin’ (ch. 4, §2.1).

Contrasting with *vu-* is the prefix *ra-* ‘leaf of (ROOT)’, reflecting POc **raun* ‘leaf’ (ch. 4, §2.5), e.g. *ra-yaviya* ‘leaf of Malay apple’, *ra-yatabola* ‘leaf of *Dracontomelon vitiense*’, *ra-moli* ‘leaf of citrus tree’.

Both prefixes derive countable units. Thus [*vu-ROOT*] means ‘a tree of the kind denoted by ROOT’ and [*ra-ROOT*] means ‘a leaf of the kind of tree denoted by ROOT’. This interpretation receives support from the fact that the prefixes also occur with *xai* ‘tree, wood’: *vu-xai* is ‘a tree’, i.e. *vu-* denotes the unit and *xai* the nature of the unit. POc **puqu(n)* meant ‘base of tree’, but by metonymy acquired the sense ‘a tree-like unit’. François (2002: 50) reports that the Araki prefixes *vi-* and *da-* have similar functions to Tamambo *vu-* and *ra-* respectively.

The corresponding forms in Fijian languages preserve largely unchanged the POc construction from which Tamambo *vu-* and *ra-* are derived. In Wayan Fijian we find the construction [NOUN *ni* NOUN]. In the broadest terms, the second noun serves as an attribute of the first. Thus in a phrase like *rau ni kulu* ‘a breadfruit leaf’, *kulu* ‘breadfruit’ specifies the type of *rau* ‘leaf’. For example:

- *vū* ‘base, bottom’ in *vū ni niu* ‘a coconut palm’, *vū ni kulu* ‘a breadfruit tree’, *vū ni koka* ‘a *Bischofia javanica* tree’;
- *rau* ‘leaf’ in *rau ni niu* ‘a coconut frond’, *rau ni kulu* ‘a breadfruit leaf’, *rau ni koka* ‘a *Bischofia javanica* leaf’;
- *vua* ‘fruit’ in *vua ni kulu* ‘fruit of breadfruit tree’ (i.e. ‘a breadfruit’).

Like Tamambo *vu-*, Wayan *vū* ‘base, bottom’ is used metonymically to refer to whole trees. As a result, like Tamambo *xai*, Wayan *kai* ‘tree, shrub’ can serve as the second noun: *vū ni kai* ‘a tree/shrub’, *rau ni kai* ‘a leaf’, *vua ni kai* ‘fruit of tree’ (i.e. ‘a fruit’), *tiki ni kai* ‘piece of wood, stick’ (*tiki* ‘part, piece’).

Wayan, like other Fijian languages, here preserves a POc noun phrase construction which had a variety of functions. Sometimes called the ‘associative’ construction in the literature of Oceanic linguistics, this construction allowed one noun to be used as an attribute modifying another. It had two forms, the choice between them depending on whether the first (head) noun was a zero-valency noun or a monovalent noun.¹⁹

¹⁹ See vol.1, ch.2, §3.2. A monovalent noun is one which may be directly possessed (František Lichtenberk 1985), i.e. may take possessor suffixes, e.g. **a qaqe-gu* ‘my leg’. Such nouns are usually semantically inalienable. All other nouns are zero-valency nouns and are indirectly possessed, i.e. the possessor suffix is attached to a separate morpheme, e.g. **a na-gu Rumaq* ‘my house’ (Lynch et al. 2002: 76–77).

Table 2.1 Classifiers in SE Solomonic languages and Proto Polynesian

	Kwara'ae	Kwaio	Lau	PPn	POc	
compact objects	<i>faʔi</i>	<i>feʔe</i>	...	<i>*foqi</i>	<i>*puaq qi</i>	'fruit'
people	...	...	...	<i>*toko</i>	<i>*tau + ? (ni)</i>	'person, body'
wooden objects	...	...	<i>?ai</i>	...	<i>*kayu (ni)</i>	'tree'
'head'	<i>g^waʔi</i>	<i>g^weʔe</i>	...	...	<i>*p^watu qi</i>	'head'
flat objects	<i>?aba</i>	...	...	...	...
vertical objects	<i>baʔe</i>	...	...	...	...
containers	<i>taʔe</i>	...	...	...	...
pieces of	<i>afu</i>	<i>meʔe</i>	...	...	...
units of class	<i>maʔe</i>	<i>māʔe</i>	...	...	<i>*mata qi ?</i>	'eye'
leaves	<i>raʔi</i>	<i>(gāʔe)</i>	...	...	<i>*raun qi</i>	'leaf'
clumps	<i>fiʔi</i>	<i>fūʔi</i>	<i>fi, fui</i>	<i>*fu(h)i</i>	PEOc <i>*pu qi (?)</i>	'clump'

In the first variant of the construction, the head noun is a zero-valency noun:

**a polo ni niuR*
 ART juice of coconut
 'coconut water' (Lynch et al. 2002: 77)

The second noun is a generic (non-specific) possessor, and thus an attribute, of the first (head) noun.

In the second variant the head noun was monovalent and in consequence *ni* was replaced by **qi*:

**a qaqe qi boRok*
 ART leg of pig
 'a pig's leg' (Lynch et al. 2002: 76)

In Fijian languages reflexes of **ni* and **qi* have been redistributed but the construction otherwise survives unchanged. This construction has a complex history in Oceanic languages (Hooper 1985, Ross 1998, 2001).

We can infer, for example, that a particular fruit tree of the species *Syzygium malaccense*, the Malay apple, would have been referred to as **(a) puqu(n) ni kapika* (**a* ARTICLE; *kapika* *Syzygium malaccense*, ch.11, §3.7), that a leaf and a fruit of the species would have been referred to respectively as **(a) raun ni kapika* and **(a) puaq ni kapika* or, if the head nouns were directly possessed in POc, as **(a) raun qi kapika* and **(a) puaq qi kapika*. We can also infer that Tamambo *vu-* and *ra-* and their cognates in other NCV languages reflect a grammaticisation of this construction with considerable phonological attrition.

This POc construction is also reflected in Kwara'ae plant naming, but in a rather different way from NCV. Henderson & Hancock (1988: 277) report that the name of a small tree is optionally preceded by *faʔi* and the name of a plant that grows straight without branching (and some that do branch) by *fiʔi*, e.g. *faʔi keto* or *keto* 'Macaranga spp.', *fiʔi arakai* or *arakai* 'yam sp., *Dioscorea pentaphylla*'. Kwa'ioloa & Burt (2001) translate *fiʔi* as 'clump', which is probably more accurate than Henderson and Hancock's characterisation.

The morphemes *faʔi* and *fiʔi* belong to a set of classifiers described in Deck's grammar and used principally for counting (1934: 7–10). These are listed in Table 2.1 along with corresponding forms in closely related Kwaio and Lau, the Proto Polynesian classifiers reconstructed in POLLEX, and the POc nouns from which they are derived.

Several of the Kwara'ae classifiers share the form monosyllable + *-ʔi* or *-ʔe*. Their common form reflects their shared origin in the POc construction [MONOVALENT NOUN **qi* NOUN] described above.²⁰ The likely POc usage from which the classifiers in Table 2.1 are derived is illustrated below:²¹

**i-tolu* *puaq* *qi* *pudi*
 3SG-three fruit of banana
 'three bananas' (= '(there are) three fruit of banana') (Lynch et al. 2002: 74)

**i-tolu* *puqun* *ni* *pudi*
 3SG-three trunk of banana
 'three banana trees' (= '(there are) three trees of banana')

Some classifiers did not combine with **qi*, either because they remained disyllabic or because they were derived from zero-valency nouns which instead headed the POc construction [ZERO-VALENCY NOUN **ni* NOUN].

The classifier *faʔi* is described by Deck as being used to count round, compacted or heaped units, but it seems to me that, like reflexes of PMP **buaq*/POc **puaq* 'fruit' (ch.4, §2.8) in a number of Austronesian languages, it is the default classifier for countable inanimate objects, i.e. it is used when no other classifier is more appropriate.²²

7.1.4 POc **mala-* 'resembling'

Plant names which begin with the POc prefix **mala-* 'resembling' occur quite frequently in Oceanic languages.²³ This has evidently been an important means of forming new plant names, most often by exploiting the resemblance of one tree to another.²⁴ As in the reduplicative process described below (§7.2), the tree denoted by a name with **mala-* is generally inferior in some way to the one denoted by the plain root.

Examples from Nakanai (MM) are: *mala-savula* 'a plant, *Ficus* sp.' (< *savula* 'the fruit of a tree, candlenut, *Aleurites moluccana*'); *mala-sesege* 'a plant, *Acrostichum aureum*' (< *e-sesege* 'small black crablike shellfish (PLURAL)'); *mala-viva-viva* 'a wild shrub, *Clerodendron paniculatum*, considered to be related to *e-viva* 'cultivated shrub with edible leaves,

²⁰ The grammaticisation of [MONOVALENT NOUN **qi*] to form numeral classifiers had perhaps already occurred in PEOc (Pawley 1972: 35–36, 59), but it is possible that SE Solomonic and Polynesian forms represent independent grammaticisations.

²¹ The numeral was apparently a verb in this construction.

²² Henderson & Hancock (1988: 277) write that *faʔi* means 'small tree'. This is not correct: it is used with small trees because no other classifier is more appropriate.

²³ The matters discussed in this section and the next are treated in greater detail in Ross (2005).

²⁴ On SE Solomonic evidence **mala-* is probably a grammaticisation of a verb **mala* 'resemble'. For Kwaio Keesing (1975) records *mala-* 'prefix of resemblance', *mala-* 'resemble'. For Arosi Fox (1978) records *mara* 'like, as; imitate' (*mara ia* 'like him'). In these languages, the reflex of **mala-* evidently remains productive, but I have also found limited evidence of productivity in some languages outside the SE Solomonic group.

Abelmoschus manihot'. Similar examples are found in other Meso-Melanesian languages: Kara and Patpatar of New Ireland and Nehan of Nissan Island (Ross 2005).

In Kwara'ae (SES), Kwa'ioloa & Burt (2001) note the following instances:

<i>mala-ŋali</i>	' <i>Canarium asperum</i> '	<i>ŋali</i>	'canarium nut, <i>C. indicum</i> '
<i>mala-ʔadoʔa</i>	' <i>Canarium harveyi</i> '	<i>ʔadoʔa</i>	' <i>C. salomonense</i> '
<i>mala-ʔafiʔo</i>	' <i>Syzygium aqueum</i> '	<i>ʔafiʔo</i>	'Malay apple, <i>S. malaccense</i> '
<i>mala-rufa</i>	' <i>Metrosideros parviflora</i> '	<i>rufa</i>	' <i>Syzygium lauterbachii</i> '
<i>mala-ʔasai</i>	'wild mango tree, <i>Mangifera mucronulata</i> '	<i>ʔasai</i>	'mango tree, <i>M. indica</i> '
<i>mala-kona</i>	' <i>Burckella sorei</i> '	<i>kona</i>	' <i>B. obovata</i> '
<i>mala-dili</i>	'a shrub, <i>Dracaena angustifolia</i> '	<i>dili</i>	'a shrub, <i>Cordyline fruticosa</i> '

In Raga (NCV), Walsh (2004) notes *mal-buliva* 'unidentified *Ficus* sp.' (< *buliva* '*Ficus aspera*'), *mal-ɣaviya* 'unidentified tree sp.' (< *ɣaviya* 'Malay apple, *Syzygium malaccensis*'), *mal-walahi* 'unidentified tree sp.' (< *walahi* '*Semicarpus vitiensis*') and *mal-bei-bei* 'unidentified *Polyscias* sp.' (< *bei* '*Polyscias* sp.').

Examples are also found in Fijian and Polynesian languages. Like reduplication as a process in forming plant names, POc **mala-* as a plant-name formative receives support from evidence outside Oceanic which suggests that it is descended from a PMP form (Ross 2005).

7.2 Reduplication

A reduplicated form (usually with CVCV-) in Oceanic often encodes the perception that the denotatum is inferior to or a diminutive of the denotatum of the unreduplicated form. In the case of plant names, reduplication often means that the denotatum is a wild variety of the cultivated plant denoted by the unreduplicated form. It seems likely that this reduplicative derivational process occurred not only in POc, but at least as early as Proto Malayo-Polynesian.

Thus in Dobu (PT) Arnold (1931) cites *rabia* 'sago palm' vs *rabi-rabia* 'useless sago palm', *magi* 'areca palm' vs *magi-magi* 'useless palm resembling areca palm', *boro* 'taro' vs *boro-boro* 'wild taro', *udi* 'banana' vs *udi-udi* 'wild banana'.

From closely related Kilivila (Trobriand Islands) Ralph Lawton (pers. comm.) provides *natu* 'a tree with edible fruit like mango' (probably *Burckella obovata*—MR) vs *gi-natu-natu* 'a tree with inedible fruit', *meku* 'a hardwood tree used for carving' vs *kai-meku-meku* 'a tree no good for carving' (*kai* 'tree'), *seda* 'a nut tree' vs *seda-seda* 'a tree without nuts'.

The POc term ancestral to Dobu *udi* 'banana' was **pudi* (ch.9, §3). Its reduplicated form **pudi-pudi* is a candidate for reconstruction with the meaning 'wild banana', at least in PWOc.

PWOc **pudi-pudi* 'wild banana' (Ross 1996c)

NNG: Kove	<i>puri-puri</i>	'wild banana' (<i>puri</i> 'banana'; A. Chowning, pers. comm.)
NNG: Mangap	<i>pin-pin</i>	'wild banana' (<i>pin</i> 'banana')
PT: Dobu	<i>udi-udi</i>	'wild banana' (<i>udi</i> 'banana')
PT: Sudest	<i>yudu-yudu</i>	'wild banana seeds' (<i>yudu</i> 'banana')
MM: Ramoaaina	<i>udu-udu</i>	'wild banana' (<i>un</i> 'banana')

Other reduplicated forms in Ramoaaaina are *lāma* ‘coconut tree or fruit’ vs *lāma-lāma* ‘wild coconut tree or fruit’ and *bara* ‘breadfruit’ vs *bara-bare* ‘wild breadfruit’. For nearby Patpatar Peekel (1984) lists *tuh* ‘sugarcane, *Saccharum officinarum*’ vs *tuh-tuh* ‘wild sugarcane, *Saccharum spontaneum*’, *pulaka* ‘Polynesian arrowroot, *Tacca pinnatifida*’ vs *pulaka-pulaka* ‘wild varieties of Polynesian arrowroot’, *sier* ‘betelpepper vine, *Piper betle*’ vs *sier-sier* ‘a vine, *Piper fragile*, *P. singkojang* or *P. banksii*’.

Wayan Fijian has *niu* ‘coconut palm’ vs *niu-niu* ‘cycad, *Cycas circinalis*’ and *vara* ‘germinating coconut’ vs *vara-vara* ‘taxon of fleshy herbs, particularly orchids’.

Biggs (1991: 67–69) notes that reduplication was one of the devices used by the newly arrived Eastern Polynesian ancestors of the Māori to name New Zealand plants which resembled those they had known in their eastern Polynesian homeland. His examples include Proto Polynesian **futi* ‘banana’ vs Māori *huti-huti* ‘sweet potato variety’, Proto Polynesian **kawa* ‘*Piper methysticum*’ vs Māori *kawa-kawa* ‘*Macropiper excelsum*’ and Proto Polynesian **koli* ‘tree or shrub with perfumed fruit’ vs Māori *kori-kori* ‘a buttercup, *Ranunculus insignis*’.

In Marovo (MM) several forms are found with a somewhat different semantic derivation. Here the reduplicated base denotes a feature which somehow characterises the plant denoted by the reduplicated form. Hence *vose-vose* ‘a tree of the deep forest, used for making paddles etc’ (< *vose* ‘paddle’), *muta-muta* ‘a forest tree with sap the smell of which causes vomiting’ (< *muta* ‘vomit’), and *ta-talo* ‘a sea plant with calcified leaves, *Halimeda* sp.’ (apparently < *talo* ‘taro’).

3 *Ethnobotanical classification*

BETHWYN EVANS

1 Introduction

This chapter examines the ways in which Proto Oceanic (POc) speakers classified their knowledge of plants through the reconstruction of semantic categories and their associated labels for higher-order taxa and the hierarchical taxonomies they imply. Five POc terms (**kayu* ‘tree, shrub’, **waroc* ‘vine’, **pali[s,j]i* ‘grass’, **taliŋa* ‘mushroom’ and **limut* or **lumut* ‘moss, algae’) are clearly reconstructable based on reflexes in a wide range of Oceanic languages, but the semantic scope of these terms and other possible higher-order taxa that denote types of plants not encompassed by these five taxa are more difficult to reconstruct.¹

2 Ethnobiological classifications

It seems to be a human universal to classify flora and fauna into what can be described as hierarchies of labelled taxa. For example, in Wayan Fijian *bau leke* (dwarf *bau*), the name for *Planchonella gabari*, a tree that grows in mid-altitude forests, is one of four kinds of *bau*, the generic term that refers to the *Burckella*, *Manilkara*, *Palaquium* and *Planchonella* species of the Sapotaceae family, woody trees used for making boats, chests and house posts. In turn *bau* is one of 200 or more kinds of *kai*, the generic name for trees and shrubs (Pawley & Sayaba 2003). Thus *kai*, *bau* and *bau leke* form part of a hierarchy of decreasing inclusiveness of botanical terms in Wayan Fijian, schematised in Figure 3.1, and shown in more detail in Figure 3.2 below.

Not only is the hierarchical classification of flora and fauna an apparent human universal, but the striking similarities in ethnobiological taxonomies across different societies from different parts of the world suggest the presence of universal or general principles of ethnobiological classification. Berlin (1992) argues that these general principles have a cognitive explanation. He proposes that within the biological reality of a local habitat there are

¹ Thanks to Ian Scales for his help with describing the Nduke ethnobotanical classification and to Andrew Pawley for his detailed comments on earlier versions of this chapter, including help with the description of the Wayan Fijian system of classifying plants. Thanks also to Malcolm Ross for comments on earlier versions of this chapter. This paper has also benefited from the comments and suggestions of various people at the Oceanic conference in 2004 where an earlier version of the paper was presented.

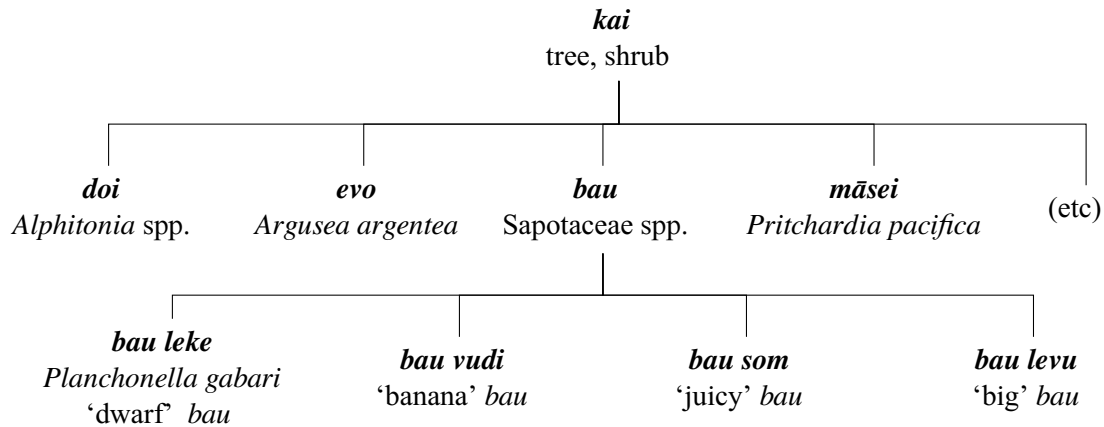


Figure 3.1 The hierarchical structure of ethnobiological classifications, exemplified by Wayan Fijian

readily definable ‘chunks’ that are recognised within folk taxonomies. That is, ethnobiological taxonomies result from the human ability to recognise the single pattern of morphological similarities within a local flora and fauna that stands out from all other patterns (Berlin 1992: 9, 13). Others, such as Diamond (1966) and Hunn (1982), argue that ethnobiological classifications are more culturally specific and based on utilitarian principles. Perhaps more realistically, Hays (1982: 93) proposes that ethnobiological classifications are ‘products of a number of complex interacting factors: biological discontinuities in nature, chance historical events, ‘utilitarian’ human concerns, human cultural concerns in a broader sense, intellectual curiosity, and constraints deriving from the nature of human perception and cognition’.

One of the general principles of folk taxonomies proposed by Berlin et al. (1973), and revised in Berlin (1992), is that they all comprise taxa distributed across no more than six mutually exclusive ranks, such that the taxa within each rank show certain similarities to each other and are separate from other taxa within the rank by perceptual gaps. The six ranks, in order of decreasing inclusiveness are: kingdom, life-form, intermediate, generic, specific and varietal, and it is often the case that only the life-form, generic and specific ranks within a taxonomy will be named.

Kingdom is a unique primary taxon, a single taxon that incorporates all taxa of lesser rank. In terms of ethnobotanical classification such a category will tend to correspond to the biological taxon *plantae*; the English term *plant*, in its broad sense. Life-form taxa are not included in any taxa other than that of the kingdom and mark a small number of types (between 5 and 10) based on the recognition of distinctive morphological structure. English *tree*, *grass* and *vine* are life-form taxa. Folk generics will comprise the largest number of taxa within a system, with some communities distinguishing as many as 500 to 600 generics. The total will depend on how closely the community interacts with their plant environment and on how rich the flora is in the region. These taxa denote categories that are considered distinct on the basis of their shared morphological structure and ecological behaviour. The majority of taxa within the generic rank are monotypic and form the lowest level within the classification, and although most folk generics are included within a life-form rank, some are unaffiliated, usually because of their morphological uniqueness or sometimes their economic significance. Taxa of the specific rank are directly subordinate to the folk generics and are

usually few in number. Berlin (1992: 24) suggests that subgeneric taxa are in part motivated by cultural considerations, and tend to refer mainly to domesticated plants and animals.

Berlin (1992: 26-35) also argues that there are cross-cultural similarities in the ways in which the taxa of each rank within a taxonomy are named. The kingdom rank, which Berlin implies is a generally recognised one, will often be an implicit category without an overt label.² If labelled it will often be with terms that are polysemous with some subordinate rank. Life-form taxa are generally labelled by non-compound lexical units, although as with the kingdom rank, they are sometimes covert (non-labelled) taxa. Folk generics are also labelled by non-compound lexical units, in contrast to the subordinate specific rank which tends to have compound labels. Berlin (1992: 29-30) notes two conditions under which taxa below the level of folk generic may be labelled by non-compound lexical units. The first is when one taxon of a folk generic is considered to be the prototype of the generic taxon, in which case a primary name may be polysemous denoting both the generic and subgeneric taxa. Taxa below the folk generic level may also be labelled with a primary name if they represent a plant or animal of major cultural importance.

These typical naming strategies can be demonstrated by the Wayan terms in Figure 3.1. The taxa *kai* 'tree, shrub' and *bau* 'Sapotaceae species', apparently life-form and generic taxa respectively, are labelled by non-compound lexical units, whereas the specific rank, for example *bau leke* '*Planchonella gabari*', is labelled by a compound that incorporates the term for the folk generic. As expected the kingdom level taxon in Wayan is not overtly labelled, although *kai* 'tree, shrub' is sometimes used to refer to all plants, most commonly in phrasal expressions, such as *vūniwai ni kai* 'a doctor (i.e. scholar) of trees/plants, botanist' (Gardner & Pawley 1992: 9). Wayan Fijian *uvi* is a non-compound term that labels a taxon below the level of the folk generic. Most specifically *uvi* denotes a particular type of cultivated yam, *Dioscorea alata*. However, as the most prestigious cultivar, this label also denotes the more general taxon that encompasses the various species of *Dioscorea* (Gardner & Pawley 1992: 12, 14).

There are a number of ways in which the above description of ethnobiological taxonomies is too simplistic. Gardner & Pawley (1992), for example, note a number of problems with assigning taxa within the Wayan Fijian folk classification of plants to ranks within Berlin's (1992) model. As mentioned Wayan *kai* 'tree, shrub' can be treated as a life-form category; it denotes a highly distinctive morphotype, incorporates a large number of taxa of a lesser rank, which are apparent folk generics with primary names, and it is named by a primary (non-compound) lexeme. Wayan *kai* 'tree, shrub' contrasts with two other major categories *ō* 'grass' and *wā* 'vine'. However, these two taxa behave somewhat differently from *kai*, raising questions about the notion that they are of equivalent status within the system of classification. While *ō* 'grass' and *wā* 'vine' denote highly distinctive morphotypes and incorporate a reasonably large number of lesser ranked and heterogeneous taxa, subtaxa of these categories often have binominal labels that include the generic labels *ō* and *wā* (see §3). Although Gardner & Pawley (1992: 13) conclude that *ō* 'grass' and *wā* 'vine' can be analysed as equivalent ranks to *kai* 'tree, shrub', it is important to note that not all taxa representing the same rank within a taxonomy will behave in the same way.

² Berlin (1992: 190-194) presents both linguistic and behavioural evidence which can be used to determine the presence of covert kingdom rank categories.

Hunn (1982: 836), on the other hand, argues that the notion of taxonomic rank is ‘a purely formal distinction imposed by the analyst’ and questions whether a taxonomic hierarchy model is an appropriate way to describe and explain ethnobiological classification systems. He presents a number of arguments against a model of folk biological classification based on categories distinguished by general morphological characteristics and in favour of one based more on the practical significance of the classification within the culture. Hunn presents data that point to a cultural basis for life-form taxa in a number of languages. For example, in Sahaptin (Columbia Plateau, United States) the boundaries of the taxa *c’íc’k* ‘grass’ and *latít* ‘flower’ are best defined in terms of cultural practices rather than morphological characteristics alone. So *c’íc’k* ‘grass’ encompasses all herbaceous plants (which are not *latít* ‘flowers’) that are not otherwise named. All such named plants are considered useful in some way, and so plants encompassed by *c’íc’k* ‘grass’ (or *latít* ‘flower’) are defined as non-useful and are grouped together ‘only by virtue of having been passed over in the process of cultural recognition’ (Hunn 1982: 834-5, 838). Thus Sahaptin *c’íc’k* ‘grass’ and *latít* ‘flower’ are residual categories, a notion which is problematic within Berlin’s 1992 model of taxonomic ranks.

Speakers of a language may also have more than one way of classifying plants. The Wayan taxonomy described in most detail by Gardner & Pawley (1992) is one that conforms to Berlin’s model of folk taxonomies based on general biological criteria. It is a taxonomy which at each level recognises a number of apparently mutually exclusive categories based primarily on morphological and ecological features. However, they also note the presence of a second system of classification, based mainly on the uses and cultural status of plants, which comprises categories that cut across those of the other taxonomy (Gardner & Pawley 1992: 15, see also §3 for more details of the Wayan classification of plants). Randall (1976) demonstrates the presence of apparently contradictory categories in folk taxonomies in both English and Samal, a language of the Philippines. Following the expected hierarchy of increasing inclusiveness, in Samal *sagbot tahik* ‘seaweed’ is classified as a type of *sagbot* ‘non-woody vegetation’, which in turn is a category of *tumbutumbuhan* ‘vegetation’ which is a taxon of *isi gumi* ‘flesh of the land’. But *sagbot tahik* ‘seaweed’ is not actually a kind of land flesh (Randall 1976: 546-547). Kwa’ioloa & Burt (2001), on the other hand, describe the higher levels of the ethnobotanical taxonomy of Kwara’ae (SE Solomonic) as a continuum such that particular labelled folk generics or species may be referred to by different higher level taxa under different circumstances.

Hays (1976) goes further and notes that individual speakers of a language will not all have the same knowledge and classification of plants, thus questioning what the description of a folk taxonomy is really representing. Is it a description of a taxonomy comprising the elements that are shared by the majority of speakers? Or a taxonomy comprising the combination of elements from the majority of speakers? Hays demonstrates how amongst the Ndumba speakers of the New Guinea Highlands the knowledge of plant names and classification is variably distributed. Hays has recorded 1,247 plant names in Ndumba, but only 970 items or 77.8% were known to all ten speakers within his sample. However, both these figures are misleading in terms of the number of plant names known by individual speakers, which are less than the combined lexicon of 1,247 and greater than the shared lexicon of 970 items (Hays 1976: 493-494). Interestingly, Hays found that the variation in individuals’ taxonomic models occurred in the middle of the hierarchy with the folk generic and species ranks, while all speakers agreed on life-form and varietal ranks.

Nevertheless the following descriptions of ethnobotanical classifications in modern Oceanic languages are presented within Berlin’s (1992) model, as it provides a clear and con-

sistent way of presenting such classifications cross-linguistically. Also for the majority of Oceanic languages the data is not available to me to present more realistic classifications based on the range of factors noted by Hays (1982) as relevant, including the utilitarian factors described by Hunn (1982). The folk classification of plants for five Oceanic languages, Wayan Fijian, Kwara'ae (SE Solomonian), Nduke (Meso-Melanesian), Arosi (SE Solomonian) and Samoan (Polynesian), are described below. Gardner & Pawley (1992) present the classification of plants in Wayan following Berlin's model and this description is closely followed in the account of Wayan given below. For the other languages, however, the description of a folk classification of plants within Berlin's model is a reinterpretation of data presented in other sources. Kwa'ioloa & Burt (2001), a detailed catalogue of plant names and their uses, also presents information on the traditional Kwara'ae classification system which is described here in terms of the ranks within Berlin's model. For Nduke, Arosi and Samoan the data on ethnobotanical categories has been collated from dictionaries (Scales n.d. Fox 1978 and Milner 1966, respectively) and thus the reinterpretation of the data within Berlin's model entailed not only decisions on the rank of particular terms, but also on the hierarchy itself and the inclusiveness of particular lexemes.

In line with Hays' (1982: 93) range of explanations for folk taxonomies, the similar types of categories found within ethnobotanical classifications in Oceanic languages are unsurprising for a number of reasons. First, many features of the botanical classifications in Oceanic languages are those that would be predicted on the basis of what Berlin (1992) proposes as universal tendencies. For example, the life-form taxa of many Oceanic languages distinguish between woody plants, climbing or creeping plants and grass-like plants, morphological characteristics that form the basis of life-form taxa in many folk taxonomies (see also Brown 1984). Further, since Oceanic languages are spoken within regions having more or less similar flora and fauna, it is not unexpected that more specific details of ethnobotanical classifications would be similar across Oceanic languages. Traditional Oceanic societies also share similar foraging-horticultural lifestyles, and thus certain utilitarian aspects of botanical folk taxonomies would also be expected to be similar. And finally, since all Oceanic languages are related, their systems of ethnobotanical classification might be expected to be similar because they have a common origin. Cognate lexical labels across modern Oceanic languages provide evidence for the common origin of certain taxa, and their reconstruction for POc.

Pawley (2000) describes differences in the stability of terms denoting different types of taxa within ethnobiological classifications of Oceanic languages. He finds that the modifying terms in binomial names for folk specifics are much less stable than the terms for folk generics, and suggests that one explanation for this is that species show a wide range of distinctive morphological and ecological characteristics from which one is picked out and named by the modifier in a binomial label, and such modifiers are liable to be replaced by competing labels (Pawley 2000:37). Higher-order generics (for example, life-form taxa) tend to be just as stable in form as folk generics, but less stable in meaning. The reason for this, Pawley (2000: 37) suggests, is that these higher-order taxa form much less homogeneous categories than lower-order taxa. They tend to consist of a disparate class of animals or plants which are linked by relatively few distinguishing characteristics, a situation which allows speakers to extend or contract the boundaries of the class for certain purposes more easily. This can be seen particularly with the descriptions of Kwara'ae *?ai* and Wayan *ō* below which have

both broad and narrow conventionalised meanings.³ It is important to note that here, perhaps more than in other semantic domains, the reconstructions represent only a part of the original system and project a uniformity that is most likely unrealistic in a number of respects.

Pawley (2000: 3–4) proposes that detailed reconstructions of lexical semantics are best made using what can be called the ‘terminological method of reconstruction’. Thus hypotheses about the meanings of reconstructed lexical items are made within a particular semantic field and with reference to semantic relationships between terms within a semantic domain on the basis of the semantic field in modern Oceanic languages (see also Ross et al. 1998: 4–6). In accord with the terminological method the following section examines the ethnobotanical classifications found in a number of modern languages as a preliminary to reconstructing botanical life-form taxa for POc. Section 4 presents cognate sets which suggest the reconstruction of terms expected to have occurred in POc. The meanings of the POc etyma reconstructed are based on both the meanings of the reflexes in daughter languages and on the apparent contrasts within the POc systems of ethnobotanical classification.

3 Botanical taxonomies in modern Oceanic languages

Comparison of ethnobotanical classifications across modern Oceanic languages is rather difficult since there are few detailed descriptions of such systems. Nonetheless, from the descriptions I’ve found and from dictionary searches it can be seen that a number of Oceanic societies have similar, though by no means identical, types of ethnobotanical taxonomies.

3.1 Wayan Fijian

One of the better described Oceanic systems of ethnobotanical classification is that of Wayan Fijian, as presented in Gardner & Pawley (1992) and Pawley & Sayaba (2003). Figure 3.2 shows schematically the major parts of the higher order botanical taxa in Wayan Fijian.

As in many Oceanic languages, in Wayan there is no single lexical item that conventionally denotes all plants in contrast to non-plants. Rather this is a covert category which is occasionally overtly expressed through the extension of the terms *kai* or *ō*, which primarily denote life-form categories (Gardner & Pawley 1992: 8–9). When used in a broad sense *ō* denotes all leafy plants including bamboos, trees, reeds and vines, but does not include mosses, lichens and mushrooms. Wayan Fijian has general terms *taliŋa* ‘generic, includes various kinds of fungi, eg. mushrooms, bracket fungi’ and *lumelume* ‘algae, green slime which grows on reefs and keels of boats, and in rivers and ponds’. However, there is no evidence in Wayan for a taxon that is higher than the broad uses of *kai* and *ō* which would encompass ‘leafy plants’ as well as fungi, mosses and lichens (Andrew Pawley pers.comm.). The primary taxa of plants in Wayan, and those which appear to represent Berlin’s (1992) life-form rank, include three major categories, *kai*, *wā* and *ō*, as well as a number of smaller taxa. The taxon *kai*, defined

³ Randall (1976) argues that taxonomic tree hierarchies are probably not stored directly in the memory, but rather when necessary people can recall the perceptual characteristics of classes of flora and fauna to be used for different purposes, including gardening, foraging, naming plants and creating classification schema. If this is indeed the case, then a reason for changes in the meaning and scope of higher-order taxa within a classification may also be the result of changes in speakers’ views of what fits within a taxon each time it is used for a particular purpose.

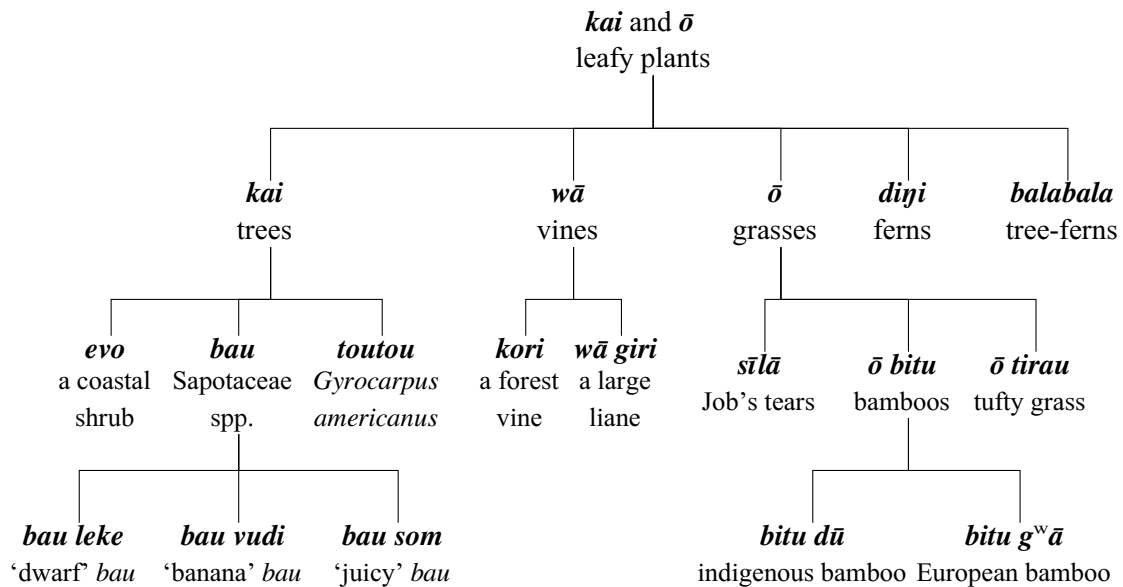


Figure 3.2 A partial ethnobotanical taxonomy of Wayan Fijian

in the Wayan dictionary (Pawley & Sayaba 2003) as ‘generic for trees and shrubs, and occasionally low bushy plants’, includes plants with vertical woody stems and branches. Palms are classified as *kai*, but bamboos and bananas are not. The term *wa* is the generic for plants which creep, scramble or climb above the ground, regardless of whether they have woody stems or not (Gardner & Pawley 1992: 9). The term *o* is the generic for grasses and herbs, including grasses and grass-like plants, as well as small flowering plants that lack woody stems (herbs). Also classified as *o* are grass-like plants with woody stems such as bamboo, sugarcane and reeds. Wayan also has a couple of other primary taxa which cover much smaller groups of named plants including *diji*, generic for medium-sized terrestrial ferns and *balabala*, generic for tree-ferns and sometimes also other large ferns. These taxa of plants in Wayan Fijian are primarily defined by morphological and ecological characteristics of the plants.

- kai** 1. Wood 2. Generic for trees and shrubs (and occasionally low bushy plants) 3. Used in certain compounds as a generic for all plants.
- wa** 1. Generic for scrambling and climbing plants; creeper, vine. 2. Cord, rope, string.
- o** 1. Generic term includes mostly non-bambusoid grasses and a few sedges and herbs. 2. Used as first element in compounds as a generic term for any leafy plant including bamboo, trees, reeds, and vines. Plants which are not *o* in sense 2 include mosses, lichens and mushrooms.
- diji** Generic for ferns, includes at least the following two medium-sized terrestrial ferns: *Nephrolepis biserrata* (Davalliaceae) and *Sphaerostephanos invisus* (Thelypteridaceae).
- balabala** Generic for tree ferns (*Cythea* species), sometimes extended to include other large ferns.

Wayan *kai* ‘tree, shrub’ encompasses about 200 named subtaxa which are again classified on the basis of shared morphological and ecological features. It is the names of these subtaxa which Wayan speakers tend to use when identifying particular plants (Gardner and Pawley 1992:10), and nearly all are folk generics. Generally the subtaxa of *kai* are the lowest-level of

classification and denote a particular species within a ‘scientific’ classification. For example, *evo*, *māsei* and *toutou* (defined below, Pawley & Sayaba 2003) are all subtaxa of *kai* which are not further subclassified in Wayan.

evo *Argusia argentea* (Boraginaceae). Large broad-leaved shrub of coastal sands, uncommon on Waya, young parts densely grey-silver hairy, small white flowers on curving branches, small black berries. Useful only for firewood.

māsei *Pritchardia pacifica* (Arecaceae). A native fan-palm, cultivated for ornament around houses. The immature seeds are sometimes eaten by children.

toutou *Gyrocarpus americanus* (Hernandiaceae). Tree of coastal slopes and rocky places inland, pale smooth bark, large oval or 5-lobed leaves with a rather strong bean-like odour, bunches of hanging 2-winged fruit. The soft wood is used for fires; it is good for carving, and formerly was used to make *ulatoka* (inshore fishing raft platforms). A medicine of some kind is made from bark, for treating internal organs.

There are also subtaxa of *kai* which are further subclassified into apparent folk specifics, as can be seen from the dictionary entries given below for *araro* and *doi* (Pawley & Sayaba 2003).

araro *Premna* sp. or spp. (*P. serratifolia*, *P. protrusa*) (Verbenaceae). Small coastal tree with entire leaves. Hard wood, much used for posts.

araro alewa *Premna serratifolia* (Verbenaceae). Small bushy tree, occasional in scrub near coast. Leaves opposite, rounded-oblong to pointed and heart-shaped, flowers smallish, green-white, small dark fleshy fruit with a hard 4-chambered stone.

araro tajwane *Premna protrusa*. A larger tree than *P. serratifolia*, with flower parts more protruding, usually found inland. Hard wood, much used for posts.

doi Generic for *Alphitonia* spp. (Rhamnaceae). Trees of open dryish forest.

doi dū *Alphitonia zizyphoides*. Tree of open dryish forest, bark and leaves smelling of oil-of-wintergreen when crushed, leaves white below, small white flowers, purplish fruit capsules.

doi drā *Alphitonia franguloides*. Uncommon tree of dryish slopes, leaves smaller and more pointed than those of *A. zizyphoides*.

The names for folk specifics tend to be binominals which include the generic followed by a modifier indicating some distinctive characteristic of the folk specific. For example, Wayan distinguishes four kinds of *bau* ‘*Sapotaceae* varieties’: *bau leke*, literally ‘dwarf *bau*’, denotes the smaller *Planchonella garberi* (Pouteria, cf. Wheatley 1992) species; *bau levu*, ‘big *bau*’ which presumably denotes larger species of *Sapotaceae*; *bau som*, where *som* means ‘to suck or eat juicy, soluble or soft, moist foods’, denotes the various *Sapotaceae* species which have milky juice; and *bau vudi*, ‘banana *bau*’ which denotes varieties with elongated (i.e. banana-like) fruit.

bau Generic, includes species of *Burckella*, *Manilkara*, *Palaquium* and *Planchonella* (*Sapotaceae*).

Wood of some of these trees is used for boats, chests and house posts. Applied to the following species growing on Waya: 1. *Burckella richii*. large tree of low- to middle-altitudes, fruit green, fleshy, cylindrical, 4cm long; 2. *Manilkara vitiensis*, smallish tree, often in exposed situations on coastal slopes; 3. *Palaquium fijiense*. smallish uncommon tree of higher-altitude forest; 4. *Planchonella garberi* (*Sapotaceae*). 5. *Planchonella grayana*, a tree of coastal and inland forest, leaves larger and rounder than those of *P. garberi*.

bau leke *Planchonella garberi* (Sapotaceae). Occasional in mid-altitude forest.

bau levu One or more species of Sapotaceae, application of name not clear.

bau som Name applied to various (perhaps most or all) members of the Sapotaceae, in reference to their milky juice.

bau vudi Name applied on mainland to members of Sapotaceae (spp. of *Burckella* and *Manilkara*), presumably because of their large and elongate fruits.

The *wā* ‘vine, creeper’ taxon includes upwards of fifty subtaxa, virtually all of which occur either optionally or obligatorily with the generic *wā* as a classifier, for example, *wā giri* or *giri* ‘*Entada phaseoloides*’ and *wā bitubitu* ‘Smilacaceae species’ (Gardner & Pawley 1992: 9, 12, Pawley & Sayaba 2003). Subtaxa of *wā* form the lowest level of classification, and the majority denote a single species, as can be seen from the following dictionary definitions of *alu*, *kori* and *wā giri* (Pawley & Sayaba 2003).

alu *Epipremnum pinnatum* (Araceae). Common forest climber, the young plant with simple oval leaves, creeping on ground, the climbing adult with stout stems and large deeply-cut leaves. Leaves provide a medicine for stomach-ache.

kori *Mucuna gigantea* (Leguminosae). Forest vine, broad bean-like leaves, flowers green, curved, broad dark pods at first with golden-brown irritant hairs, the discoid reddish grey seeds found in the drift.

wā giri *Entada phaseoloides* (Leguminosae). Large high-climbing liane of inland forest with huge leathery pods, the large discoid dark red-brown seeds common in the drift. Stems are used to tie thatching.

A small number of subtaxa of *wā* denote more than one species, but here too these subtaxa appear to be the lowest level of named classification, as with *rautolu* and *wā bitubitu*.

rautolu Generic, includes various *wā* and shrub taxa with 3-partite leaves. 1. *Canavalia rosea*. Common vine of sandy foreshore, flowers pink-purple, pods about 10 × 2 cm, often wrinkled. Leaves said to have been used after childbirth in some way. 2. *Canavalia sericea*. Local on sandy foreshore, the leaves silver-hairy. 3. *Jasminum degeneri*. 4. (obsolete) *Melicope cucullata*.

wā bitubitu Generic, includes two species of strong-stemmed vines. 1. *Smilax vitiensis* (Smilacaceae). Forest vine, stems strong, round, sometimes with a few prickles, leaves oval to heart-shaped, leathery, with a pair of tendrils at the stem, red to black 1-3-seeded berries hanging together from a dangling stalk. Used for binding rafters and making fish-traps. 2. *Geitonoplesium cymosum* (Smilacaceae). Slender but strong vine of forest understorey, small orange fruit with black glossy seeds.

The Wayan term *ō* is somewhat harder to describe. Typical *ō*-type plants are non-bambusoid grasses and some sedges and herbs. However, *ō* can also occur as the initial element in names of reeds (*ō sina*) and bamboo (*ō bitu*), suggesting that *ō* includes not only grasses and herbs, but also woody-stemmed plants that are grass-like. There are about fifty subtaxa of grasses, herbs, reeds and bamboos that are denoted by the life-form *ō* (Gardner & Pawley 1992: 12), and most of these subtaxa appear to be the lowest level of classification, whether denoting a single species as with *ō ḍaṅiḍaṅi* and *ō tirau*, or denoting several species as with *silā*.

ō ḍaṅiḍaṅi *Cymbopogon coloratus*. Lemon grass. Stout tussocky uncommon grass of dry hill-sides. Leaves smell of lemon, and are used to make tea, and for padding under house mats.

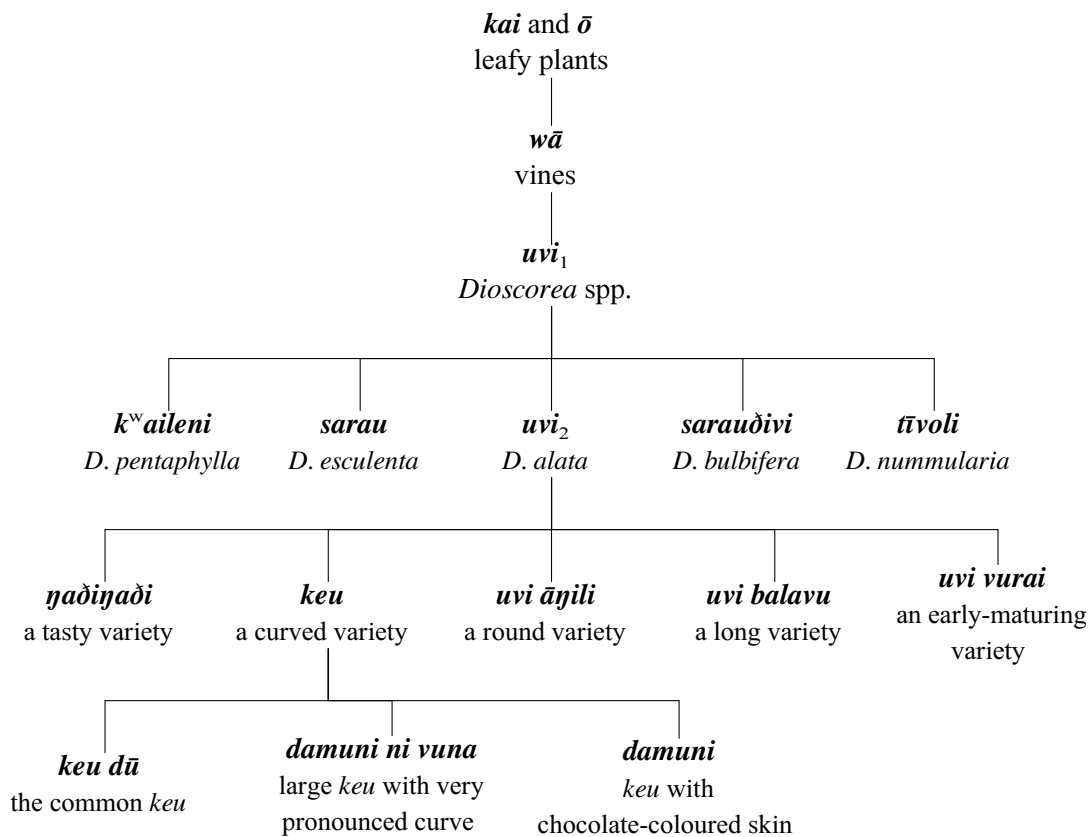


Figure 3.3 A partial plant taxonomy of Wayan Fijian, showing taxonomic depth of some cultivated food plants

o tirau *Imperata cylindrica* (Gramineae). Occasional grass of hillsides, tufts to about knee-height, flower heads silky, cylindrical. Used for thatching.

sīlā Generic, includes two large-seeded grasses (Gramineae). 1. *Coix lacrymajobi*. Job's tears. Coarse grass, fertile parts with tear-shaped blueish bony structures that enclose the true seeds. 2. *Zea mays*. Maize or sweet corn. Occasionally cultivated.

As can be seen from Figure 3.2, the taxonomy of wild plants in Wayan Fijian is quite shallow, including four named levels. The naming of cultivated food plants, however, comprises a deeper taxonomy. Thus while labels for particular species, and more commonly genera, form the lowest level of classification among wild plants, for cultivated food plants there will often be a number of named varieties below the folk species level. In fact, as shown by Figure 3.3, if cultivated food plants are incorporated in the Wayan ethnobotanical classification, the taxonomy includes at least six levels. Figure 3.3 shows this with a selection of the named types of yams. Yams are considered to be part of the *wā* 'vine' taxon, one group of which, the *Dioscorea* species are denoted by the generic term *uvi*. More specifically *uvi* denotes *Dioscorea alata* yams and encompasses a large number of named varieties, some of which are themselves further subclassified. Thus *keu* 'a variety of *uvi* with a curved tuber' has three varieties: *damuni* 'with chocolate-coloured skin'; *damuni ni vuna* 'large, with very pronounced curve' and *keu dū* 'the common variety'.

Gardner & Pawley (1992: 15) also note other categories of plants in Wayan which cut across the taxonomy presented above. For example, while in one sense *uvi* '*Dioscorea* species

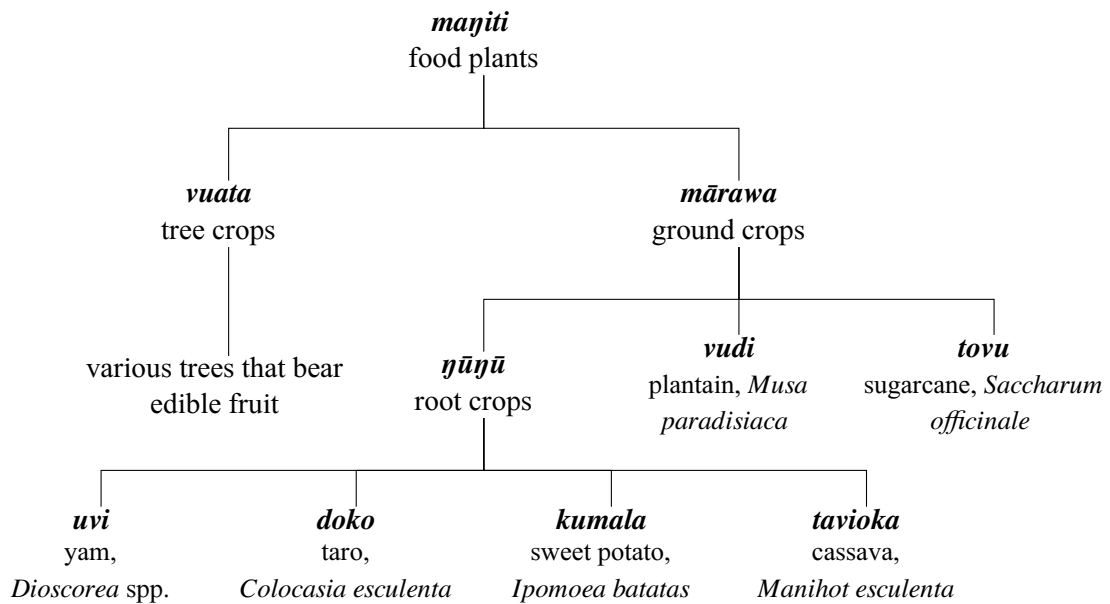


Figure 3.4 A partial classification of foods in Wayan Fijian

of yams' would be categorised as *wā* 'vines', they can also be classified as *mārawa* 'ground crops, food plants other than trees'. The system of classification that includes *mārawa* 'ground crops' is partially shown in Figure 3.4. *Mārawa* 'ground crops' contrasts with *vuata* 'tree crops, trees that bear edible fruit', and encompasses not only root crops such as yam, taro and sweet potato, but also other non-tree food crops such as melons, maize, sugarcane and bananas (Gardner & Pawley 1992: 15), and thus is not a category that fits within the taxonomy presented in Figure 3.2. This latter taxonomy is based primarily on the use and cultural status of the plants, in contrast to the former taxonomy that is based mostly on the morphological and ecological characteristics of the plants.

3.2 Kwara'ae

Kwa'ioloa & Burt (2001) present a classification and description of *rū bulao kī* 'growing things' in Kwara'ae, and this classification is shown schematically in Figure 3.5. Their classification is as much to present a catalogue of Kwara'ae plant names and uses as to describe the Kwara'ae folk botanical taxonomy, and so descriptive names have been given to groups of plants that are recognised as similar by Kwara'ae speakers, but that did not necessarily form labelled taxa originally. In developing Figure 3.5 only those labels from Kwa'ioloa and Burt which denote traditionally overt or covert categories have been included. Terms that were traditionally used by Kwara'ae speakers are in bold and those that have been developed for Kwa'ioloa and Burt's book but appear to reflect originally covert categories are in plain text. As can be seen the Kwara'ae folk taxonomy is quite shallow with only four or five levels.

The nominal use of *bulao* 'to grow' in *rū bulao kī* 'growing things' is a way to refer to the kingdom category of all plants. Most growing things can also be denoted by *?ai* 'tree', although more commonly *?ai* has a narrower meaning. It is not clear if Kwara'ae speakers traditionally recognised a category of all plants or if this category results from the need for

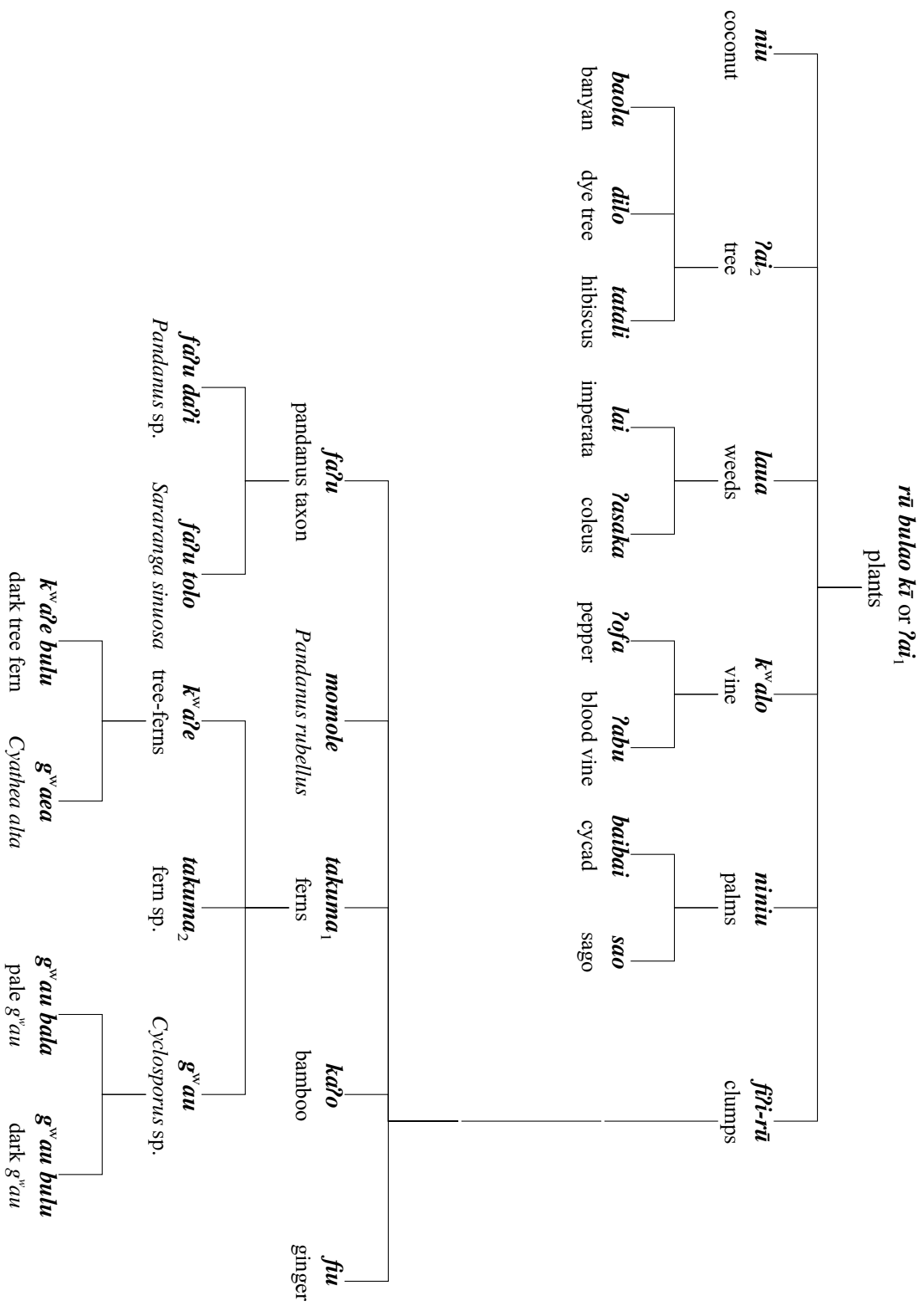


Figure 3.5 A partial ethnobotanical taxonomy of Kwara'ae

a way to talk of all plants when working on Kwai'oloa and Burt's book. Burt notes that the classification of plants by Kwara'ae speakers is mainly for 'pragmatic and utilitarian purposes' and that not all categories are mutually exclusive, but rather the categories overlap in various ways (Kwa'ioloa & Burt 2001: 16). Kwara'ae speakers appear to classify the majority of *rū bulao kī* 'growing things' into three categories: *?ai* 'tree', *fi?i-rū* 'clumps' and *k^walo* 'vines'. The distinguishing characteristics of *?ai* plants are a hard trunk and a branching growth structure. Kwara'ae *?ai* can also be used more broadly to denote palms, soft-cored trees (eg. pawpaw), cordyline shrubs, ginger and ferns, which are not considered *?ai* 'tree' in the narrow sense of the word. *fi?i-rū* 'clumps' is the descriptive term, comprising the classifier *fi?i* and the noun *rū* 'things', to denote plants that grow as a cluster of stems. Thus *fi?i-rū* 'clumps' encompasses plants like ginger, bamboos and ferns. The term *fi?i-rū* 'clumps' is listed as a possible life-form taxon in Figure 3.5, although it is not entirely clear if this is a traditional Kwara'ae taxon. However, Burt notes that this category of plants includes those which can be indicated by the classifier *fi?i*, and so traditionally *fi?i-rū* 'clumps' may have been a covert category. The term *k^walo* 'vines' denotes plants with a climbing or creeping growth structure, that is those plants used as cordage, a secondary meaning of *k^walo*. However, *k^walo* does not include the vines of edible tubers which are referred to as *k^wala*. While they appear to form the basis of botanical classification in Kwara'ae, these three life-form taxa are not mutually exclusive but rather seem to be labelled groups along a continuum of morphological characteristics, such that *?ai* 'tree' normally referring to plants with single hard stems and branches may sometimes be used to refer to cordyline shrubs, which under other circumstances may be referred to as *fi?i-rū* 'clumps'.

Palms do not fit within this three-way classification at all. As noted, palms may be referred to as *?ai*, but only in its broad sense that denotes all plants, and not in its more narrow sense. Burt (Kwa'ioloa and Burt 2001:17) describes palms as a covert category. Kwara'ae speakers generally refer to palms by the individual names, but recognise and readily acknowledge the similarities amongst them. Palms may be described as *rū ki gasi?i rebani* 'things we tear into flat pieces', denoting their shared use for slatting and battens. This is a function that characterises palms, but is not restricted to them. Kwa'ioloa and Burt (2001:186) use the word *niniu* to label the category of palms, describing it as denoting kinds of trees (*?ai*) that are similar in being tall and erect with leaves that emerge from a stave or mid-rib. Members of the *niniu* taxon are not eaten or burnt as fuel, but are important in making platforms and walls as well as battens for thatching, and their fronds are used for making brooms. The term *niniu*, an apparent reduplication of *niu* 'coconut, *Cocos nucifera*' suggests that this category may be based on resemblance of form and use of palms to *niu* 'coconut'. However, *niu* 'coconut' itself is not referred to as *niniu*, probably because of its common occurrence and importance (Kwa'ioloa and Burt 2001:17).

The other small category of plants that does not fit within any of the three major categories is *laua* 'weeds'. It denotes small plants that 'can (and often should) be 'pulled up' when they grow in places like gardens' (Kwa'ioloa and Burt 2001:17). However, the term *laua* can also be used to refer to seedlings or saplings.

Kwara'ae *?ai* 'tree' is a large category with over 200 named types described in Kwa'ioloa and Burt (2001:102-181). They classify *?ai* into three groups: (i) *?ai doe kī* 'big trees'; (ii) *?ai ne?e kesi doe liu go?o kī* 'trees which don't get very big'; and (iii) *?ai ne?e ti?iti?i go?o kī* 'trees which are just small'. These descriptive labels and the groups they represent appear to have been established for the convenience of Kwa'ioloa and Burt's (2001) book, and it is unclear if

they are in common usage amongst Kwara'ae speakers. Thus they are not listed in Figure 3.5. The majority of the named types of *?ai* appear to denote single scientific species and form the lowest level of classification. However, a few are further subclassified. For example, *lamilami* 'archidendron, *Archidendron oblongum*' denotes two named varieties of *Archidendron oblongum* that appear to be distinguished on the basis of morphological characteristics. The small tree, *?ala?ala* '*Codiaeum variegatum*' also encompasses a number of named varieties (Kwa'ioloa and Burt 2001:134, 175).

lamilami A very big tree, archidendron, *Archidendron oblongum*.

etana lamilami First archidendron. A big tree with brown trunk, wide leaves and a yellow flower that has an acute smell, which grows in the lowlands and beside big bodies of water. Used for making canoes, cooking houses and for fuel.

ruana lamilami Second archidendron. A very big tree with buttress roots and a whiteish trunk that grows in swamps and mangroves. Used for building houses and for fuel.

?ala?ala Croton, *Codiaeum variegatum* species. A small tree that grows wild in the lowlands and by the sea and is planted around homes. Fronds used for decorating houses and people.

?ala?ala marako Green *?ala?ala*, with really green leaves

?ala?ala sako Yellow *?ala?ala*, with yellow leaves.

?ala?ala meo Red *?ala?ala*, with red leaves

?ala?ala fi?irodo Getting-dark *?ala?ala*, with red and darkish leaves

?ala?ala ogamu Wants-to-break *?ala?ala*, with a leaf that has breaking points.

Kwa'ioloa & Burt (2001: 193-219) divide *fi?i-rū* 'clumps' into a number of groups. The group *fi?i-rū ne?e boeboena ka ofi fafia fa?ina kī* 'clumps with leaf-tubes sheathing the stem' encompasses plants like ginger, bananas and alpinas. That is, leafy plants with soft-core stems that are sheathed with leaves. The group *fi?i-rū ne?e kasirū?a kī* 'clumps which are sectioned' is the descriptive term used for plants like bamboos and reeds that have stems with nodes and can thus be cut into internode sections. These two categories are not listed in Figure 3.5 as they represent groups of plants that can be seen as similar in form and use, but are apparently not categories traditionally recognised by Kwara'ae speakers. Kwa'ioloa & Burt (2001: 207-213) use the term *takuma* to denote all ferns. Strictly speaking *takuma* refers to *Diplazium proliferum* and other ferns are referred to by their individual names. However, *takuma* would also be used to refer to a bundle of different edible ferns that included *Diplazium proliferum*, suggesting the traditional presence of a covert category at least. Thus *takuma* as a category denotes *Diplazium proliferum*, an important fern, and other plants considered similar in terms of morphological characteristics, namely a short dark bole, long curled-over leaves and the lack of flowers or fruit. Kwa'ioloa and Burt (2001:212) also include in this category *k^wa?e*, the generic term for tree-ferns, which also denotes the 'proper' or important tree-fern *Cyathea lunulata*. Tree-ferns are plants with leaves like ferns but trunks like trees. The young leaf-shoots are eaten and the trunks used for building. The term *k^wa?e* encompasses a number of different named varieties.

The category of *fi?i-rū* 'clumps' also includes a number of other plants that do not fit into any of these three smaller categories, including the various types of named pandanus. Within the scope of the book, Kwa'ioloa & Burt (2001: 214) use the term *fa?u* for all types of pandanus. However, it is not clear that this is a traditional Kwara'ae category, and so it is not included in Figure 3.5.

The term *k^walo* ‘vines’ appears to be a smaller taxon than either *?ai* ‘trees’ or *fi?i-rū* ‘clumps’, with only 38 subtaxa listed by Kwa’ioloa and Burt. A few of these are further subclassified, but the majority are terminal taxa. It is not clear where grasses and grass-like plants fit into the Kwa’ae classification, as they are not mentioned by Kwa’ioloa and Burt, although one grass, *lai* ‘*Imperata conferta*’ is classified as *laua* ‘weeds’.

3.3 Arosi

The determination of ethnobotanical taxonomies in other modern Oceanic societies has been based on dictionaries and lexicons and so the conclusions are less certain. However, such dictionary searches do suggest that a number of other Oceanic languages, including Nduke (Meso-Melanesian, Scales n.d.), Arosi (SE Solomonian, Fox 1978) and Samoan (Polynesian, Milner 1966), have systems of ethnobotanical classification that are not greatly different from that of Kwa’ae and Wayan Fijian. Figure 3.6 shows schematically an Arosi taxonomy that can be constructed from plant names in Fox’s dictionary.⁴

Again, Arosi appears to have no form which denotes all plants in contrast to non-plants. There is a general term which denotes uncultivated plants, namely *hara* ‘a wild plant that grows of itself, is not planted by man’. However, a contrasting term for cultivated plants was not found. Arosi has at least four major life-form categories of plants which seem to be based on morphological characteristics similar to those defining the life-form categories in Wayan Fijian.

?ai A tree or plant having stems and branches; not used of fern, cycad, sago palm, coconut etc., but used of small plants, eg. balsam.

rari Any herb or shrub which has no main stem, as flax.

warawaro Vines.

kaariŋa Mushroom, fungus.

The important morphological characteristic of *?ai*-type plants is apparently the presence of a main stem and branching structure, but Fox (1978) notes that *?ai* can also be used ‘loosely’ to refer to coconut palms and tree-ferns, plants which lack branching structure but do have a distinct main stem. In contrast to Wayan, *?ai* in Arosi does not in its primary meaning include palms. The term *rari* denotes herbs and shrubs that lack a main stem, and since ‘as flax’ is included in the definition, it is possible that this taxon may also include grass-like plants. However, as I did not find an Arosi term that appeared to denote a life-form taxon encompassing grasses, in Figure 3.6 various names of grasses have been represented as primary taxa. Plant types that could be labelled ferns and epiphytes in English also do not appear to be included in any of the other four life-form categories and have been represented as primary taxa.

The subtaxa of the four major life-form categories generally form the lowest level within the classification. However, of the 200 or more plant names which are encompassed by the *?ai* taxa, there are at least five which are further subclassified. For example,

hahe (mahe) A shrub, sweet-smelling and sacred, planted in *hera*, burial grounds, and used to decorate armlets; long glossy leaves, four sepals, petals and stamens in the white flowers, *Euodia hortensis*.

⁴ It is not clear from the dictionary definitions which other plants would be classified as *rari*.

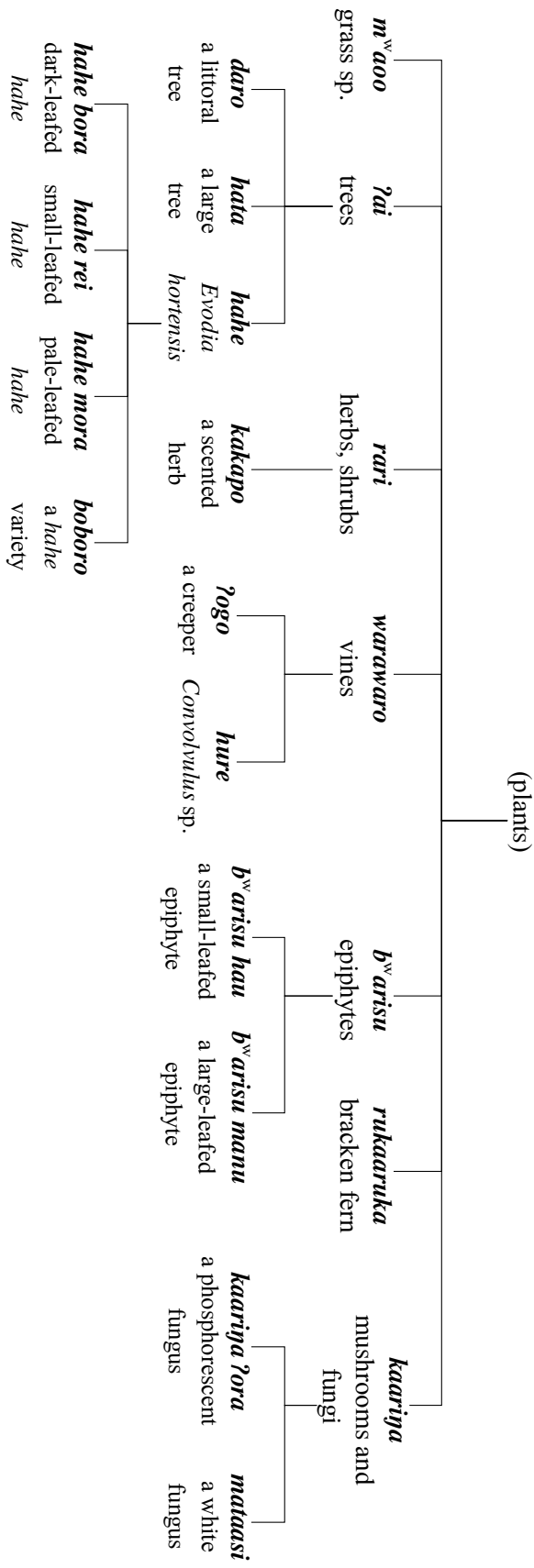


Figure 3.6 Arosi ethnobotanical classification

hahe bora with dark leaves

hahe mora with pale leaves

hahe rei with very small leaves

boboro a species of *hahe*

ʔoʔo A species of tree

ʔoʔomaradaro variety used for gong making

ʔoʔorawaraha another variety

ʔoʔoriʔi a variety used for making outrigger canoes

Arosi *warawaro* ‘vines’ is another category that includes a large number of subtaxa, with between 50 and 100 named items occurring in the dictionary. However, all of the subtaxa of *warawaro* ‘vines’ form the lowest level of classification. The same is true of the subtaxa of *rari* ‘herbs and shrubs’ and *kaariŋa* ‘mushrooms’.

3.4 Nduke

Nduke speakers distinguish seven primary taxa of plants. The term *yae*, primarily used to denote ‘trees’ can also be used to refer to all plants (Scales n.d.).

yae A general name for any kind of tree, bamboo, tree-ferns and other tall plants (except grass) that have woody stems.

veve A general name for vines and creepers.

heheu A general name for all kinds of grass (mostly Poaceae family). Also used to refer to dicot herbs.

lulumutu A general name for green algae that grows inside concrete tanks etc. and moss that grows on trees.

roya A general name for plants which grow as brambles or thickets.

havoro Flower, also used as the general name for flowering plants such as orchids.

pureke A general name for mushrooms. Often refers to a kind of edible mushroom that grows on rotting sago palm trunks in swamps.

The category *yae* ‘tree’ is the largest in Nduke with over 200 subtaxa. Many of these are terminal taxa, but some are further subclassified. Unusually amongst Oceanic languages bamboos and tree-ferns are classified as *yae* ‘tree’ in Nduke. *Veve* ‘vines and creepers’ consists of about 20 subtaxa and *heheu* ‘grasses and dicot herbs’ over 10, all of which are terminal taxa. *Roya*, a ‘general term for plants which grow as brambles and thickets,’ refers more to areas where the vegetation is characterised by thicket-type growth, than particular types of plants that are characterised by thicket-type growth (Ian Scales, pers.comm.).

3.5 Samoan

In Samoan there appear to be at least six primary taxa of plants, as shown below with the terms and definitions from Milner (1966). Samoan *lāʔau*, as well as being the generic term which denotes ‘trees’, also appears to be used as the generic term for all plants and occurs as the initial element in a number of plant names, including trees (*lāʔau lōpā* ‘red sandalwood, *Adenanthera* species’), shrubs (*lāʔau failafa* ‘candelabra bush, *Cassia* species’), herbs (*lāʔau failoti* ‘herb, *Euphorbia* species’), and woody vines (*lāʔau ʔie* ‘liane, *Freycinetia* species’).

lāʔau Plant, tree

- ?oli?oli* General name given to large ferns
pupuvao Tall grass, weeds
mutia Grass
fue General name given to creepers and lianas
taliya Name given to several types of fungus, including Jew's-ear
limu General name given to mosses, lichens, algae, and seaweeds

4 Botanical taxa in Proto Oceanic

A number of the primary botanical taxa that are shared by many modern Oceanic languages have cognate labels and are reconstructable for POc. Clearly reconstructable for POc are the following five terms that denoted broad categories of plants, apparently based on particular morphological characteristics.

- *kayu* Tree or shrub - generic name for plants with woody stems and branches, probably not including palms or tree-ferns (§4.2).
**waRoc* Generic term for vines and creepers, plants with creeping or climbing growth structure (§4.4).
**pali[s]ji* Generic term for grasses and other 'grass-like' plants (§4.5).
**limut, *lumut* Generic term for mosses, algae and seaweeds (§4.6).
**taliya* Generic term for mushrooms and fleshy fungi (§4.7).

4.1 Plant

A term denoting all plants is not reconstructable for POc. A number of modern Oceanic languages do have a general term for plants, but these terms appear to be post-POc innovations. The list below gives the general terms for 'plant' in a number of languages, but none are cognate. In NE Ambae and Anejoñ these general terms for 'plants' are nominalisations of verbal terms. For example, NE Ambae *rivurivu* 'plant' is a reduplicated form of the transitive verb *rivu* 'to plant s.t.', and Anejoñ *nita-awañ* is formed from the verb *awañ* 'to plant' with the instrumental prefix.

Adm:	Lou	<i>koe</i>	'plant (N)'
NNG:	Poeng	<i>kinkiniŋ</i>	'(all) growing things; grass, tree'
NNG:	Sissano (Arop)	<i>oraman</i>	'plants (generic)'
SES:	Bugotu	<i>jou</i>	'to plant, a plant'
NCV:	Ambae	<i>rivurivu</i>	'plant (N)'
SV:	Anejoñ	<i>nita-awañ</i>	'plant, s.t. planted or to be planted'
Mic:	Chuukese	<i>pətəwər</i>	'plant (general term), vegetation (uncultivated); tree, bush, shrub, fern, grass'

A Proto Micronesian form **fadoka* 'planted thing, cultivated plants' is reconstructable (Bender et al 2003:24), but appears to be restricted to meaning something that has been planted rather than all plants. This form looks to be a nominalisation of a Proto Micronesian verbal **fadoki* 'to plant'.⁵

⁵ Osmond (1998: 132) reconstructs POc **asok* 'plant in holes in the ground', along with a Proto Western Oceanic

PMic **fadoka* ‘planted thing, cultivated plants’

Mic:	Kiribati	<i>aroka</i>	‘planted thing, cultivated plants’
Mic:	Chuukese	<i>fɔ̄tā-</i>	(from <i>fɔ̄to-</i> ‘planting’ and a noun-forming suffix)
Mic:	Woleaian	<i>fato</i>	‘plant (N)’
Mic:	Carolinian	<i>fɔ̄to</i>	‘generic term for plants’
Mic:	Ulithian	<i>fa-faxu</i>	‘plant (N)’

PMic **fadok(-i)* ‘to plant (s.t.)’

Mic:	Kosraean	<i>yuki</i>	‘to plant (s.t.)’
Mic:	Mokilese	<i>pɔ̄tok</i>	‘to work at planting, to set in the ground (VT)’
Mic:	Chuukese	<i>fɔ̄tuki</i>	‘to plant (s.t.)’
Mic:	Carolinian	<i>fɔ̄toxi</i>	‘to plant (s.t.)’
Mic:	Woleaian	<i>fatoxi</i>	‘to plant (s.t.)’

If POC speakers did have a category that included all plants, then it appears to have been covert. In this respect POC would have been like most modern Oceanic languages which lack a general term ‘plant’. Gardner and Pawley (1992:8-9) note that in Wayan the category ‘plant’ is best considered covert as no term has ‘plant’ as its central meaning. Wayan *kai* ‘generic for trees and shrubs (and occasionally low bushy plants)’ is sometimes used as a generic for all plants. It is difficult to assert the presence or absence of a covert kingdom category in POC. From meanings of reflexes in the daughter languages, it is not clear that the general meaning of ‘plants’ can be reconstructed as a secondary meaning of terms denoting other more specific categories of plants.

4.2 Tree

The most stable primary taxon label, in that it is reflected most widely amongst the modern languages is **kayu*, the general term for trees and other plants with woody stems and branches. While some languages, like Bing, appear to have retained the original vowel-glide-vowel sequence, the majority have simplified it in some way. These changes appear to have occurred reasonably late in the development of this form, since there are closely related languages that show different types of changes. For example, **kayu* is reflected as *au* in Mono, but as *yae* in Nduke, two NW Solomonian languages, and as *kau* in Bauan and *kai* in Wayan, two Fijian languages.

PMP **kayu* ‘tree, wood, timber’ (Dempwolff 1938)

POc **kayu* ‘tree or shrub: generic name for plants with woody stems and branches, probably not including palms or tree-ferns; wood, stick’

Adm:	Loniu	<i>ke</i>	‘tree, wood’
Adm:	Titan	<i>kei</i>	‘firewood’
NNG:	Lukep (Pono)	<i>kai</i>	‘tree, wood’

form **pasok-i-* ‘to plant sth (tubers etc)’ that looks to be a form derived with the causative prefix **pa-*. The Micronesian forms below are likely cognates of Proto Western Oceanic **pasok-i-*, suggesting the reconstruction of **pasok-i-* ‘to plant something’ for POC.

NNG:	Mangap	<i>ke</i>	‘wood, tree (generic)’
NNG:	Bing	<i>ayuw</i>	‘firewood, fallen tree ready for firewood’
NNG:	Takia	<i>ai</i>	‘tree (generic), wood, firewood, plant’
NNG:	Manam	<i>?ai</i>	‘tree, stick’
NNG:	Sissano-Arop	<i>ai</i>	‘tree, stick, wood’
PT:	Motu	<i>au</i>	‘tree, firewood’
PT:	Iduna	<i>ai</i>	‘tree, plant, wood, fire, light’
PT:	Muyuw	<i>kay</i>	‘tree’
PT:	Misima	<i>ai</i>	‘tree, wood’
MM:	Patpatar	<i>ai-</i>	‘tree species, followed by name of species’
MM:	Mono	<i>au</i>	‘tree’
MM:	Nduke	<i>yae</i>	‘general name for any kind of tree, bamboo, tree-ferns and other tall plants (except grass) that have woody stems’
SES:	Gela	<i>yai</i>	‘branching plant, shrub or tree (i.e. balsam, croton and banyan are all <i>yai</i> , but not palm or coconut); wood, timber; firewood.’
SES:	Bugotu	<i>yai-</i>	‘tree, shaft of spear’
SES:	Kwaio	<i>?ai</i>	‘branch, tree, stick; woody plant (shrub, tree)’
SES:	Arosi	<i>?ai</i>	‘tree or plant with stem and branches; not used of a fern cycad, sago palm, coconut etc, but used of small plants, eg. balsam.’
NCV:	NE Ambae	<i>kai</i>	‘tree, wood’
NCV:	Paamese	<i>āi</i>	‘tree, wood, stick’
NCV:	Nguna	<i>na-kau</i>	‘tree’
SV:	Anejoñ	<i>inyai</i>	‘tree, wood, often used for relatively small bushes’
NCal	Xârâcùù	<i>kwãã</i>	‘wood, tree (general term)’
Mic:	Kiribati	<i>kai</i>	‘wood (in general), tree, plant, stick’
Mic:	Chuukese	<i>eyi-</i>	‘stick, tree, pole’ (only used in compounds)
Mic:	Ulithian	<i>-xæy</i>	‘counting classifier for trees’
Fij:	Rotuman	<i>?ai</i>	‘tree, plant; wood, timber, piece of wood’
Fij:	Bauan	<i>kau</i>	‘tree, piece of wood, stick’
Fij:	Kadavu	<i>kaðu</i>	‘tree’
Fij:	Wayan	<i>kai</i>	‘wood; generic for trees and shrubs, and occasionally also low bushy plants; used in certain compounds as generic for all plants; piece of wood, stick’
Pn:	Tongan	<i>kau</i>	‘stalk, stem’
Pn:	Tikopia	<i>kau</i>	‘stalk, stem supporting bunch of fruit’
Pn:	Samoaan	<i>?au</i>	‘stalk; shaft, axle; handle’
Pn:	Hawaiian	<i>?au</i>	‘handle, staff, stem, bone of lower arm or leg’

Many reflexes of **kayu* have additional senses besides ‘tree or shrub’, namely ‘wood, timber’, ‘stick’ and ‘firewood’. For the POc term both ‘tree or shrub, general name for plants with woody stems and branches’ and ‘wood, timber’ are reconstructed as they seem to be the best supported by the modern reflexes. The descriptions in a number of modern languages

suggest that woodiness and a main stem, along with branching growth structure are likely to have been the salient characteristics of **kayu* plants in POc.

In Polynesian languages there has been a semantic shift and the reflexes of **kayu* have the meaning of stem or stalk. The Proto Polynesian term for tree or woody plant was **raʔakau*. This form was a compound of reflexes of POc **raqan* ‘branch’ and **kayu* ‘tree’, supporting the idea that the presence of a main stem and branching growth structure were the salient features of this category.

PPn **raʔakau* ‘generic term for tree or woody plant; wood, timber; generic for all plants’

(POLLEX)

Pn:	Niuean	<i>akau</i>	‘wood, tree’
Pn:	Tongan	<i>ʔakau</i>	‘tree, plant; wood’
Pn:	E Futunan	<i>laʔakau</i>	‘tree, bush, shrub; wood, plant’
Pn:	Rennellese	<i>gaʔakau</i>	‘tree, bush, shrub, log, stick’
Pn:	Tikopia	<i>rakau</i>	‘generic term for member of vegetable kingdom, usually woody plant, including tree, shrub, herb, but not applied to root vegetable or grass’.
Pn:	Samoan	<i>lāʔau</i>	‘plant, tree’
Pn:	Hawaiian	<i>lāʔau</i>	‘tree, plant, wood, timber’
Pn:	Māori	<i>rākau</i>	‘tree; wood, timber; stick’

4.3 Palms

Were palms considered **kayu*? For the majority of reflexes of POc **kayu* it is not clear from the dictionary definitions whether palms are included within the category. For languages where the definitions are explicit about the status of palms, in some cases palms are included and in others not. For example, in Gela and Arosi (SE Solomonic) the categories denoted by *yai* and *ʔai*, respectively, do not include palms. In Wayan Fijian, on the other hand, *kai* does appear to encompass palms, with a number of different palms, including *māsei* ‘fan palm (*Pritchardia pacifica*)’, *niu* ‘coconut (*Cocos nucifera*)’ and *soŋa* ‘palm used for thatching (*Sagus vitiensis*, *Arecaceae*)’ defined as part of the *kai* taxon in Pawley and Sayaba (2003). In a few languages palms appear to form labelled categories of their own. Thus Anejoñ *nak^vai* is the generic term for palms, though excluding coconuts (Lynch 2001a: 173). In Samoan *niu* is a ‘general name for palms, especially the coconut palm’ (Milner 1966:156-7). Also in Tongan there is evidence that *niu* ‘coconut tree or fruit’ can be used to refer to palms more generally since it optionally occurs as part of the name for fan palm (*niu piu* or *piu* ‘fan palm, *Eupritchardia pacifica*’, Churchward 1959). Burt describes palms as a covert category in Kwara’ae (Kwa’ioloa & Burt 2001: 17). That is, while Kwara’ae speakers recognise and acknowledge the similarities amongst palms, they do not name such a category.⁶

A term denoting palms as a category does not appear to be reconstructable for POc, and it seems likely that palms were considered primary taxa within the system. But was ‘palm’

⁶ To solve the problem of explicitly describing such a covert category in their classification and description of plants in Kwara’ae, Kwa’ioloa and Burt (2001:17, 186) label palms as *niniu* ‘kinds of trees that are similar in being tall and erect and that are used for platforming and walling and for battens for thatching’, but this does not appear to be a conventional Kwara’ae usage.

a covert category for POc speakers, as it is today for Kwara'ae speakers? There is some evidence for this in that terms for different parts of palms, such as **bala(p,b)a(q)* 'palm branch' and **[pa]paq[a-]* 'frond of palm' are reconstructable, suggesting the recognition of a category of plants with similar morphological characteristics (Malcolm Ross pers. comm.). It is of course possible that the variation in the treatment of palms amongst the modern languages reflectes variation in POc. Thus it could be that palms were considered **kayu* 'tree, shrub' by some speakers of POc and not others and in some circumstances and not others. Such a situation would not be unexpected in the light of studies on ethnobotanical classifications.

4.4 Vine, creeper

POc **waRoc* denoted plants with creeping or climbing growth structure, that is vines and creepers. As reflexes of **waRoc* in Gedaged and Wayan encompass lianes, or woody vines, it seems likely that POc **waRoc* did too. But further evidence that creepers and woody vines were treated as part of the same taxon is needed.⁷

The final consonant of the POc form is reconstructed as **c* rather than **s*, as although the internal Oceanic evidence cannot disambiguate the choice between **c* and **s*, the external evidence points to **c*.

PMP **waRej* 'vine, creeper' (ACD)

POc **waRoc* 'generic term for vines and creepers, plants with creeping or climbing growth structure; string, rope'

Adm:	Wuvulu	<i>wao</i>	'rope, vein, tendon'
NNG:	Bing	<i>war</i>	'vine (generic)'
NNG:	Gedaged	<i>waɭ</i>	'vine, liana'
PT:	Iduna	<i>waloga-</i>	'vein'
PT:	Misima	<i>wal</i>	'stem (of mustard vine)'
PT:	Motu	<i>varovaro</i>	'vines of all kinds'
MM:	Nakanai	<i>ualo</i>	'cord, thread'
MM:	Roviana	<i>aroso</i>	'general name for vines and creepers'
MM:	Marovo	<i>adoso</i>	'vine, creeping or climbing, general term; climbing vines of <i>Calamus</i> types (lawyer cane)'
SES:	Gela	<i>alo</i>	'a creeper, string'
SES:	Bugotu	<i>aðo</i>	'rope, cord, creeper'
SES:	Tolo	<i>alo</i>	'generic name for vines; rope, string'
SES:	Lau	<i>k^valo</i>	'a vine of yam, sweet potato etc'
SES:	Kwaio	<i>k^valo</i>	'vine, string, rope'
SES:	'Are'are	<i>waro</i>	'a liana, string, rope'
SES:	Sa'a	<i>walo</i>	'a creeper, rope, string, line, vine'
SES:	Arosi	<i>waro</i>	'a piece of string, twine; prefix to names of creepers'
		<i>waro-warō</i>	'vines'

⁷ A third meaning, 'vein' is found in reflexes from a number of subgroups (Adm, NNG, PT, NCV, SV, Mic). Similar meanings are also found with some cognates in non-Oceanic Austronesian languages, such as Simalur *olor* 'root, vein, tendon' (Blust ACD).

SV:	Anejoñ	<i>inwau</i>	‘vine; rope (traditional), string; sinew, tendon, vein’ Also occurs as initial element in a number of names of vine species.
Fij:	Bauan	<i>wā</i>	‘a vine, creeper of any kind’ (also occurs as initial element in a number of names of vine species)
Fij:	Wayan	<i>wā</i>	‘generic for scrambling and climbing plants; creeper, vine’

4.5 Grass

POc **pali[s,j]i* appears to have been the generic for plants lacking a main stem and with narrow-leaved foliage, that is grasses and grass-like plants.

PMP **bali(j,z)i* ‘(type of ?) grass’ (ACD)

POc **pali[s,j]i* ‘generic term for grasses and other grass-like plants’ Grace 1961: **palisi*)

Adm:	Nauna	<i>pelic</i>	‘grass’
Adm:	Pak	<i>penit</i>	‘grass’
NNG:	Poeng	<i>paili</i>	‘grass’
NNG:	Tami	<i>ijili</i>	‘grass’
MM:	Lihir	<i>palic</i>	‘grass’
MM:	Ramoaina	<i>wali</i>	‘grass’
MM:	Halia	<i>halisi</i>	‘grass’
SES:	Kwaio	<i>falisi</i>	‘grassy undergrowth (generic); yam harvest’
SES:	’Are’are	<i>harisi</i>	‘grass, small clover’
SES:	Sa’a	<i>ha-halisi</i>	‘grass’
SES:	Ulawa	<i>hālisi</i>	‘grass, onion (late use)’
NCV:	Mota	<i>valis</i>	‘a tall coarse grass; in recent use grass generally and onions’
NCV:	Mwotlap	<i>vlih</i>	‘grass, turf (Gramineae), <i>Thuarea involuta</i> ’ (<i>na-plih</i>)
NCV:	Wusi	<i>palihi</i>	‘grass’
NCV:	Morouas	<i>βalisi</i>	‘grass’
SV:	Sye	<i>(novl)ovsi</i>	‘buffalo grass (<i>Stenotaphrum secundatum</i>). (cf. <i>novol</i> ‘kind of plant; initial element for plant names including a grass, a fern and two tree-ferns’)
SV:	SW Tanna	<i>nə-vhilək</i>	‘a kind of grass’ ⁸
SV:	Anejoñ	<i>ne-pces</i>	‘a kind of grass’
Mic:	Chuukese	<i>fetiri</i>	‘grass’
Mic:	Carolinian	<i>fitili, fetili</i>	‘grass’
Mic:	Woleaian	<i>fatili</i>	‘grass (<i>Thuarea involuta</i> or <i>Stenotaphurum</i>)’
Pn:	Samoan	<i>fālī</i>	‘kind of grass (? <i>Scirpodendron</i> species)’ ⁹

⁸ SW Tanna *nəvhilək* ‘grass’ leads Lynch (2001c: 246) to reconstruct Proto Southern Vanuatu **na-(p,v)alijiy*, suggesting that the POc form was **pali[s,j]ik* with a final **-k*. However, there is no other evidence for POc **-k*, and so I do not reconstruct it.

⁹ The loss of POc **s* in Samoan is irregular.

The cognate set given above reflects both POc **palisi* and **paliji*. In many languages POc **s* and **j* have merged. However, Nauna, Pak, SW Tanna and Anejoñ reflect **j* while Poeng, Halia and the SE Solomonic languages reflect **s*. In the Micronesian languages this form appears to have undergone metathesis of the two medial consonants, giving Proto Micronesian **fadili* ‘generic term for grass’. A parallel change has occurred in the North New Guinea languages. I take these metatheses to be independent innovations.¹⁰

The semantic scope of **pali[s,j]i* in POc is not totally clear. Poeng, Kwaio, Chuukese and Carolinian support the reconstruction of this term as a generic for grasses, but there are also several languages where reflexes of **pali[s,j]i* denote particular, but different, types of grass, including Mota, Sye, Anejoñ, Woleaian and Samoan. Thus while a generic meaning is reconstructed for POc **pali[s,j]i*, it needs to be noted that it is not so well-supported as the reconstruction of other life-form taxa.

On the basis of modern languages it seems likely that POc would have had a primary taxon that included at least grasses and/or herbs. In Wayan Fijian *ō* usually denotes non-bambusoid grasses, but does occur as the initial element in the names of reeds (*ō sina*) and bamboos (*ō bitu*). In Nduke *heheu* is glossed as ‘grasses and dicot herbs’ and appears to be restricted to soft grasses, bamboos being part of the *yae* ‘tree’ taxon. In other languages, like Gumawana, Lau and Mokilese, apparently generic terms for grass are also glossed weeds. Arosi, on the other hand, does not appear to have a generic term for grasses, although *rari* ‘herbs and shrubs with no main stem’ may encompass grasses as well. Such a category would also appear to fit within the system of the other, better-supported, higher-order taxa of POc. At this stage **pali[s,j]i* appears to be the most likely label for such a category, but further data and research may lead to different conclusions.

4.6 Moss, algae, seaweed

There also appears to have been variation in the POc term that denoted mosses, algae and seaweeds, such that **lumut* and **limut* are both reconstructable. This life-form taxa seems to have been characterised by the morphological characteristic of ‘leaflessness’, thus including mosses, lichens and algae, and extended to other plants which share with algae the ecological characteristics of growing underwater. That both forms were present in POc and many lower level proto-languages can be seen from the way reflexes of each occur in quite closely related languages. For example, Tinputz and Roviana are both NW Solomonic languages, and Tinputz has a form *nimus* reflecting POc **limut* and Roviana a form *lumu-lumutu*, reflecting POc **lumut*. The same is true of the Micronesian languages, where Woleaian has a form *rum^wu* and Mokilese a form *lim^w*. It is also possible that there were fully-reduplicated variants of these forms in POc, thus **limulimut* and **lumulumut*, since languages from a range of subgroups have reduplicated reflexes.

Evidence from non-Oceanic languages suggests that **lumut* may have been the older form meaning ‘moss’. For example, Indonesian *lumut* ‘1. moss, lichen, bryophyte; 2. algae’, Ilokano *lúmot* ‘moss, a slippery river seaweed; fine freshwater algae’, Tagalog *lúmot* ‘moss’. Ilokano and Tagalog also have forms *límu* ‘seaweed’ without the final *-t*, and it is possible that pre-POc **lumut* ‘moss’ and **limu* ‘seaweed’ were conflated in POc.

¹⁰ One language, Simalur (WMP), reflects Proto Malayo-Polynesian **j*, suggesting POc **c* (Blust ACD).

POc **lumut* 'generic term for mosses, algae and seaweeds' (Capell 1943)

Adm:	Lou	<i>lum</i>	'seaweed; weed/grass growing in sea water'
NNG:	Manam	<i>lumta</i>	'moss'
NNG:	Mangap	<i>lum</i>	'algae, green slimy growth on trees, stones etc under water'
PT:	Iduna	<i>nunu(b^wana)</i>	'moss, slime on ground' (cf. <i>b^wana</i> 'phlegm')
PT:	Muyuw	<i>numt</i>	'moss'
MM:	Nakanai	<i>lumu</i>	'moss, incl. <i>Psilotum nudum</i> , <i>Microsorium</i> species'
MM:	Nduke	<i>lu-lumutu</i>	'a general name for green algae that grows inside concrete tanks etc. and moss that grows on trees'
MM:	Roviana	<i>lumu-lumutu</i>	'a variety of moss; a marine alga'
SES:	Gela	<i>lumu</i>	'moss, weeds on keel'
SES:	Bugotu	<i>lumu(sa)</i>	'moss'
SES:	Tolo	<i>lumu-lumu</i>	'moss'
SES:	Longgu	<i>lumu-lumu</i>	'moss'
SES:	Kwaio	<i>lumu</i>	'moss'
SES:	Lau	<i>lu-lumu</i>	'moss, lichen growth on ship's keel'
SES:	'Are'are	<i>rumu</i>	'seaweed, moss on trees, used in ceremonial purification'
SES:	Sa'a	<i>lumu(te)</i>	'moss'
NCV:	Mota	<i>lumu(ta)</i>	'moss'
NCV:	NE Ambae	<i>lumu(si)</i>	'moss'
NCV:	Malo	<i>lum-lum</i>	'moss, lichen; k.o. seaweed'
NCV:	Vurës	<i>lum-lum</i>	'moss, seaweed, algae' (cf. <i>mölumlum</i> 'soft, slow')
NCV:	Lewo	<i>lum-lum</i>	'slime in sea'
NCV:	Nguna	<i>na-lumu-lumu</i>	'moss, sponge, algae'
NCV:	Paamese	<i>lum-lum</i>	'moss, slime, seaweed'
SV:	Anejoñ	<i>ne-lom^w</i>	'moss, hanging algae'
SV:	Lenakel	<i>lasmus</i>	'moss, algae, seaweed'
Mic:	Woleaian	<i>rum^wu</i>	'moss, seaweed; to be covered with moss, having moss'
Mic:	Carolinian	<i>lūm^w</i>	'moss; seaweed variety that grows luxuriantly on rocks and sunken vessels and that breaks off and washes onto shore'
Mic:	Chuukese	<i>rūm^w</i>	'seaweed, moss; sea algae, scum'
Fij:	Rotuman	<i>lumu</i>	'seaweed, moss'

POc **limut* 'generic term for mosses, algae and seaweeds' (Biggs 1965: **limu*)

PT:	Misima	<i>nimút</i>	'moss'
MM:	Tolai	<i>limut</i>	(N) 'green colour or mossy growth on a canoe which has been standing in the water, seaweed, slime'. (ADJ) 'green, blue, moss-green, colour of moss'
MM:	Ramoaina	<i>limut</i>	'seaweed, slime; blue'
MM:	Kara (E)	<i>limut</i>	'tree moss'
MM:	Sursurunga	<i>milut</i>	'moss' (metathesis)

MM:	Tinputz	<i>nimus</i>	‘moss’
NCV:	Namakir	<i>limi-lim</i>	‘seaweed, sea moss’
SV:	SW Tanna	<i>ləmus</i>	‘moss, algae’
Mic:	Mokilese	<i>lim^w</i>	‘seaweed, sponge, moss’
Mic:	Marshallese	<i>limu-limuu</i>	‘moss’
Fij:	Bauan	<i>lumi</i>	‘moss, adhering to a rock or a boat; a kind of edible seaweed’
Fij:	Wayan	<i>lume-lume</i>	‘algae, green slime which grows on reefs and keels of boats, and in rivers and ponds’
Pn:	Tongan	<i>limu</i>	‘seaweed, moss, lichen’. (cf. <i>limu tahi</i> ‘seaweed’, <i>limu ?uta</i> ‘moss, lichen’)
Pn:	Samoaan	<i>limu</i>	‘general name given to mosses, lichens, algae, and seaweeds’ Also initial element in a number of plant names.
Pn:	Hawaiian	<i>limu</i>	‘a general name for all kinds of plants living under water, both fresh and salt, also algae living in any damp place in air, as on ground, on rocks and on other plants; also mosses, liverworts, lichens’
Pn:	Māori	<i>rimu,</i> <i>rimu-rimu</i>	‘seaweed; moss, mildew’

4.7 Mushrooms, fungi

In a number of modern Oceanic languages the life-form term for mushrooms and other fleshy fungi is homophonous with the bodypart term ‘ear’. For example, in Wayan Fijian *taliŋa* denotes fleshy fungi such as mushrooms and bracket fungi as well as ‘ear’. The polysemy of ‘mushroom’ and ‘ear’ is also found with non-cognate forms in a number of Oceanic languages, such that innovative terms can be seen to have both meanings. For example, in NE Ambae *g^wero* has both the meaning of ‘ear’ and of ‘mushroom’, and the same is true for the Nakanai term *gavusa* ‘(a) mushroom (Agaricaceae); ear’. The cognate set for POc **taliŋa* below supports the reconstruction of this same polysemy. That the ‘mushroom’ meaning is not a post-POc innovation is supported by the fact that reflexes of **taliŋa* occur in a number of languages with ‘mushroom’ meanings, but not with the ‘ear’ meaning. Of the languages in the cognate set below, the four North New Guinea languages, Nakanai, Gela and Tolo are all languages where the reflex of **taliŋa* no longer has the meaning of ‘ear’, but has retained the ‘mushroom’ meaning. In Anejoñ *in-tiča-*, the reflex of **taliŋa*, retains only the ‘ear’ meaning, but the historical presence of the ‘mushroom’ meaning is indicated by the occurrence of *in-tiča-* in a number of compounds referring to mushrooms. In Rotuman, Bauan Fijian, a number of Polynesian and Micronesian languages terms for mushrooms literally mean ‘ear of spirit/ghost’. The Rotuman form *faliŋa ne ?atua* and the Tikopian form *tariŋa ŋa a tua* look to be cognate compounds, but in other languages the second part of the compound does not appear to be cognate.

POc **taliŋa* ‘generic term for mushrooms and fleshy fungi; ear’ (ACD)

NNG:	Poeng	<i>taliŋ</i>	‘mushroom’
NNG:	Dami	<i>talik</i>	‘fungus, mushroom’

NNG:	Hote	<i>taliŋ</i>	‘mushroom’
NNG:	Sissano (Arop)	<i>təlin</i>	‘mushrooms, edible’
MM:	Nakanai	<i>taliga</i>	‘a small edible fungus, <i>Lensites</i> ’
SES:	Gela	<i>taliŋa</i>	‘fungus, mushroom on <i>mbiluma</i> tree’
SES:	Tolo	<i>taliŋe</i>	‘generic name for mushrooms’
SES:	Kwaio	<i>aliŋa</i>	‘mushroom’
SES:	Sa’a	<i>ʔäliŋe</i>	‘mushroom, large fungus’
NCV:	Paamese	<i>raliŋen asu</i>	‘kind of fungus which grows on dry wood’
SV:	Anejoñ	<i>inticŋa-</i>	‘ear; initial element in a number of compounds denoting mushrooms’
		<i>inticŋa-nyai</i>	‘mushroom (arboreal)’ (cf. <i>in-yai</i> ‘tree’)
		<i>inticŋa-p^wohtan</i>	‘mushroom (terrestrial)’
		<i>inticŋa-numu</i>	‘kind of edible mushroom’ (cf. <i>numu</i> ‘fish, marine creature’)
Mic:	Kiribati	<i>taniŋaniba</i>	‘mushroom-like fungus growing on tree trunks. <i>Myxomycetes</i> : slime fungus’
Mic:	Mortlockese	<i>səliŋananu</i>	‘mushroom (lit. ear of ghost)’
Mic:	Woleaian	<i>tariŋeripaç</i>	‘mushroom’ (underlying form: <i>taliŋali-paça</i>)
Mic:	Satawalese	<i>salinaniपाç</i>	‘kind of toadstool’
Fij:	Bauan	<i>daliŋa ni kalou</i>	‘fungus (lit: ear of spirit)’
Fij:	Wayan	<i>taliŋa</i>	‘generic, includes various kinds of fleshy fungi, e.g. mushrooms, bracket fungi’
Fij:	Rotuman	<i>faliŋa</i>	‘ear; toadstool or fungus’. Also <i>faliŋa ne ʔatua</i> ‘ear of dead/ghost’
Pn:	Tongan	<i>taliŋeliŋa</i>	‘fungus’
Pn:	Tikopia	<i>tariŋa (ŋa atua)</i>	‘ears of spirits; traditional name applied to a tree fungus (unidentified)’
Pn:	Samoan	<i>taliŋa</i>	‘Name given to several types of fungus, including Jew’s-ear’
Pn:	Māori	<i>tariŋa (rakau)</i>	‘a fungus’
		<i>tariŋa (o tiakiwai)</i>	‘Jew’s ear fungus, <i>Auricularia auricula-judea</i> ’ Also called <i>tariŋa kuri</i> (dog), <i>tariŋa hakeke</i>

4.8 Other terms

The five primary taxa reconstructed here do not appear to have encompassed all plants that would have been known to POc speakers, or indeed, for which terms can be reconstructed. The contrast between POc **kayu* ‘plants with woody stems and branches’, **pali[s,j]i* ‘grass-like plants’ and **waRoc* ‘plants with creeping or climbing growth structure’ leaves open the question of how non-woody leafy plants, such as alpinias or gingers and the like, would have been classified by a POc speaker. In Kwara’ae *fiŋi-rū* is the descriptive category that encompasses plants which grow as a cluster of stems, including plants like ginger with leaf-tubes sheathing the stem, plants with sectioned stems like bamboo, plants like ferns and pandanus

(Kwa’ioloa and Burt 2001:193-219). Hawaiian appears to have a similar category, *pū* which denotes plants with a ‘cluster of several stalks, as of banana, pandanus, kava; clump, as of sugarcane’ (Pukui & Elbert 1971: 317). In Marovo (Meso-Melanesian), there is a general term *rokoroko* for leafy shrubs which may have a similar range, and in Anejoñ the term *nathancai*, literally ‘young tree’ is used to denote saplings and plants smaller than trees, including ferns and crotons (Lynch 2001a:189). However, as far as I am aware there does not appear to be a general term for non-woody leafy plants which can be reconstructed for POc.

Ferns and tree-ferns are also plants which do not appear to fit into any of the life-form categories reconstructed for POc. In Kwara’ae there is a general term for tree-ferns, *k^waʔe*, and a number of other Oceanic languages also have general terms that denote tree-ferns:

Mic:	Kosraean	<i>po</i>	‘kind of plant: tree fern’
Fij:	Wayan	<i>balabala</i>	‘generic for tree ferns (<i>Cyathea</i> spp.), sometimes extended to include other large ferns, such as <i>Pteris tripartita</i> . (i) <i>Cyathea lunulata</i> (Cyatheaceae); (ii) <i>Cyathea</i> sp., perhaps <i>C. propinqua</i> ; (iii) <i>Calochlaena straminea</i> (Dicksoniaceae); (iv). <i>Pteris tripartita</i> (Adiantaceae).
Pn:	Hawaiian	<i>?amaʔu</i>	‘all species of an endemic genus of ferns (<i>Sadleria</i>), with trunk more or less evident’.

From this it seems possible that tree-ferns formed a higher-order taxon in POc, but no term appears to be reconstructable to back up such a hypothesis.

In Wayan *balabala* ‘tree-ferns’ contrasts with another primary taxon *diji*, a generic for at least two types of terrestrial ferns. In Kwara’ae *takuma* ‘*Diplazium proliferum*’ is sometimes used to denote a collection of edible ferns that includes *Diplazium proliferum* Woodsiaceae, though more commonly ferns are referred to by their individual names. In other languages, such as Iduna, Kosraean, Samoan and Hawaiian there are terms that may denote ferns more generally, but it is not clear from the dictionary definitions. A generic term for ferns does not appear to be reconstructable for POc, and it seems likely that the individual names of ferns were considered to be primary taxa.

PT:	Iduna	<i>maiwa</i>	‘(edible) ferns’
Mic:	Kosraean	<i>fa</i>	‘a kind of plant: fern’
Mic:	Mokilese	<i>p^wɔ</i>	‘fern’
Fij:	Wayan	<i>diji</i>	‘generic that includes at least the following two medium-sized terrestrial ferns: <i>Nephrolepis biserrata</i> (Davalliaceae), ladder fern, locally common in open mid-altitude forest; <i>Sphaerostephanos invisus</i> (Thelypteridaceae), common on dry grassy hillsides.
Pn:	Samoan	<i>?oli?oli</i>	‘(i) general name given to large ferns; (ii) tree-fern (<i>Alsophila</i> species)’
Pn:	Hawaiian	<i>kupukupu</i>	‘general name for ferns on a single stem’ (also name for sword fern)

POc **gauR* appears to have been the general term for bamboos, with a number of more specific terms also reconstructable (ch.13, §3.1). Kwa’ioloa and Burt (2001) use the descrip-

tive term *fiʔi-rū* ‘clumps’ or ‘plants which grow as several stems’, or more narrowly *fiʔi-rū neʔe kasirūʔa kī* ‘clumps which are sectioned’ to represent a group of plants including bamboos which have similar growth patterns and uses. In Kwara’ae *kaʔo* ‘bamboo, *Nastus obtusus*’ is called ‘proper bamboo’, but this term does not appear to be used as a generic for all bamboos (outside of Kwa’ioloa and Burt’s book). In Wayan Fijian, bamboos and reeds are included in the *ō* ‘grasses’ taxon. But there is no clear evidence that bamboos were considered part of any larger category that can be reconstructed for POc.

It is unclear how pandanus were classified by POc speakers. In Kwara’ae, pandanus are considered to be part of the larger category of *fiʔi-rū* ‘clumps’, whereas in Wayan Fijian pandanus are considered part of the *kai* ‘trees and shrubs’ taxon. In ch.11, §2.5 Ross reconstructs a number of terms for different types of pandanus and suggests that **padran* ‘coastal pandanus, *Pandanus tectorius*’ was also the generic term for pandanus. This is supported most strongly by Carolinian where the reflex of **padran*, *fāʔ*, is the generic term for pandanus (Jackson & Marck 1991: 59). Thus it seems likely that pandanus in POc were either: (a) usually known by their individual names and were unaffiliated primary taxa; or (b) were classified as a distinct taxon known as **padran* ‘pandanus (generic)’.

A number of modern Oceanic languages have a category of plants that is glossed as ‘weeds’, as can be seen from the following list. In a number of languages, including Poeng, Gela and Kwara’ae this category appears to denote plants growing unwanted in garden plots. However, these categories do not have cognate labels. POc **talun* ‘old garden, fallow land, land returning to secondary growth’ (vol.1, ch.5, §3.2) may have denoted land with this type of vegetation, but a term for the vegetation itself does not appear to be reconstructable.

NNG:	Mapos Buang	<i>vavōŋ</i>	‘scrub, brush, weeds’
NNG:	Labu	<i>wahe</i>	‘weeds’
NNG:	Poeng	<i>kilanna</i>	‘weed; growing in old garden spot’
NNG:	Takia	<i>ud</i>	‘weed, wild grass (generic)’
NNG:	Mangap	<i>momotia</i>	‘weed (N)’
PT:	Iduna	<i>boya</i>	‘small weeds’
PT:	Gumawana	<i>nauna</i>	‘weeds, grass’
PT:	Misima	<i>m^wawin</i>	‘grass; weeds, to have weeds’
MM:	Ramoaina	<i>bual</i>	‘full of weeds’
		<i>palep</i>	‘weeds, rubbish; in a plantation’
MM:	Teop	<i>subui</i>	‘weeds’
SES:	Gela	<i>makiri</i>	‘small weeds in a garden’
SES:	Lau	<i>?oro?oro</i>	‘weeds, grass, anything small growing up’
		<i>murua</i>	‘weeds and grass’
SES:	Kwaio	<i>fufulu</i>	‘weed, grass’
SES:	Kwara’ae	<i>laua</i>	‘weeds, plants that can (and often should) be pulled out when they grow in places like gardens; seedlings, saplings’
Mic:	Mokilese	<i>tip^wtip^w</i>	‘grass, weeds; overgrown with grass or weeds, littered (with objects)’
Mic:	Chuukese	<i>wəriŋŋaw</i>	‘useless plant, weed’ (cf. <i>wəri</i> ‘bush, vegetation generally’, <i>ŋŋaw</i> ‘bad, ugly, unfitting, unsuitable’)
Pn:	Māori	<i>otaota</i>	‘herbs in general, weeds, litter’

5 Conclusions

Figure 3.7 shows schematically a partial ethnobotanical classification for POc based on the reconstruction of higher-order taxa presented here and plant names presented in chapters 5–13. The kingdom rank category of ‘plant’ had no name in POc, and it is unclear if it was an implicit category or not. POc appears to have had five major life-form taxa: **kayu* ‘tree or shrub, generic name for plants with woody stems and branches, probably not including palms or tree-ferns’; **waRoc* ‘general term for vines and creepers, plants with creeping or climbing growth structure’; **pali[s,jji* ‘generic term for grasses and possibly also sedges and other grass-like plants’; **limut* or **lumut* ‘generic term for mosses, algae and seaweeds’; and **taliŋa* ‘generic term for mushrooms and fleshy fungi’.

Ross’s reconstructions of plant names in chapters 5–13 suggest that the subtaxa of these life-form categories tended to be terminal taxa. However, as folk generics tend to be more stable than specifics (Pawley this volume), it is not surprising that Ross is unable to reconstruct many terms for specifics. Rather, it is likely that POc behaved like contemporary languages in similar environmental and cultural contexts and had named folk taxa within many of the folk generics that Ross reconstructs.

In chapters 5–13 of this volume Ross reconstructs POc names for over 80 plants which were most probably considered subtaxa of the **kayu* ‘tree, shrub’ category. The majority of these reconstructions, like **tuRi-tuRi* ‘candlenut tree, *Aleurites moluccana*’, **putun* ‘*Barringtonia asiatica*’, **aRu* ‘a shore tree, *Casuarina equisetifolia*’, **paRu* ‘a small shore tree, *Hibiscus tiliaceus*’, **qatita* ‘the putty nut, *Parinarium laurinum*’ and **quRis* ‘Polynesian plum, *Spondias dulcis*’, denote a single ‘scientific’ species. A few reconstructions, such as **kalaqabusi* ‘a shrub, *Acalypha* species’ and **kapika* ‘Malay apple and rose apple, *Eugenia* species’ denote two or more ‘scientific’ species, but still appear to have formed the lowest level within the classification. It is only with a few types of **kayu* ‘tree, shrub’ that Ross found evidence to reconstruct a folk generic that denoted several different species and terms for folk species within the generic category. For example, the POc term **[ka]ŋaRi* was polysemous, denoting both *Canarium* species in general and *Canarium indicum* in particular. A second POc term **qalip* ‘canarium almond, *Canarium* species’ may have denoted a separate species (ch.11, §2.1). There are also a few types of **kayu* ‘tree, shrub’ for which Ross can reconstruct more than one POc term, such as **ñoñum* and **kurat* both denoting the Indian Mulberry tree (*Morinda citrifolia*), which may reflect cases where POc speakers distinguished by name different varieties of a single ‘scientific’ species, but often the difference between these terms in POc is not entirely clear.

As expected from the comparative evidence, POc speakers appear to have had more levels within the classification of food plants than with non-food plants. Thus, although it appears that for most plants folk generics denoting a particular ‘scientific’ species formed the lowest level of classification, for some food plants POc speakers appear to have used folk generics to refer to a cluster of similar species and other more specific terms to denote single species. This was seen above with **[ka]ŋaRi* ‘canarium almond, *Canarium indicum*; *Canarium* species in general’, and can be seen in Figure 3.7 with regards to types of yams. Alongside the terms for specific species of yams, POc speakers also appear to have used **qupi* ‘greater yam, *Dioscorea alata*; yam (generic)’ to denote yams in general (ch.9, §2.1). The fine grade distinctions made in the naming and classification of food plants in POc can perhaps best be seen in the reconstructions of different types of edible **pudi* ‘bananas’ (ch.9, §3), and several different growth stages for **niuR* ‘coconut (generic)’ (ch.12, §3). It is also likely that,

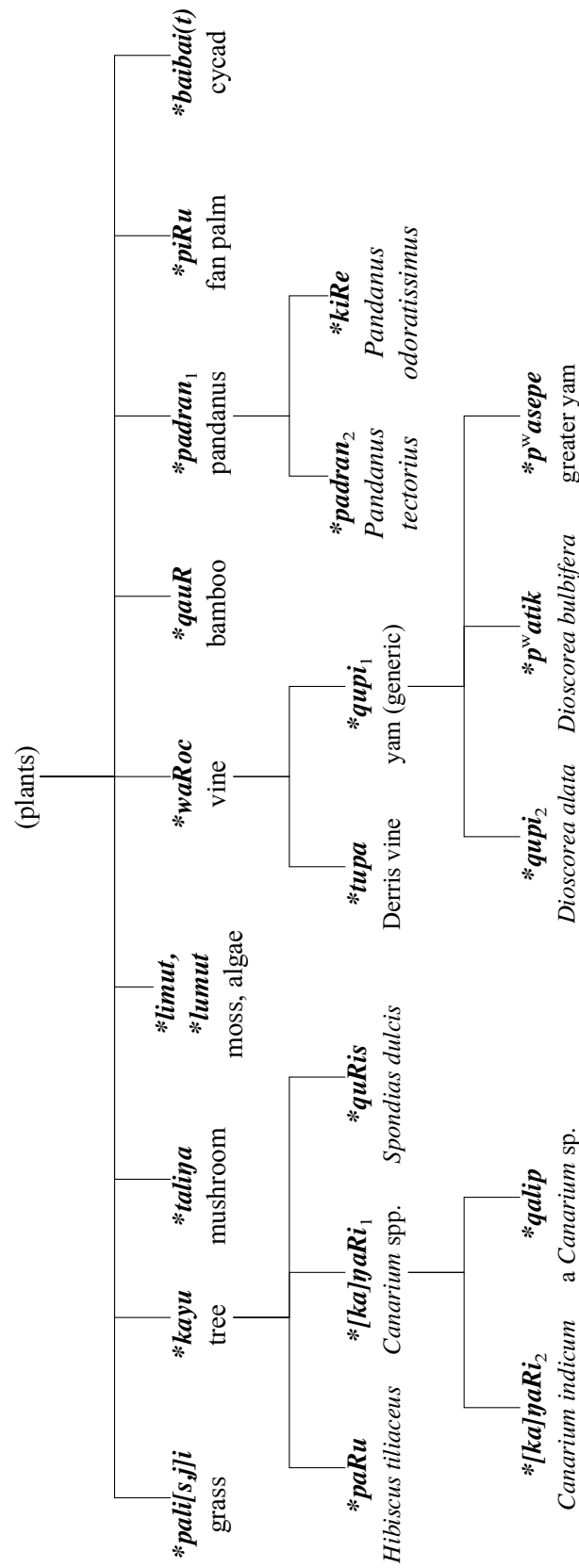


Figure 3.7 Partial Proto Oceanic ethnobotanical classification

like Wayan Fijian speakers, POc speakers had other systems of classifying plants, such as in terms of food categories. For example, Ross (ch.10, §2.1) reconstructs a term **wasa* which denoted *Abelmoschus manihot*, but also appears to have referred to the general category of ‘edible greens’.

The form **qauR* ‘bamboos (generic)’ (ch.13, §3.1) denoted an additional life-form taxon, and **padran* ‘coastal pandanus, *Pandanus tectorius*’ (ch.11, §2.5.1) may have also been used as a generic for all pandanus and thus been a life-form taxon. Palms may have formed a covert category, but it seems likely that they were referred to by their individual names and were unaffiliated to any other primary taxa. Ferns and tree-ferns also appear to have been unaffiliated taxa.

4 *Parts of plants*

BETHWYN EVANS

1 Plant part terms in modern Oceanic languages

This chapter treats the terms used by Proto Oceanic (POc) speakers to denote parts of plants.¹ It complements the chapters that follow, which deal with plant names.

For presentation purposes plant part terminologies are divided into the following twelve categories:

- stems of woody plants
- stems of non-woody plants, leaves and flowers
- branches
- roots
- leaves
- shoots, sprouts and suckers
- flowers
- fruits
- seeds
- outer coverings (bark, skin, husk)
- sap or gum
- thorns

It is not claimed that such categories are necessarily salient in Oceanic societies, but they are based to some extent on the lexical distinctions found in modern Oceanic languages. For example, the category ‘stems of woody plants’ is based on the fact that a number of modern Oceanic languages appear to have distinct terms for woody and non-woody plant stems (e.g. Wayan *gai* ‘woody stem or trunk of a shrub or tree’ vs. *kasa* ‘stem of a shrub or small plant, leaf-stalk or petiole stem of a leaf, flower or fruit’). The single category ‘outer coverings’, including meanings such as bark, skin or peel and husk, is based on the fact that many Oceanic

¹ I would like to thank several people who provided me with unpublished data while I was working on this chapter: Catriona Hyslop and Armstrong Malau (Vurës), Ralph Lawton (Kilivila), Anna Margetts (Saliba), Ian Scales (Nduke) and David Walsh (Raga). Thanks also to Andrew Pawley and Malcolm Ross for detailed comments on earlier versions of this chapter.

Table 4.1 Some terms for parts of the coconut in Tikopia (Firth 1985)

<i>fāmātua</i>	(N) Mature coconut frond. Used traditionally for important taboo sign on <i>vere</i> (<i>Barringtonia</i>) or <i>voia</i> (<i>Canarium</i>) trees, only by chiefs.
<i>fāŋoŋo</i>	(N) Coconut shell (used dried as a receptacle, grater, fuel to kindle fire, source of tattooing black pigment).
<i>kaka</i>	(N) Fibre of base of coconut palm (not sago palm) used traditionally to make filter sheet in turmeric extraction, bag for flour etc.
<i>pararafa</i>	(N) Stem of coconut frond, used traditionally to provide small stirrer for liquids, tiny mallet in tattooing; also used ritually in healing, smoothing temple sand etc.
<i>puru</i>	(N) Husk, primarily of coconut (<i>puru niu</i>), since no other palm nut husk of economic interest; a fibrous dense material used as fuel or for domestic purposes such as cleaning wooden bowls, but mainly as lashing or after special treatment, for preparation of sinnet cord.
<i>roro</i>	(N) Bud or shoot of coconut palm near flower bract; masticated with lime and betel leaf when areca nut scarce. Also possibly other buds.
<i>sakilo</i>	(N) Immature coconut leaf, of pale colour; used traditionally as decoration for some ritual objects, as a shelf in <i>Resiake</i> temple, or sign of taboo on orchard.
<i>taume</i>	(N) Spathe or sheathing-leaf of flower of coconut palm; when dry used for fuel. Traditionally supplied fire for the ritual dancing in <i>Marae</i> .

languages appear to have one term that denotes the outer covering of fruits (peel, rind) and of stems (bark, soft leaf-like skin). For example, Wayan *taba* can refer to any sort of outer covering or layer, including the bark of a tree and the rind or husk of fruit. For each of these twelve categories Oceanic languages tend to have a general term, though this is not the case in all languages. Thus, while Oceanic languages tend to have a single term that can refer to the outer covering of different parts of a plant, there are languages in which there is no such general term, but rather several terms with a much narrower semantic range. For example, Nduke has three specific terms: *tutupa*- ‘bark of a tree’, *poko*- ‘husk or covering of grain’ and *pululu* ‘cover of fruit found on some palms’, but does not appear to have a general term that refers to all outer coverings of plants. Languages which do have a general term for a particular category may also have more specific terms within the category, as we see in the cases of Wayan and Tikopia in §2.1.

Modern Oceanic languages also tend to have terms for parts of particular types of plants, usually those which are of some cultural or economic importance. Thus in Tikopia there is a term, *feti*, that denotes turmeric roots, reflecting their importance as the source of turmeric pigment (*reŋa*) that was traditionally used for the decoration of people and objects and was a highly valued item (Firth 1985: 393–394). In Wayan there is a specific term for the sap of the kauri tree, a tree which does not actually grow in Waya Island, but whose sap is important for the glazes of pots (Pawley & Sayaba 2003). The cultural importance of the parts of particular kinds of plants that are labelled in Oceanic languages can be shown by the names and uses of different parts of the coconut palm in Tikopia, given in Table 4.1.

As the same types of plants are often culturally and economically important in Oceanic societies, languages tend to have specific plant part terms for the same types of plants, including coconuts, bananas, pandanus, breadfruit, yams and taros. For example, (Ross 1996c: 183–185)

Table 4.2 Terms for parts of banana plants

	Lou (Adm)	Iduna (PT)	Gela (SES)	Marshallese (Mic)	Wayan (Fij)
‘banana’ ¹	<i>mun</i>	<i>galo</i> ³	<i>vudi</i>	—	<i>vudi</i>
‘hand’	<i>set, turet, top^wan</i>	<i>ihina</i>	—	<i>ācen</i>	<i>bā</i>
‘bunch’	<i>pɔrɔk</i>	<i>waʔaina</i>	<i>ɣaiyai</i> , ⁴ <i>ɣaibala</i> ⁵	<i>yāc, wiɣ^{uu}weɣ^{uu}</i> ⁷	—
‘sucker, shoot’	<i>supu</i>	<i>wakaiya</i>	<i>duli, nanaŋa</i>	—	<i>soba</i>
‘last fruit’ ²	<i>ŋɔren</i>	—	<i>kukuru, loiloki</i>	—	<i>kalikali</i>
‘flower’	—	<i>buhihi</i>	<i>lualako</i> ⁶	—	<i>tido</i> ⁶
‘stem, stalk’	—	<i>aina (galo)</i>	<i>iti, kulo</i>	<i>peɣ^{uu}aŋ</i> ⁸	—
‘leaf’	—	<i>hineguli</i>	—	—	—
‘stem sheath’	—	—	—	—	<i>basili</i>

¹Generic term.

²This refers to terms which denote the small and poorly developed bananas at the bottom of a bunch.

³*Galo* is the generic term for a number of different varieties of cooking banana.

⁴Gela *ɣaiyai* denotes the good upper bananas of a bunch.

⁵Gela *ɣaibala* denotes ten bunches of bananas.

⁶Gela *lualako* and Wayan *tido* are verbal forms meaning ‘to flower (of a banana)’.

⁷Marshallese *wiɣ^{uu}weɣ^{uu}* can also be used for bunches of coconuts.

⁸Marshallese *peɣ^{uu}aŋ* denotes the stalk inside a bunch of bananas or breadfruit.

reconstructs **pudi* as a general term for bananas in POc and a number of terms that denoted particular types of bananas. Alongside terms for types of bananas modern Oceanic languages tend to have terms for certain parts of the banana plant, such as the suckers, flowers and bunches of fruit as demonstrated by Table 4.2.

The remainder of this chapter examines the terms for the parts of plants (both general and specific) which can be reconstructed for POc. The chapter is organised using the twelve categories listed above, each section beginning with some comments on the way in which the semantic category is lexified in modern Oceanic languages. Data from three languages, Nduke (MM), Wayan Fijian and Tikopia (Pn) are presented to demonstrate the lexical distinctions that occur in modern Oceanic languages, before the probable POc lexemes and their meanings are discussed.

In many modern Oceanic languages part-whole relationships, including the parts of plants, are expressed by direct possessive constructions, such that the nominal denoting the part takes the possessive suffixes. For example, in the Kwaio (SES) phrase *lama-na ʔai* ‘the tree’s flowers’, the nominal *lama-* ‘flower’ takes the 3SG possessive suffix *-na* indexing the person and number of the whole (i.e. the tree) of which it is a part (Keesing 1985: 107). Part-whole relationships were probably expressed by the same type of construction in POc, and so many of the nominals denoting the parts of plants that are reconstructed here would have often (or always) occurred with a possessive suffix.

Table 4.3 Terms for stems of woody plants in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>bokolo-</i>	The scar marks left along the trunk of palm trees as the leaves fall off (e.g. of a coconut, sago palm, pandanus or betel nut).
<i>buli-</i>	Trunk of a tree.
<i>lolaja-</i>	Soft material inside a tree trunk, e.g. the pith of palms and pandanus, or soft heartwood of trees. Variant: <i>leleja-</i> .
<i>tuju-</i>	A rotten or unsound knot in a tree.
Wayan Fijian	
<i>gai</i>	1. Woody stem or trunk of a shrub or tree. cf. <i>ηau, tula</i> ; 2. Leg (esp. of a person).
<i>gina</i>	1. Base of a tree-trunk or woody stem. cf. <i>ηau, gai, vū</i> ; 2. Stump, remnant of trunk or stem cut off close to the ground; 3. Root stem, part of a plant growing below the ground.
<i>vū</i>	1. Base, bottom; 2. Root, taproot, bulbous root. cf. <i>waka</i> fibrous root, <i>tū</i> root, bulb, tuber; 3. Origin, source, root; 4. Cause.
<i>golo</i>	(obsolescent) 1. Top section of a tree trunk or of woody stem. contr. <i>gau</i> , main or centre section of trunk; <i>sō</i> , crown; <i>vū</i> , base; 2. Piece or section of bamboo or sugarcane, between one node and the next. syn. <i>buku</i> ; 3. Branch of a tree. syn. <i>tula</i> .
<i>drau</i>	1. Top end of a post, highest part of a tree. near syn. <i>sō</i> ; 2. Tip or blunt end of any long object. near syn. <i>dū</i> .
<i>kai</i>	1. Wood; 2. Generic for trees and shrubs (and occ. low bushy plants); 3. Used in certain compounds as a generic for all plants; 4. Piece of wood, stick; 5. (vulgar) Penis.
<i>buku</i>	1. (sub. cord or thing that is tied.) Be tied in a knot, fastened by a knot, secured by a knob; 2. Be conspired against, be target of a plot or war plan. (N) 1. Knot, made by tying string, etc; 2. Knob, node, protruding lump in wood, bamboo, sugarcane; 3. Hinge, or place where two things are joined, as the hinge of a bivalve shellfish.
<i>doa</i>	Heartwood, mature wood, the hardest and darkest wood in a mature tree. cf. <i>uto</i> .
<i>ηau</i>	1. Middle part, central section; the main component, the body of a thing. contr. <i>dolo, dū, mua</i> , ends, tip; <i>dronu</i> , bottom. 2. Trunk or body of an animal. contr. <i>lā</i> , leg, <i>ulu</i> , head. 3. Piece or section.
<i>iso</i>	Pith or soft tissue forming the centre of stems of certain plants, e.g. tree fern, pawpaw; the core of a pineapple.
Tikopia	
<i>tuji</i>	(N) Knot in wood; also sharp stump left when shrub or tree cut down.
<i>uŋāfi</i>	(N) Firewood of large size, a big log or two to keep fire going.
<i>kanofi</i>	(N) 1. Flesh; solid part, as sap wood of tree trunk.
<i>tai</i>	(ADJ) Very hard; (N) Hard timber; heartwood.
<i>kuāŋa</i>	(N) Waist; trunk (e.g. <i>kuāŋa o te rakau</i> trunk of tree).
<i>tafito</i>	(N) 1. Base; basis; origin; reason; cause. <i>Tafito o te rakau</i> bole, base of trunk.
<i>uru</i>	(N) 1. head; crest, top 2. principal part, source etc. <i>Uru o te rakau</i> bole, base of trunk.

2 Plant part terms reconstructable for POc

The main stems or trunks of woody plants are of considerable importance within Oceanic societies for the construction of houses and other buildings, and canoes, as well as for making bowls and various other wooden artefacts. Ivens (1927: 149-150, 375-377) describes the construction of and materials used for houses and canoes on Mala Island in the southeastern Solomon Islands, including the use of two types of hardwood trees, *hata* and *mamahu?e*, for the posts which support the ridgepole of houses, and another two hardwood trees, *mawa* and *iola*, for the keel and hull of canoes, respectively.² Woods would have had equal importance in POc society in building houses (vol.1, ch.3), and making household artefacts (vol.1, ch.4) and canoes (vol.1, ch.7). For example, Green & Pawley (vol.1, ch.3, §3.4) reconstruct three POc terms that referred to the posts of a house, namely **aRiRi* ‘post’, **turu(s)* ‘post’ and **bou* ‘(?) main bearers supporting raised floor or roof structure, or centre post supporting ridge pole’, and based on ethnographic evidence such posts were likely constructed from the trunks of hardwood trees.

2.1 Stems of woody plants

Many modern Oceanic languages have a general term denoting the main stem or trunk of a woody plant, alongside a number of more specific terms relating to woody stems (see Table 4.3).³ For example, Wayan *gai* ‘woody stem or trunk of a shrub or tree’ and Tikopia *kuṃṃa* ‘waist; trunk’ are general terms that are used alongside more specific ones denoting different sections of a trunk, such as Wayan *gina* ‘base of a tree-trunk or woody stem’, *ṃau* ‘main or centre section of trunk’ and *golo* ‘top section of a tree trunk or a woody stem’. Modern Oceanic languages typically also have terms for different kinds of wood within a tree trunk. Thus Tikopia has a contrast between *tai*, the heartwood or dense inner wood of a tree trunk and *kanofi*, the sapwood or soft outer layers of wood between the heartwood and the bark, while Nduke has a specific term, *lolṃṃa*, for the soft inner part of palms or pandanus.

An apparently general term for tree trunk can be reconstructed for POc, namely **pata(ṃ)*. It seems likely that POc **pata(ṃ)* referred to the main stem of plants denoted by **kayu* ‘tree or shrub’. As mentioned in ch.3 (§4.3) palms were probably not considered to be **kayu* by POc speakers, but there is no evidence to suggest that the trunks of palms were labelled differently from the trunks of woody trees. Palm trunks seem to be of considerable importance for construction in Oceanic societies, although the different properties of palm trunks and trunks of woody plants may result in different uses.

PMP **batan* ‘stalk, trunk’ (Dempwolff 1938)

POc **pata(ṃ)* ‘tree trunk’ (Bender et al. 2003)

Adm: Lou *pata-* ‘stem or trunk’

² Ivens (1929) gives the following definitions of these Sa’a terms: *hata* ‘a tree, hardwood, used to make gongs’; *mamahu?e* ‘a tree, used for houseposts, quickset’; *mawa* ‘a tree, red wood, strong smelling when chopped and causing vomiting, used for keels of canoes’; and *iola* ‘1. canoe, 2. a village, metaphorically from canoe’, 3. a tree, used to make canoe planks’.

³ In this and later tables Nduke, Wayan and Tikopia entries are from Scales (n.d.), Pawley & Sayaba (2003) and Firth (1985) respectively. The orthographies of the original entries have been replaced by the one used here (ch.1, §4.2).

Adm:	Titan	<i>patá-</i>	‘trunk, stem’
NCV:	Paamese	<i>vat(i-āi)</i>	‘trunk of tree’
Mic:	Chuukese	<i>(nee-)fasaŋa</i> ⁴	‘torso, trunk’
Mic:	Pulo-Annan	<i>ḍāta, ḍata-</i>	‘tree trunk’

POc **pata(ŋ)* is not reflected widely in modern languages, and has been replaced by innovative forms in most.

As mentioned above, Oceanic languages have terms denoting different parts of woody stems. POc **puqu(n)* denoted the base or bole of a woody stem and apparently also ‘base’ more generally, including the base or source of other concrete items and more abstractly the base, source or origin of stories etc.⁵

PMP **puqun* ‘base of tree, source, origin’ (ACD)

POc **puqu(n)* ‘base of tree; source, origin’

NNG:	Bing	<i>fuw</i>	‘base of tree’
NNG:	Gedaged	<i>fú-</i>	‘origin, beginning, start’
NNG:	Takia	<i>fu-</i>	‘originator, host; base, as in base of a tree’
NNG:	Poeng	<i>pu-</i>	‘base, source of s.t.’
NNG:	Wampur	<i>hugu-</i>	‘base, trunk’
PT:	Misima	<i>pú-</i>	‘(tree) base; (axe, knife) end ; (its) cause’
PT:	Muyuw	<i>wowu-</i>	‘(tree) base’
MM:	Nakanai	<i>vuhu-</i>	‘(tree) trunk or base, (leaf) stem, (pearl shell) base; first part of story; reason; origin (story of one’s ancestry)’
SES:	Lau	<i>fū</i>	‘stock, root, origin’
SES:	Sa’a	<i>hū</i>	‘real, permanent’
SES:	Arosi	<i>hū</i>	‘the beginning, origin’
NCal:	Xârâcùù	<i>pū</i>	‘source, origin, beginning’ (cf. <i>pū-k^wāā</i> ‘base of tree’)
Fij:	Bauan	<i>vū-</i>	‘bottom, basis, root (tuberous, bulbous)’
Fij:	Wayan	<i>vū</i>	‘root, tap root, bulbous root, base, basis, cause, origin’
Fij:	Rotuman	<i>hū</i>	‘(tree) lower end’
Pn:	Tongan	<i>fuʔu</i>	‘complete tree or plant, as in <i>fuʔu niu</i> ‘coconut tree’.
Pn:	Niuean	<i>fū</i>	‘trunk of a tree near the root, base of a mast’
Pn:	Tikopia	<i>pū</i>	‘heart or centre of tree’
Pn:	Marquesan	<i>pū</i>	‘tree trunk’

⁴ With final *-ŋa* this form apparently reflects POc final **-ŋ* and added *-a*, perhaps an inalienably possessed form of the noun.

⁵ *Editor’s note:* Blust (ACD) also reconstructs **puna(ŋ)* ‘source, origin’ (including perhaps the headwaters of a river), with Oceanic reflexes Tolai (MM) *vuna* ‘beginning, cause, origin, source, basis, root, foundations, Samoan, Hawaiian (Pn) *puna* ‘spring, source (of water)’. Gumawana (PT) *una-* ‘the base of something; the source of something’ and Bugotu *vune-* ‘base, bottom, beginning, origin, trunk of tree’ apparently also reflect this term, but their glosses imply conflation with reflexes of POc **puqun*.

Pn:	Hawaiian	<i>pū</i>	‘tree, cluster of several stalks, as of banana, pandanus or kava; clump, as of sugar cane’
Pn:	Rarotongan	<i>pū</i>	‘stem; chief, root, origin, source, cause’
Pn:	Māori	<i>pū</i>	‘bunch, bundle, anything growing in a bunch, tuft, heap, stack’

Terms with similar meanings to Wayan *ηau* ‘main or centre section of trunk’ and *golo* ‘top section of a tree trunk or of woody stem’ are more difficult to reconstruct. The POc body part term **qulu-* ‘head’ may also have denoted the top part or crown of a tree including the foliage, as such a meaning is reflected in a few widely scattered modern languages. In some Nuclear Polynesian languages the terms for the top of a tree look to be a reduced compound of **kayu* ‘tree’ and **qulu* ‘head’ (e.g. Māori *kauru* ‘the head of a tree’). However, it is possible that reflexes of **qulu* denoting the crown of a tree represent the independent extension of a body part term, particularly as in Takia (North New Guinea) many of the terms for plant parts appear to primarily denote body parts. For example, *ai pata-n* ‘sap (lit. tree its kidney)’, *ai lua-n* ‘tree trunk (lit. tree its stomach)’ and *ai sukulo-n* ‘bark (lit. tree its skin)’. Of note, however, is that in Takia the body part term ‘head’ is *gurma-*, and the reflex of POc **qulu* is restricted to denoting the top part of a tree.

PMP **qulu* ‘head; top part; leader, chief; headwaters; handle of a bladed implement; prow of a boat; first, first-born’ (ACD)

POc **qulu-* ‘head, top part, hair of the head’ (ACD)

Adm:	Nauna	<i>kulu-n (kɪ)</i>	‘(tree) top’
NNG:	Takia	<i>ulu-</i>	‘top part of tree’
Mic:	Puluwatese	<i>wil</i>	‘budding leaf, top of tree’
Fij:	Rotuman	<i>ulu(ηa)</i>	‘(tree, house, hill) top, summit’ ⁶
Pn:	Pukapukan	<i>(ka)ulu</i>	‘the top or crown of a tree’
Pn:	Tahitian	<i>(a)uru</i>	‘top ends of small twigs or branches’
Pn:	Māori	<i>(ka)uru</i>	‘the head of a tree’

A term specifically denoting the centre or main part of the trunk does not appear to be reconstructable for POc.

Terms for different types of wood or tissue in woody stems are present in Wayan, Tikopia and Nduke. Tikopia *tai* denotes the heartwood or dense inner wood of a tree trunk and *kanofi* the sapwood or soft outer layers of wood between the heartwood and the bark. PPn terms for these two types of wood are reconstructable. The cognate set of Tongan *tahi*, Samoan *taia* and Tikopia *tai* attest to PPn **tahi* ‘(heart)wood’ (POLLEX), but I have not found any non-Polynesian cognates of this form. A corresponding term for sapwood, **taitea*, is reconstructable for Proto Nuclear Polynesian only and is a compound of **tai* ‘heartwood’ and **tea* ‘white’. Again I have found no non-Polynesian cognates.

PPn **tahi* ‘(heart)wood’ (POLLEX)

Pn:	Tongan	<i>tahi</i>	‘hard wood or solid centre of certain kinds of trees’
Pn:	Tikopia	<i>tai</i>	(N) ‘hard timber, heartwood’; (ADJ) ‘very hard’

⁶ The origin of final *-ηa* is unclear.

Pn: Samoan *taia* (N) ‘hard core, heartwood of (exogenous) trees’; (v) ‘(of exogenous trees) be mature enough to have a hard core (and therefore be used as timber)’

Proto Nuclear Polynesian **tai-tea* ‘sapwood’ (**tea* ‘white’) (POLLEX)

Pn: Tokelauan *taitea* ‘the soft white wood of *Cordia subcordata*’

Pn: Hawaiian *kaikea* ‘sap, sapwood’

Pn: Māori *taitea* ‘white wood, sapwood’

POc **uso* ‘umbilical cord, core’ may also have been used to refer to the core or heartwood of woody stems or tree trunks, as are its reflexes in Sa’a, Wayan and Māori.

POc **uso* ‘umbilical cord, core innards or digestive organs of a shellfish’ (Pawley forthcoming)

PT: Motu *udo* ‘navel’

SES: Lau *uto* ‘core’

SES: Sa’a *uto* ‘pith, core’

Fij: Wayan *iso* ‘innards, especially digestive organs of mollusc; pith, soft inner tissue of e.g. tree ferns; core of certain fruits (e.g. pineapple, breadfruit)’

Pn: Tongan *uho* ‘navel, cord pith, core, core-like centre’

Pn: Māori *uho, iho* ‘umbilical cord, heart (of a tree), pith, inside, kernel’

2.2 Stems of non-woody plants

Modern Oceanic languages also often have one or two terms denoting the stems of leaves and sometimes of non-woody plants. For example, Wayan *bābā* ‘stalk or stem of leaves of certain large-leaved plants, especially stem of taro, banana, coconut’ and Tikopia *fā* ‘leaf stem of a fleshy plant’. Table 4.4 gives the range of terms for non-woody stems that occur in Nduke, Wayan and Tikopia.

POc seems to have had a general term **baRa-baRa* that referred to stems of non-woody plants, like taros and bananas, and it seems likely that this form was also used to refer to the soft stem of leaves. Other POc terms for non-woody stems are more specifically either fruit stems or leaf stems and are described in the following sections.

POc **baRa-baRa* is a well-supported reconstruction, both in terms of form and meaning. Since widespread reflexes are reduplicated, unreduplicated forms in Micronesian languages are assumed to represent an innovation (see also discussion of POc **paRara* in footnote 21 of ch.9, p.280).

POc **baRa-baRa* ‘stem or stalk of non-woody plants, such as taro and banana, probably also the soft stems of leaves’

PT: Tawala *palapala* ‘(plant) main stalk, stalk of mustard leaf eaten with betel nut’

SES: Bauro *parapara* ‘stalk of flowers; involucre of flower, sheath of leaves’

Mic: Kiribati *ba* ‘leaf, palm, midrib of palm leaf’

Table 4.4 Terms for stems of non-woody plants in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>kamu-</i>	The rings in the stem of bamboo, palms and grasses (like sugar-cane).
<i>soyoto</i>	The stem of a flower.
<i>bayutu-</i>	Stem that supports the flowers, and later the fruit, of the coconut.
<i>kilikava-</i>	Stem of coconut frond, especially at thick end, used e.g to lay on ground to <i>yotolo mola</i> (push up a canoe at landing).
Wayan Fijian	
<i>kasa</i>	Stem of a shrub or small plant, leaf-stalk or petiole stem of a leaf, flower or fruit; new shoots or suckers growing out from trunk or branch of a tree or from main stem of a banana plant. near syn. <i>gau</i> , <i>rovuvaci</i> .
<i>bābā</i>	Stalk or stem of leaves of certain large-leafed plants, esp. stem of taro, banana, coconut.
<i>bālotu</i>	A coconut leaf stalk stripped of its leaflets; the stem of the coconut leaf. Used for firewood and torches.
Tikopia	
<i>kau</i>	(N) Stalk, stem supporting bunch of fruit, e.g. bananas, handle of implement.
<i>fā</i>	(N) Leaf stem of a fleshy plant.
<i>safe</i>	(N) Flower stem or fruiting bunch of banana. <i>Tao ma tona safe</i> (banana fruit) bake it in the oven on its stem (ritual procedure).
<i>pararafa</i>	(N) Stem of coconut frond, used traditionally to provide small stirrer for liquids, tiny mallet in tattooing; also used ritually in healing, smoothing temple sand etc.

Mic:	Kosraean	<i>pæ</i>	‘stalk (of taro or banana), stem’
Mic:	Marshallese	<i>pap</i>	‘coconut frond, midrib of frond’
Mic:	Satawalese	<i>-pæ</i>	‘counting classifier for coconut or taro leaves’
Mic:	Woleaian	<i>-pā</i>	‘numeral classifier for chained or strung objects such as palm fronds, leis, shell belts’
Mic:	Ponapean	<i>pā</i>	‘leaf of any large-leafed plant such as taro’
Fij:	Bauan	<i>bā</i>	‘stalk of taro leaves (only)’
Fij:	Wayan	<i>bābā</i>	‘leaf-stalk (petiole) or stem of certain single-stemmed plants whose leaves unfold from the stalk, especially taro, banana and leaf-stalk of palms’
Fij:	Yasawa	<i>bābā</i>	‘stalk or stem of certain large-leafed plants, especially taro, banana, coconut.’

2.3 Branches

Table 4.5 gives terms for branches in Nduke, Wayan and Tikopia. Nduke has a term *kapaha*- that denotes branches of any plant, alongside a couple of more specific terms, *vuŋu*- ‘a branch or stem bearing nut clusters or fruit’ and *buru*- ‘the fruiting branch (*vuŋu*-) of coconuts or

Table 4.5 Terms for branches in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>kapaha-</i>	A branch of a plant.
<i>buru-</i>	The <i>vuju</i> (fruiting branch) of <i>pevu</i> (coconut) or <i>koke</i> or <i>haoro</i> (the canarium trees), that is plentiful, producing many nuts.
<i>vuju-</i>	A branch or stem bearing fruit, e.g. a bunch of coconuts or betel nut or bananas still attached to the stalk. Particularly this means a cut-down stem that has fruit attached.
Wayan Fijian	
<i>tula</i>	1. Branch or twig of a woody tree; 2. An alternative way of doing or saying s.t., a paraphrase or different method or expression.
<i>kāsalu</i>	1. Small branch, minor branch of a tree. contr. <i>tula</i> ; 2. (metaph.) Person of no account, of low rank; unimportant person.
Tikopia	
<i>maŋa</i>	1. (N) Segmentary division in general, e.g. subsidiary tuber or corms in root vegetables, 2. branch (of tree, coral etc), 3. offshoot, bifurcation, 4. abstract sense of variation (e.g. in language).
<i>rā</i>	(N) Stem; twig; minor branch of tree, as opp. to <i>maŋa</i> , a major branch.
<i>potunea</i>	(N) A small stick or branch.
<i>kaŋokaŋo</i>	(N) Twigs; small dead branches.

canarium trees'. Wayan and Tikopia, on the other hand, have terms for large major branches and smaller minor branches. Thus Tikopia *maŋa* 'major branch' versus *rā* 'stem, twig, minor branch'. A number of different terms for branches are also reconstructable for POc, but the functional differences between them are not so clear.

Three apparently different, but quite similar, forms can be reconstructed with the meaning 'branch' for POc, namely **raqaŋ*, **rako(q)* and **raga(q)*. On the basis of the modern reflexes it is not clear what the functional differences among these terms would have been. Each of these POc forms reflects an older Austronesian term, but the differences in meaning among them at earlier stages are also unclear.

Proto Austronesian **daqan* 'branch', continued as POc **raqaŋ* 'branch (of a tree)', is the most widely reflected 'branch' term in Oceanic languages. POc **raqaŋ* was probably the general term for branches of trees and other plants as the meanings in modern languages denote both major branches of trees and small branches or twigs.

PAn **daqan* 'branch' (Blust 1993)

POc **raqaŋ* 'branch of tree or other plant' (Ross 1988)

Adm:	Drehet	(i) ⁿ <i>ra</i>	'branch'
PT:	Misima	<i>la</i>	'(tree) branch'
PT:	Motu	<i>raya</i>	'fruit-bearing palm branch'
MM:	Siar	<i>rakan</i>	'(tree) branch'
MM:	Sursurunga	<i>rəkən</i>	'(tree) branch'
SES:	Arosi	<i>rā-na</i>	'(tree) branch'

PNCV **raa*, **ra-ra-* 'branch' (Clark 1996b)

NCV:	Raga	<i>ra-ra-</i>	'branch'
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NCV:	Kiai	<i>ra-ra-</i>	‘wing’
NCV:	Nguna	<i>a-raa</i>	‘branch’
SV:	Anejoñ	<i>nra-</i>	‘branch’
Mic:	Kosraean	<i>læ</i>	‘(tree) branch, twig, limb’
Mic:	Woleaian	<i>ʒaa</i>	‘(tree) branch, bough, twig’
Mic:	Carolinian	<i>ræ̃</i>	(tree) branches’
Mic:	Chuukese	<i>ræ̃</i>	‘branch (with leaves)’
Fij:	Rotuman	<i>rā</i>	‘branch, bough’
Pn:	Niuean	<i>lā</i>	‘(tree) branch; carries connotation of being small or the smaller part of a whole’
Pn:	Tikopia	<i>rā</i>	‘stem; twig; minor branch of tree, as opposed to <i>maŋa</i> , a major branch’
Pn:	E Futunan	<i>laʔa-laʔa</i>	‘small branch’
Pn:	Rennellese	<i>gaʔa</i>	‘branch’
Pn:	Samoan	<i>lālā</i>	‘branch’

POc **rako(q)* ‘branch, twig’ is supported by reflexes in two Papuan Tip languages and by cognates in non-Oceanic languages that suggest PMP **dankeq* ‘branch’.

PMP **dankeq* ‘branch’ (Blust 1986)

POc **rako(q)* ‘branch, twig’

PT:	Gumawana	<i>lao</i>	‘a branch’
PT:	Motu	<i>rako-</i>	‘a twig’ ⁷
		<i>rako-rako</i>	‘young, small wood’

Similarly, POc **raga(q)* ‘branch’ is supported by reflexes in a small number of Papuan Tip and Meso-Melanesian languages and by non-Oceanic cognates that suggest PMP **dankaq* ‘branch’.

PMP **dankaq* ‘branch’ (Blust 1986)

POc **raga(q)* ‘branch’

PT:	Gapapaiwa	<i>raga-</i>	‘branch; limb’
PT:	Tawala	<i>laga-</i>	‘branch’
PT:	Iduna	<i>laga(ni-)</i>	‘branch’
MM:	Marovo	<i>raga (hae)</i>	‘branch’ (<i>hae</i> ‘tree’)
MM:	Vangunu	<i>raga</i>	‘branch’

POc also had two morphologically related forms **saŋa* and **ma-saŋa* that denoted branching or forked structures. POc **saŋa*, a reflex of PMP **saŋa* ‘bifurcation, to branch’, appears to have been a nominal form referring to a fork in a tree or stick, as well as the crotch. The verbal reflex in Kosraean seems to be an innovation.

⁷ It is unclear whether Motu *rako* ‘twig’ is inherited or is borrowed from another Papuan Tip language. The usual reflexes of POc **-k-* are Motu *-y-* or zero, not *-k-*. Ross (1994b) shows that Motu has borrowed lexicon from a southeast Papuan language; *rako* may be such a borrowing. However, he also lists inherited items in which **k* is reflected as Motu *-k-*. Note that Motu *rako* ‘twig’ cannot regularly reflect POc **raga(q)*, as **g* is reflected as Motu *g*.

PMP **saŋa* ‘bifurcation, to branch’ (ACD)

POc **saŋa* ‘fork (in tree), forked stick or post, crotch’

Adm:	Lou	<i>sae-n</i>	(N) ‘lower branch’
Adm:	Titan	<i>cáŋa</i>	‘fork in tree, crotch; straddle, climb straddling’
		<i>cáŋa-n(key)</i>	‘fork of a tree’
NNG:	Gedaged	<i>saŋa-n</i>	‘crotch, groin, bifurcation, fork’
SES:	Lau	<i>taŋa</i>	‘the V-shaped groove in a mainpost’
SES:	Kwaio	<i>taŋa-na</i>	‘groin’
SES:	Arosi	<i>taŋa-na</i>	‘a crotch; fork of the legs’
NCV:	Mota	<i>saŋa</i>	‘a fork, crotch, forked stick or post’
Mic:	Kosraean	<i>seŋ</i>	(N) ‘(spearhead, fishhook) barb, prong, fish fins appearing above the surface of the water’; (VI) ‘to fork, branch out, bifurcate’
Fij:	Bauan	<i>saŋa</i>	(N) ‘a crotch’; (ADJ) ‘crotched, especially of a branch which forms a crotch with a tree’
Fij:	Wayan	<i>soŋa-soŋa</i>	‘fork or joint between two protruding things; point or end of a protruding object; have many branches (e.g. tree, coral)’

POc **ma-saŋa* is reconstructed with both verbal and nominal functions. Its morphological structure, that is, the prefix **ma-*, suggests that it was an intransitive verb with an Undergoer subject, as it appears to still be in Lou, Lau, Arosi and Sye. However, the range of reflexes of **ma-saŋa* with nominal meanings in modern Oceanic languages suggests that it perhaps also had nominal uses in POc. A number of modern languages which reflect both **saŋa* and **ma-saŋa* support the reconstruction of nominal and verbal functions, respectively. For example, in Lau and Arosi reflexes of **saŋa* now have quite specific nominal meanings and reflexes of **ma-saŋa* have the general meaning of ‘branching, forked’ and look to be verbal. In Kwaio, on the other hand, the reflexes of both **saŋa* and **ma-saŋa* have nominal meanings.

POc **ma-saŋa* ‘to be branching or forked (VI); branch (of tree, river, path), fork, crotch (N)’

Adm:	Lou	<i>mosa, mosoŋa-n</i>	‘crotch; place where branch divides’
MM:	Kara (E)	<i>məsaŋe-na</i>	‘fork of tree’
SES:	Tolo	<i>masaŋa-na</i>	‘branch or fork of a road, river or tree’
SES:	Lau	<i>matana</i>	‘forked; to spread fingers or limbs; (tree) branch; branch in road; the middle’
		<i>matana-na</i>	‘(frog) legs’
		<i>matanā</i>	‘branching; growing together, of two or more things; starfish’
SES:	Kwaio	<i>matana-na</i>	‘crotch, branching place’
SES:	Arosi	<i>matana</i>	‘doubled, forked’
NCV:	Tamambo	<i>masaŋa</i>	‘branch’
NCV:	Araki	<i>ŋasaŋa</i>	‘forked’
SV:	Sye	<i>ne-msoŋ</i>	‘fork in tree’
Pn:	Tongan	<i>mahaŋa</i>	‘branch, fork, crotch’
Pn:	Niuean	<i>mahaŋa</i>	‘forked (of a path)’
Pn:	Rennellese	<i>masaŋa(saŋa)</i>	‘road fork, branching’

PPn **maŋa* ‘branch, fork; branching, forked’ is a well-supported reconstruction. A possible non-Polynesian cognate is Kiribati *m^wāŋa* ‘branch, limb of tree’, but Harrison (1994: 345) suggests that this may be a Polynesian loan. It is possible that PPn **maŋa* ‘branch, fork’ is historically related to POC **ma-saŋa* ‘to be branching, branch’ with irregular loss of **s*, but this is not certain. Most Polynesian languages reflect one or other form, but not both. However, Niuean reflects both forms and with very similar meanings, and in Tongan both forms have similar nominal meanings, but the reflex of **maŋa* also has a verbal meaning.

PPn **maŋa* ‘branch, fork; branching, forked’ (POLLEX)

Pn:	Tongan	<i>maŋa</i>	(VI) ‘fork, branch out, branch off, become divided into two or more branches; to step across s.t.’; (N) ‘branch, fork, crotch, bifurcation; stride’
Pn:	Niuean	<i>maŋa</i>	‘forked’
Pn:	W Uvean	<i>maŋa</i>	‘branch’
Pn:	Tikopia	<i>maŋa</i>	‘segmentary division, e.g. subsidiary tuber or corm in root vegetables; (tree, coral +) branch; offshoot, bifurcation’
Pn:	Samoan	<i>maŋa</i>	(N) ‘(tree, road +) fork’; (V) ‘divide into two, fork’
Pn:	Luangiua	<i>maŋa</i>	‘branch’
Pn:	Rapanui	<i>maŋa-maŋa</i>	‘bifurcation, branching off’
Pn:	Māori	<i>maŋa</i>	‘(tree) branch’
Pn:	Hawaiian	<i>mana</i>	(N) ‘(tree, road, stream) branch, limb, crotch; crosspiece, as of the cross; a line projecting from another line’; (VI) ‘variant, version, as of a tale; branch out, spread out’

Blust (ACD) also reconstructs Proto Austronesian **paŋa* ‘fork of a branch; any forked structure, bifurcation’ (which is reflected in Roviana as *paŋa* ‘fish spear with several prongs’), and **paŋaq* ‘forked, pronged, bifurcation’, which appears not to have Oceanic reflexes.

Blust (ACD) reconstructs Proto Austronesian **taŋay* ‘branch’, and a possible irregular reflex in Sa’a, *akeake* ‘a strand of rope, a twig, a sprig’, suggests the reconstruction of POC **take* ‘small branch, twig’, but it is not well-supported.

2.4 Roots

Oceanic languages tend to have a term for roots of plants in general and a number of more specific terms for kinds of roots such as buttress roots, aerial roots, taproot, fine hair-like roots. For example, we see from Table 4.6 that Nduke has a general term for roots *ayara-*, alongside *dojoro-* ‘aerial roots’ and *bayere-* ‘buttress roots’. Another NW Solomonic language, Maringe, on the other hand, appears to lack a general term for roots but distinguishes between *bakla* ‘buttress roots’, *grabu* ‘small underground roots’, *glathi* ‘taproot of trees or tubers’, and *grebu* ‘short hair-like roots’.

Besides a general term for roots, **wakaR-*, POC had at least three other more specific terms, **lali(t,c)* ‘buttress roots’, **Ramut* ‘fine, hair-like roots’ and **waka(t)* ‘mangrove roots’. POC **wakaR* is a well-supported reconstruction with reflexes in a wide range of Oceanic languages.

Table 4.6 Terms for roots in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>ayara-</i>	General term for the root of any plant.
<i>bayere-</i>	Buttress roots of a tree.
<i>doyoro-</i>	Aerial roots, e.g. those found on some species of <i>Ficus</i> trees. cf. <i>doyoro eana</i> banyan roots.
<i>rosu-</i>	The root of a tree or plant. This applies to underground roots only, not aerial roots or buttress roots.
Wayan Fijian	
<i>suku</i>	Knobby growth protruding from trunk or branch of tree. near syn. <i>vura</i> ; Buttress roots of a tree. syn. <i>ribi</i> .
<i>ribi</i>	Shin, shinbone; buttress root, projecting flank in lower trunk of certain trees. Timber good for handles; Projecting growth sometimes found in yam tubers.
<i>nia</i>	Flesh or main substance of s.t. Thus: Flesh of an animal body, including meat, fat and marrow, in contrast to skin (<i>taba</i>) and bones (<i>tua</i>); Flesh or main edible part of fruit or root excluding the skin or rind; Tuber of root crop, e.g. taro, yam, sweet potato; Mature inner part of a tree, heartwood. near syn. <i>doa</i> ; Lower part of stem of the kava plant (<i>aqona</i>) in contrast to the root (<i>waka</i>) and upper stem (<i>qai</i>); Substance or main content of a speech, book, etc.
<i>vū</i>	Base, bottom; Root, taproot, bulbous root. cf. <i>waka</i> fibrous root, <i>waka tū</i> taproot; Origin, source, root; Cause.
<i>waka</i>	Roots of a plant. contr. <i>vū</i> , root in sense of base, origin. Kava root, not yet ground.
<i>draya</i>	Roots or root-hairs of any plant. near syn. <i>waka</i> , which is now more common in this sense.
Tikopia	
<i>aka</i>	(N) Aerial rootlet, as of banyan.
<i>vaiaka</i>	(N) Rootlet; spreading roots; aerial root.
<i>raparapa</i>	(N) Flange; buttress (cf. <i>raparapa rakau</i> tree trunk buttress; bulging tree roots)
<i>fosa</i>	(N) Root, esp. taro corm and other root vegetables.
<i>futi</i>	(N) Base. <i>Futi o te rakau</i> roots of tree
<i>feī</i>	(N) Turmeric root

PMP **wakaR* ‘root’ (ACD)

POc **wakaR* ‘roots (in general)’

Adm:	Mussau	<i>oa</i>	‘root’
NNG:	Numbami	<i>woka</i>	‘root’
MM:	Bali	<i>wakara</i>	‘root’
MM:	Nakanai	<i>ua</i>	‘radial roots of a tree’
MM:	Nduke	<i>ayara-</i>	‘general term for roots of any plant’
MM:	Kusaghe	<i>ayoro</i>	‘root’
SES:	Gela	<i>oya</i>	‘small roots’
SES:	Bugotu	<i>oya-</i>	‘root’
SES:	Kahua	<i>vaya-na</i>	‘root’
SES:	Santa Ana	<i>waya-na</i>	‘root’
NCV:	Lewo	<i>yaka</i>	‘kind of root, edible’
SV:	N Tanna	<i>nokə-</i>	‘root’
SV:	Lenakel	<i>nukə-</i>	‘root’
NCal:	Xârâcùù	<i>kwē-</i>	‘root’
NCal:	Nemi	<i>wā-</i>	‘root’
Mic:	Kosraean	<i>okæ</i>	(N) ‘root’; (VI) ‘begin to have roots’
Mic:	Marshallese	<i>ɔkar</i>	‘root’
Mic:	Chuukese	<i>wār</i>	‘(tree) root’
		<i>wāra-n</i>	‘its root’
Mic:	Woleaian	<i>wexaz</i>	‘root’
Mic:	Carolinian	<i>wār</i>	‘roots of a tree or plant’
Fij:	Bauan	<i>waka-</i>	‘root of a plant (fibrous)’
Fij:	Wayan	<i>waka-</i>	‘root or roots of plant, fibrous roots’ (cf. <i>waka-tū</i> ‘taproot’)
Fij:	Rotuman	<i>vaʔa</i>	‘(fibrous) roots’
Pn:	Niuean	<i>vaka</i>	‘(plant) root; be woody, stringy; grow roots’

cf. also:

MM:	Label	<i>wakir</i>	‘tree root’
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Blust associates Label *wakir* with PCEMP **wakir* ‘kind of root’. However, there being no other Oceanic reflexes of this etymon, it seems likely that this is an irregular reflex of **wakaR*. Some Micronesian languages including Marshallese *ɔkar*, Chuukese *wār*, *wāra-n*, Carolinian *wār* and Woleaian *wexaz* point to a PMic variant **wakara-* (Bender et al. 2003: 104), presumably inalienably possessed and reflected in Chuukese *wāra-n*.⁸

Blust (ACD) also reconstructs a PEMP term **wakaR-i* ‘root’, which is reflected in a number of Oceanic languages. Although Blust (ACD) posits an apparent morpheme boundary between the root **wakaR* and an ending **-i*, he comments that the morphology of the longer

⁸ Blust (ACD) suggests that the Micronesian data plus Bali *wakara* ‘root’ support the reconstruction of a POc (unbound?) form **wakaR-a* ‘root’. As Bali *wakara* ‘root’ is a regular reflex of POc **wakaR* I have not reconstructed this form. There are a few other Proto Micronesian etyma that retain a POc final consonant and add **-a*; e.g. POc **pata(ŋ)* is reflected as both **fata* and **fatana* ‘tree trunk’ in Proto Micronesian (Bender et al. 2003: 24).

form remains obscure, and does not suggest any meaning difference between **wakaR* and **wakaR-i*. It was probably an alternant inalienably possessed form.⁹

PEMP **wakaR-i* ‘root’ (ACD)

POc **wakaRi-* ‘root’

NNG:	Dami	<i>warei</i>	‘root’
NCV:	Tambotalo	<i>uari-</i>	‘root’
NCV:	Aore	<i>wari</i>	‘root’
NCV:	Araki	<i>xuari</i>	‘root’ (metathesis)
NCV:	Nduindui	<i>ka-kwari</i>	‘root’ (metathesis)
Mic:	Nauruan	<i>awori-n</i>	‘root’

Dempwolff (1938) reconstructs PMP **aka(r)* ‘root’ as a doublet of **wakaR* ‘root’. Blust (ACD) notes that all non-Oceanic cognates with an initial **a-* are in languages which regularly lose word-initial **w-*, thus providing no evidence for the presence or absence of **w-*. Several Oceanic languages have forms which do suggest a POc doublet form **aka(r,R)*. None of the forms below are regular reflexes of **wakaR* ‘root’.

POc **aka(r,R)* ‘root’ (Dempwolff 1938)

Adm:	Lou	<i>akɔ-n</i>	‘root’
MM:	Ramoaina	<i>akar</i>	‘root’
Pn:	Tongan	<i>aka</i>	‘root, have roots; send out roots’
Pn:	Tikopia	<i>aka</i>	‘(banyan) aerial rootlet’
Pn:	Samoan	<i>aʔa</i>	‘root’

Thus POc apparently had three very similar forms, **wakaR*, **wakaRi-* and **aka(r,R)*, all ‘root’. If **wakaRi-* is an alternant inalienably possessed form, then only **aka(r,R)* requires explanation. No modern languages have been found to retain more than one of the four forms, suggesting that there was no semantic difference among them. POc **wakaR* ‘root’ is the most widely reflected in modern Oceanic languages and reflects a Proto Austronesian form.

The POc term for ‘buttress roots’ was **lali(c,t)*. This is a more or less regular reflex of PMP **daliʃ*, reconstructed by Blust (ACD). The expected POc initial liquid is †**r-*, but it has undergone assimilation to the intervocalic liquid, giving **lal-* rather than †**ral-*. The same change is found in POc **lalom* ‘inside’, reflecting PMP **Dalem* (vol.2, ch.8, §2.3.1). The expected final consonant is POc **-c*. The only languages to reflect a final consonant are Tolai and Ramoaina, in both of which the expected reflex is zero, but instead we find *-t*.

PMP **daliʃ* ‘buttress roots’ (ACD)

POc **lali(c,t)* ‘buttress roots’

Adm:	Lou	<i>lil, lila-n</i>	‘exposed root or vein’ (vowel metathesis)
MM:	Tolai	<i>lalit</i>	‘space between the buttresses of a tree’
MM:	Ramoaina	<i>lalit</i>	‘buttresses of trees’

⁹ *Editor’s note:* The morphology of POc inalienably possessed nouns with a stem-final consonant is obscure. Some reflexes suggest that a vowel was added before the suffix-initial consonant, e.g. **wakaR-i-ña* ‘its root’, others that the stem-final consonant was lost, e.g. **waka-ña*.

SES:	Gela	<i>lali</i>	‘buttress roots of some trees’
SES:	Bugotu	<i>lali-(ña)</i>	‘buttress of tree’
SES:	Kwara’ae	<i>lali</i>	‘root’
SES:	Kwaio	<i>lali</i>	‘big tree root’
SES:	Arosi	<i>rari-na</i>	‘root’
SES:	Bauro	<i>rari-na</i>	‘buttress root’

The POc reconstruction **Ramut* ‘fine, hair-like roots’ is a revision of Geraghty’s (1990: 69) PEOc reconstruction **Ramu-* ‘hair, fibre’.¹⁰ Extra data suggest that this form had a primary meaning ‘hair-like roots’ and in a number of languages has been extended to refer to other fine fibrous things. Data from the Meso-Melanesian languages support the reconstruction of a final consonant in POc. In Papuan Tip languages **Ramut* appears to have become the general term for roots.

POc **Ramut* ‘fine, hair-like roots’ (Geraghty 1990: 69)

NNG:	Lukep (Pono)	<i>rami</i>	‘roots’
PT:	Gumawana	<i>lam</i>	‘root’
PT:	Suau (Saliba)	<i>lam</i>	‘root’
PT:	Motu	<i>ramu</i>	‘root’
MM:	Tolai	<i>ramu-</i>	‘feelers of a lobster’
MM:	Mono-Alu	<i>lamutu-na</i>	‘root’
MM:	Varisi	<i>ramutu-na</i>	‘root’
SES:	Gela	<i>(lau)lamu</i>	‘hairs on mango; fibre of coconut’
SES:	Ghari	<i>lamu-na</i>	‘root’
SES:	Tolo	<i>lamu-na</i>	‘(plant, tree +) root’
SES:	Arosi	<i>ramu-ramu</i>	‘small fibrous aerial roots; loose ends of a bag, hanging string etc.’

Finally, there is some evidence that POc also had a term that denoted mangrove roots. Blust (ACD) reconstructs PMP **wakat* ‘mangrove root’ along with a possible doublet **waket*. He notes that the loss of final consonants in most Oceanic languages makes it difficult to distinguish between reflexes of PMP **wakaR* ‘root’ and **wakat* ‘mangrove root’, but states that close attention to semantics suggests that only **wakaR* ‘root’ survived in POc. Although I have found no reflexes of **wak[a,e]t* in Oceanic languages which retain word-final consonants, the presence of both **wakaR* ‘roots (in general)’ and **wako(t)* ‘mangrove root’ in POc is suggested by the apparently distinct reflexes in Kosraean, namely *ɔkɔk* ‘mangrove root’ and *okæ* ‘(N) root’; (VI) ‘begin to have roots’. Tawala *wakoya* ‘mangrove’ supports the reconstruction of POc **wako(t)* with an **o*, reflecting PMP **waket*.

In English ‘mangrove’ refers to a variety of trees and shrubs that grow in coastal swamps and tidal estuaries and are characterised by their ability to tolerate salt water and their possession of different forms of aerial roots (OED). Species of the genus *Rhizophora* which grow in the wetter outer areas of the mangrove swamp have interlacing prop-roots, whereas those of the genus *Bruguiera* tend to grow in drier areas with pneumatophores (breathing roots)

¹⁰ Although Geraghty’s reconstructions are all to the level of PEOc, he implies that **Ramu-* ‘hair, fibre’ could be attributed to POc by giving Proto Papuan Tip **ramu* ‘root’ as part of the supporting data.

Table 4.7 Terms for leaves in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>vuvuru-</i>	Leaves on any plant. <i>vuvuru yae</i> ‘tree leaves’.
<i>kakati-</i>	Variegated, of leaves, e.g. <i>zazala</i> ‘croton’ leaves.
<i>kava-</i>	A frond or leaf that attaches directly to the trunk or stem of the plant, i.e. of plants (other than grasses) that don’t have branches. Examples are the leaves or fronds of coconuts (<i>kava pevū</i>), sago palms (<i>kava goe</i>) and other palms, bananas (<i>kava lukata</i>), paw-paws (<i>kava manioko</i>) and treeferns.
<i>midi-</i>	The stiff mid-ribs of fronds, e.g. of <i>goe</i> (sago-palm) or coconut fronds. <i>midi goe</i> sago-palm broom ‘straws’; <i>midi letu</i> coconut broom ‘straws’. Brooms (<i>nenepo</i>) are made of bundles of sago palm <i>midi</i> tied together at their thick end.
<i>zaro-</i>	The dead leaves of certain types of plants, e.g. banana and pawpaw leaves.
<i>hahau-</i>	Dead coconut fronds that fall to the ground.
<i>letu-</i>	Coconut palm leaflet (i.e. those arranged along the <i>midi</i> stem of the frond). Does not apply to <i>goe</i> ‘sago’, which has <i>vuvuru</i> ‘leaves’ along the <i>kava</i> ‘frond’.
Wayan Fijian	
<i>susuluka</i>	Dry pandanus and banana leaves. contr. <i>botata</i> , dry breadfruit leaves.
<i>rau</i>	1. Leaf. 2. A hair, hairs of the head. contr. <i>vulu</i> , head hair (as a whole).
<i>belebele</i>	Young leaves of any plant.
<i>tōrau</i>	1. Soft, white young leaves at the top of a coconut tree. Edible; 2. Soft, young leaves of any plant.
<i>tua</i>	(N) 1. Bone. 2. Rib of a leaf.
<i>tuabou</i>	1. Spinal column, backbone; 2. Rib of a leaf.
<i>sāsā</i>	Dry coconut leaf. syn. <i>basilele samasama</i> .
<i>basilele</i>	1. Coconut leaf, whether dry or still green and growing on the tree. syn. <i>rō ni niu</i> (lit. ‘leaf of coconut’). cf. <i>sāsā</i> . 2. Broom made of coconut leaf ribs.
<i>botata</i>	Dry breadfruit leaves.
Tikopia	
<i>rau</i>	Classifier for flat objects; hence leaf, sheet etc; also often used alone for sago leaf thatch sheets, and for thatch generic.
<i>tauru</i>	(N) Foliage, esp. collectively, as a mass of leaves on a tree, spray of fern fronds etc.
<i>siṅano</i>	(N) Immature leaf of pandanus or coconut palm, used as decoration (<i>manoṅi</i>).
<i>firoi</i>	(N) Leaf base of palm.
<i>mariṅa</i>	(N) Small pinnules at base of palmate leaf etc. (e.g. <i>mariṅa rau niu</i> , <i>mariṅa rau ota</i> small coconut, sago pinnules).
<i>sukusuku</i>	(N) Tail, ending. <i>Sukusuku o te rakau</i> top, crest of tee, mass of leafage. Also <i>tauru o te rakau</i> ‘foliage of tree’.
<i>fāmātua</i>	(N) Mature coconut frond.
<i>sakilo</i>	(N) Immature coconut leaf, of pale colour; used traditionally as decoration for some ritual objects, as a shelf in <i>Resiake</i> temple, or sign of taboo on orchard.
<i>ṅausala</i>	(N) Midrib of sago pinnule, used as pin for leaf thatch, leaf pads for oven cover; bundle used traditionally as <i>ū seru</i> for beating rhythm in funeral lament.

projecting upward above the surface of the mud. Non-Oceanic cognates suggest that PMP **wak[a,e]t* ‘mangrove root’ probably referred to the prop-roots of *Rhizophora* mangroves. A few Western Malayo-Polynesian reflexes specifically denote prop-roots of mangroves and Central Malayo-Polynesian reflexes, which mostly refer to the mangrove tree rather than the root, tend to denote *Rhizophora* mangroves too. Thus it seems likely that POc **wako(t)* also referred to the prop-roots of *Rhizophora* mangroves and not simply the aerial roots of mangroves in general. Ross (ch.6, §2.1) suggests that POc **wako(t)* may also have served as a generic term for *Rhizophora*, citing the glosses below which refer to the tree and not just the roots.

PMP **waket* ‘mangrove root’ (ACD)

POc **wako(t)* ‘mangrove root’

PT:	Tawala	<i>wakoya</i>	‘mangrove’
Mic:	Kosraean	<i>ok-ok</i>	‘mangrove root’
Mic:	Mokilese	<i>ak</i>	‘mangrove’
Mic:	Ponapean	<i>ak</i>	‘generic for mangroves’

2.5 Leaves

As well as a general term for leaf, Oceanic languages tend to have more specific terms referring either to leaves of particular kinds of plants, leaves at different stages of growth, and/or parts of leaves. For example, Wayan has a general term *rau*, three terms that specifically denote coconut leaves *sāsā*, *basilele* and *tōrau*, a term that refers to dry banana or pandanus leaves, *susuluka*, a term for young leaves, *belebele*, and two terms for the midrib of a leaf, *tua* and *tuabou*. Table 4.7 gives the different terms for leaves from Nduke, Wayan and Tikopia.

A generic term for leaf, POc **raun*, is clearly reconstructable and reflects an earlier Proto Austronesian term with a similar meaning. As some reflexes of **raun* denote hair or fur, it seems likely that in POc **raun* referred not only to broad surface leaves, but also to the needle-like leaves of casuarinas, but the glosses of most reflexes are not specific enough to determine if this is the case.

PAn **dahun* ‘leaf’ (Blust 1993)

POc **raun* ‘leaf, general term for leaves of all types of plants’

Adm:	Titan	<i>laú-n</i>	‘leaf, hair, feathers’
Adm:	Lou	<i>rɛi-n</i>	‘leaf’
NNG:	Manam	<i>dau</i>	‘leaf; (temporary) dwelling’
NNG:	Mangseng	<i>ðioŋ</i>	‘leaf, feather’
NNG:	Poeng	<i>lau</i>	‘leaf; paper; (roof) tin; grass roof; letter’
NNG:	Lukep (Pono)	<i>rau</i>	‘paper, leaf, kina notes’
		<i>raunu</i>	‘leaf, hair’
NNG:	Sissano (Arop)	<i>royn</i>	‘leaf, cloth’
NNG:	Hote	<i>ŋauŋ</i>	‘hair; leaf’
PT:	Gumawana	<i>yao</i>	‘leaf’
PT:	Motu	<i>rau</i>	‘leaf’
SES:	Gela	<i>rau</i>	‘a leaf’

		<i>rau-rau</i>	‘leaves, foliage, leafage’
SES:	Tolo	<i>rau</i>	‘(plants, tree +) leaves’ (generic)
SES:	Longgu	<i>rau-i</i>	‘leaf’
SES:	Arosi	<i>rau</i>	‘leaf; prefix to names of trees’
NCV:	Mota	<i>nau-i</i>	‘a leaf, flake’
		<i>nau-nau-na</i>	‘its leaves’
NCV:	NE Ambae	<i>rau</i>	‘leaf’
NCal:	Xârâcùù	<i>ně</i>	‘leaf; ornamental feather’
NCal:	Paicî	<i>doo-e</i>	‘(its) leaf’
NCal:	Iaai	<i>lā-</i>	‘leaf’
Mic:	Kiribati	<i>rau</i>	‘thatch made of pandanus leaves’
Mic:	Kosraean	<i>sa</i>	‘leaf’
Mic:	Chuukese	<i>ṭsṭ</i>	‘leaf, sheet’ (cf. <i>ṭsṭ rii</i> ‘coconut leaf, as distinct from frond’)
Mic:	Woleaian	<i>sø</i>	‘leaf, foliage, leafage’
Mic:	Carolinian	<i>sṭ</i>	‘leaf with broad surface, as a banana or taro leaf’
Fij:	Bauan	<i>drau</i>	‘leaf of a tree, a hair of the head’
Fij:	Wayan	<i>rau</i>	‘leaf; a hair (of head); page, leaf of paper’
		<i>raurau</i>	‘leaves; greens, leafy vegetables’
Pn:	Tongan	<i>lau</i>	‘leaf; sheet, layer of paper or board’
Pn:	Niuean	<i>lau</i>	‘leaf’
Pn:	Tikopia	<i>rau</i>	classifier for flat objects, hence ‘leaf, sheet’ etc; sago leaf thatch sheet; thatch (generic)’
		<i>rau (rakau)</i>	‘(tree) leaves; vegetation, vegetable food’
Pn:	Samoan	<i>lau</i>	‘leaf; blade; thatch’

More specific leaf terms are not so easily reconstructable for POc. Modern languages tend to have a number of terms denoting the leaves of different types of plants. Table 4.8 shows the different leaf terms in Iduna (PT), Arosi (SES), Anejoñ (SV) and Niuean (Pn). As well as representing different regions of Oceania, these languages seem representative of the different ways leaf terms are lexicalised. Some languages, like Iduna, have distinct terms for the leaves of each of a number of different plants, including coconut, pandanus, sago, taro and tobacco. These include terms for leaves used for different purposes. The Niuean dictionary, on the other hand, lists a number of terms for different leaves, but they are mostly compounds containing the general term for leaf, *lau*. Thus *launiu*, comprising *lau* ‘leaf’ and *niu* ‘coconut’ denotes ‘coconut frond’, *laufā* consisting of *lau* ‘leaf’ and *fā* ‘pandanus’ denotes pandanus leaf’ and *laumamanu* comprising *lau* ‘leaf’ and *mamanu* ‘a common fern, *Phymatodes scolopendria*’ denotes ‘fern leaves’.

Anejoñ is in between these two extremes with some compound terms, such as *neri-neañ* ‘coconut frond’ comprising *neri-* ‘leaf’ and *neañ* ‘coconut’, *neri-neto* ‘sugarcane leaf’ consisting of *neri-* ‘leaf’ and *neto* ‘sugarcane’, and *nerintal* ‘taro-leaf’ consisting of *neri-* ‘leaf’ and *intal* ‘taro (generic)’, and some distinct, synchronically unanalysable, lexical items for different leaf types, such as *nilev* ‘dry coconut-leaf used in making house-walls’, *nevak* ‘dry pandanus leaf ready for weaving’ and *narico* ‘leaf of sugarcane or wildcane (white and itchy)’. Other terms in Anejoñ, such as *inmatinyat* ‘dry fallen pandanus leaf’ and *inmatito* ‘dry leaves of sugarcane’ are compounds consisting of *inmati-* ‘dry leaf of’ and contracted

Table 4.8 Leaf terms in selected Oceanic languages

Iduna		Anejoñ	
<i>lukumi-</i>	leaf	<i>neri-</i>	leaf
<i>did-</i>	coconut frond	<i>neri-neañ</i>	coconut frond
<i>tafa</i>	dried coconut fronds used as a torch	<i>inmatiθve</i>	dry coconut frond
<i>belobelo</i>	pandanus leaf	<i>nilev</i>	dry coconut-leaf used in making house-walls
<i>k^walala</i>	sago frond	<i>inmatinyat</i>	dry fallen pandanus leaf
<i>lafilafiya</i>	sago fronds used in house construction	<i>nevak</i>	dry pandanus leaf ready for weaving
<i>hewakabu</i>	taro leaves	<i>incetmī</i>	pandanus leaf used for weaving
<i>lok^wahi</i>	taro leaves for making a soup	<i>neri-ntal</i>	taro leaves
<i>yawai</i>	tobacco leaves	<i>neri-neto</i>	leaf of sugarcane
		<i>narico</i>	leaf of sugarcane or wildcane (white and itchy)
		<i>inmatito</i>	dry leaves of sugarcane
		<i>inmehei</i>	Heliconia leaf
Arosi		Niuean	
<i>rau</i>	leaves	<i>lau</i>	leaf
<i>roboatari</i>	coconut fronds	<i>launiu</i>	coconut frond
<i>buronā</i>	dried coconut leaf hanging ready to fall	<i>piupiu niu</i>	young leaf of growing coconut
<i>sara</i>	pandanus leaf used as sling for baby	<i>laufā</i>	pandanus leaf
<i>b^wara-</i>	taro leaf	<i>lū</i>	young taro leaves used for food
<i>waroamadi</i>	leaves of a sp. resembling <i>Piper betle</i>	<i>laumamanu</i>	fern leaves

forms of the plant names; *inmatiθve* ‘dry coconut leaf’ looks to be a similar compound although the second element is not clear. For other languages there are only a few leaf terms that denote leaves of specific kinds of plants. For example, Arosi has terms for the leaves of coconut, pandanus and taro.

Also of note is that many languages have distinctive labels for leaves of the same sets of plants. So the languages in Table 4.8 all have names for coconut fronds, for pandanus leaves, and for taro leaves, while with other types of plants, such as betel pepper or sago, only one or two of the languages have specific terms. It is apparent that the types of leaves which have distinctive names in a language are those which have some cultural use or other significance. Thus many Oceanic languages have several terms for coconut leaves, apparently reflecting the different uses of different growth stages of them within Oceanic societies. Firth (1985: 92–293) writes of the great variety of uses of parts of a coconut palm in Tikopia, including ‘fresh leaves for floor mats (*tapakau*) and rough baskets (*popora*); dry leaves for torches (*afi*); and immature leaves (*sakilo*) for decoration’. Lewo has three terms that denote coconut leaves, namely *mamaru* ‘leaf of coconut (green)’, *masuge* ‘coconut leaf dry’ and *purukupi* ‘coconut frond’, distinguishing between green and dry coconut leaves. This distinction is one that is often lexicalised in Oceanic languages. Thus Wayan *basilele* ‘coconut leaf, dry or green’ versus *sāsā* ‘dry coconut leaf’, Lou *lien* ‘unopened coconut leaf’ versus *sulan* ‘dry coconut leaf’ and Chuukese *pāyiri* ‘coconut leaf’ and *wup^wut* ‘young coconut leaf (still light in colour)’. In other languages, such as Takia, the different terms for coconut leaves seem to directly reflect different uses, thus *bombom* ‘coconut leaves (used for roofing)’ and *luŋ* ‘coconut leaf (used for perpetual fire)’. The significance of the terms for dry coconut leaves also seems to be related to usage, for torches (e.g. Ramoaaina *ulu* ‘leaf of coconut palm, (coconut leaf) torch’) or for various woven items, including mats, baskets and the roofing and walls of houses (e.g. Manam *rigina* ‘coconut fronds (plaited), used as mats and roofing and siding for houses’, Lukep *sal* ‘coconut leaf fence/enclosure’ and Sursurunga *ber* ‘coconut leaf; mat made from coconut leaf’).

Pandanus leaves are often more important than coconut leaves for weaving in Oceanic societies. Firth (1985: 105–106, 186) describes the use of the leaves of different types of pandanus for weaving in Tikopia. Thus the leaves of *fara* ‘pandanus, narrow stiff leaves, single tall trunk’ are used for coarse mats and sewing coconut fibre bags and the leaves of *kie* ‘pandanus (sp. similar to *Pandanus odoratissimus*)’ are used for fine mats. However, it seems that languages tend to only have a single term for pandanus leaves, if they have one at all. The situation with sago leaves is somewhat similar. Most dictionaries have terms which denote sago leaf thatch, and sago leaves are clearly the most used leaf for making thatch amongst Oceanic societies, but a term for sago leaves is found in only a scattering of languages (e.g. Titan *kaliŋat* ‘sago leaf (shingles)’, Mapos Buang *ngemŋ* ‘sago leaves (used for making grass skirts)’, Mangap *ram* ‘new leaves of sago (used for decoration)’ and Tolo *hatsira* ‘sago palm leaf’).

Names for types of taro leaves, on the other hand, are apparently distinguished in Oceanic languages on the basis of their value as food. For instance, Kaulong has three terms *pasu* ‘taro leaf (mature)’, *sulak* ‘taro leaf (young)’ and *talan* ‘taro leaves that are not suitable for eating’. In other languages there will be a single term for taro leaves (e.g. Arosi *b^wara* ‘leaf of taro’ and Drehet *moruŋ* ‘taro leaf’).

How many terms for specific types of leaves can be reconstructed for POc? Across the languages in Table 4.8 it can be seen that not many of the terms are cognate. Thus while all

the languages have terms for coconut and taro leaves, none of the terms are cognate. This is in part not unexpected as the terms in Table 4.8 often refer to coconut leaves of different growth stages. So while Anejoñ has terms for dry coconut leaves, one of the Arosi terms and the Niuean term denote coconut leaves in general. But even looking at just the terms for dry coconut leaves in Table 4.8, there are still no forms that are cognate (e.g. Iduna *tafa* ‘(dry) coconut leaves used as torch’, Arosi *buroŋa* ‘dry coconut leaf’, Anejoñ *inmatiθve* ‘dry coconut leaf’ and *nilev* ‘dry coconut-leaf used in making house-wall’). Table 4.8 seems to typify a general trend across Oceanic languages, such that while languages have terms with similar meanings they are not often cognate. Certain terms associated with coconut fronds are nonetheless reconstructable, and their meaning also includes a function for which they are used: POc **sulu(q)* ‘dry coconut leaf torch; dry coconut leaf’ and POc **ramaR* ‘coconut leaf used as a torch when fishing’ (ch.12, §5.1.2), and POc **no(k,g)o* ‘midrib or spine of coconut leaflet; broom made therefrom’ (ch.12, §5.1.3).

Pandanus and sago leaves were apparently as important as coconut leaves in many traditional Oceanic societies. A POc term **qatop* ‘thatch, roof’ can be reconstructed (see vol.1, ch.3, §3.4), with reflexes in many languages that refer specifically to sago-leaf thatch. In SE Solomonic and North–Central Vanuatu languages reflexes of this term denote the sago palm, as well as sago-leaf thatch. In Arosi that *ao* ‘sago palm’ can refer to the leaves is evident from compounds such as *adodo ao* ‘to lay together the leaves in bundles’, *susu?i ao* ‘layers of sewn leaves put ready for thatching’ and *taba ao* ‘to go out and cut sago palm leaves’. However, reflexes of POc **qatop* that refer specifically to sago palm leaves are not widespread, and so unlike POc **sulu(q)*, a secondary ‘leaf’ meaning does not appear to be reconstructable. In fact, there does not seem to have been a distinctive term for sago leaves, although a number of modern languages do have such terms. The same is true for pandanus leaves. They appear to be much used for weaving in many regions of Oceania and known for finer weaving than coconut leaves, but a distinctive term does not appear to be reconstructable for POc. Bender et al. (2003: 52) reconstruct a Proto Micronesian form **maŋu* ‘pandanus leaf’, but the etymology of this form is unclear. Geraghty (1990: 64) suggests it is a reflex of POc **maRaŋo* ‘to be dry, withered’, supported by the formal correspondence and the fact that in a number of Micronesian languages the meanings are restricted to dry pandanus leaves and in Ponapean *mēŋ* has the meaning ‘withered, dry, dead vegetation’. Ross (ch.11, §2.5) suggests that Marshallese *māŋ* ‘pandanus leaves’, Chuukese *məŋ* ‘pandanus leaf, especially when softened by a shell’ and Woleaian *maŋi* ‘pandanus leaf’ are reflexes of POc **m^uaŋa* ‘Pandanus sp., perhaps *Pandanus conoideus*’ supported by Kosraean *m^ueŋ* ‘pandanus’. It seems likely that there has been a conflation of these two POc terms in Proto Micronesian. Ross reconstructs several POc terms for different types of pandanus and it is possible that these terms could be used to refer to the leaves as well as the tree, especially as only the leaves of certain kinds of pandanus would have been valued for weaving.

POc **gal(a,o)* ‘taro leaves’ is tentatively reconstructed by Ross (this volume, ch.9, §2.2.1), supported by the cognate set below.

POc **gal(a,o)* ‘taro leaves’ ? (Ross 1996c: 190)

Adm:	Baluan	<i>gal</i>	‘taro’
NNG:	Labu	<i>ka</i>	‘taro’
MM:	Nakanai	<i>gala-gala</i>	‘taro leaves’
MM:	Vitu	<i>galo</i>	‘taro leaves’
SES:	Kwaio	<i>gala-</i>	‘taro shoot’

Ross (1996c: 175) also reconstructs POc **was(i,a)* ‘edible greens, *Abelmoschus manihot* (syn. *Hibiscus manihot*)’ that apparently denoted edible green leaves, as well as the most salient member of the class, *Abelmoschus manihot*.

2.6 Shoots, sprouts and suckers

As can be seen from Table 4.9 Nduke, Wayan and Tikopia all have several terms for the new growth of plants. Wayan, for example, has *ɔuli* ‘sucker of plant’, *sō* ‘young, tender leaves at the top of a plant’, *gau* ‘suckers’, *tubu* ‘new growth, young shoot or sprout’ and *bēbē* ‘suckers or shoots of taro or tobacco plant’. Wayan also has a more specific term, *soba*, that denotes banana suckers. Tikopia also has a number of general terms for the new growth of plants, and a term *roro* that specifically denotes the new growth of a coconut palm. In the data for Nduke, on the other hand, there are a number of general terms for suckers and shoots, but none that denote the new growth of particular kinds of plants only.

The number of terms for shoots and suckers in modern Oceanic languages reflects the importance of these parts in the propagation of food crops. French-Wright (1983: 193) notes that taros, yams, bananas and breadfruit ‘are fairly easily generated by means of suckers’ and that ‘today many daughter communities rarely use seeds, although the gourd, which is grown from seed, is an exception’. He also writes that ‘the POc gardener probably relied to a large extent upon seedlings, cuttings and seed tubers for the propagation of food plants’, and he reconstructs a number of POc terms that provide evidence for such horticultural practices.

The most general term for shoots or suckers in POc appears to have been **[s,j]uli(q)*, reconstructed as **suli(q)* by French-Wright (1983: 78). Ross (1996c: 179) reconstructs POc **[s,j]uli(q)* with a general meaning of propagation material (e.g. cutting or shoot), as well as the more specific meaning of banana or taro shoot, as it is this more specific meaning that is reflected in many modern Oceanic languages. The Mota, Wayan and Tongan glosses suggest that this term could be used figuratively to refer to one’s children or offspring.

The initial consonant is uncertain because Manam and Tawala reflect **s* and not **j*, but Numbami, Lukep and Gela reflect **j* and not **s*. In the other languages the initial consonant reflects both **s* and **j*.

PAn **suliq* ‘runner, sucker, shoot (Blust 1972a)

POc **[s,j]uli(q)* ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’
(Ross 1996c: 179)

Adm:	Lou	<i>sili-n</i>	‘(banana, pineapple) sprout’
Adm:	Loniu	<i>cili</i>	‘sprout, especially banana shoot’
NNG:	Tami	<i>jili</i>	‘taro sucker’
NNG:	Numbami	<i>duli</i>	‘taro sucker’
NNG:	Manam	<i>suli</i>	‘banana slip, cutting’
PT:	Tawala	<i>huni</i>	‘taro’
PT:	Kilivila	<i>uli</i>	‘taro’
PT:	Motu	<i>dui</i>	‘banana plant’
MM:	Ramoaina	<i>ul-ul</i>	‘put forth new leaves; of <i>tan</i> (tree sp.) only’
SES:	Gela	<i>duli</i>	‘a sucker, of banana’
NCV:	Mota	<i>suliu</i>	‘sucker from roots of a plant, shoot from tubers’
		<i>sulu-i</i>	‘sucker, met. children, offspring’

Table 4.9 Terms for shoots and suckers in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>kihe-</i>	A sucker of a banana or taro, or pineapple tops, or the germinating fruits of <i>goe</i> ‘sago’ or <i>hea</i> ‘betelnut’. These have in common that these growing shoots are used for planting back. Growing coconuts (<i>nogoro</i> or <i>zizira</i>) are not <i>kihe</i> .
<i>liho-</i>	New growth or young shoots on a plant, including coconut, betelnut, yam, ginger and grasses but not <i>hololu</i> ‘mangrove’.
<i>pisoyata</i>	New growth, of coconuts, potatoes, etc.; to sprout, of a germinating seed, etc.
<i>soyoyo</i>	Newly growing flowering shoot of a palm tree, e.g. of a coconut or sago palm.
<i>togo-</i>	To germinate, of seeds, or ‘newly shoot’, of plants. A general word that can refer to a germinating seed, a sucker (<i>kihe</i>) or any new leaf growth (<i>liho</i>). In a more general sense, it can mean any growth occurring of a plant. This is the only word that applies to germination of seeds.
Wayan Fijian	
<i>ḍuli</i>	1. Sucker of a plant, esp. banana or taro, but also used of kava and other plants. syn. <i>gaugau</i> . 2. (slang) Offspring, kids.
<i>sō</i>	1. Highest part; top or tip. 2. Young, tender leaves at the top of a plant. 3. Source of a river or stream. syn. <i>sō ni wai</i> (lit. ‘source of water’).
<i>gau</i>	(N) Suckers, young plants set down by taro or bananas, or growing roots of a tree.
<i>tubu</i>	(N) 1. Increase, growth. 2. Profit, interest (monetary), financial return on a business or investment. 3. New growth, young shoot or sprout.
<i>bēbē</i>	(N) Suckers or shoots of taro or tobacco plant. syn. <i>gaugau</i> , <i>bēbē ni doko</i> , (N) Suckers of taro <i>bēbē ni sawasawa</i> , (N) Suckers of tobacco plant.
<i>rovu</i>	(V) (sub. e.g. teeth, new leaves, shoots.) Sprout, germinate, shoot up, appear. (N) Sucker, new shoot growing from root of a plant.
<i>rovuvaḍi</i>	1. (sub. fruit.) Start to form. 2. (sub. a tree, shrub.) Sprout new leaves, bud. (N) 1. New fruit, just starting to form. 2. Bud, new shoot growing from a branch.
<i>soba</i>	1. Banana sucker. cf. <i>gau</i> , <i>ḍuli</i> , <i>vura</i> , which are more general terms for suckers. 2. Fruit-head of a banana bunch, consisting of a circular red pod containing flowers and immature fruit.
Tikopia	
<i>purapura</i>	(N) Seedling (archaic, ritual form).
<i>pupura</i>	(N) 1. Seed material; seedling; planting material.
<i>muko</i>	(N) Young shoot of plant.
<i>sakare</i>	(N) Shoot of plant (e.g. <i>sakare o te ufi</i> shoot of yam, <i>sakare o te niu</i> shoot of coconut, <i>sakare kaula</i> areca shoot, <i>sakare futi</i> banana shoot).
<i>tapuna</i>	(N) Shoot of plant (generally prefaced by <i>tau</i> relational particle, indicator of linkage) (cf. <i>tautapuna</i> (N) shoot of plant).
<i>uri</i>	(N) Shoot or sucker of plant; tiller (e.g. <i>te uri taro</i> the shoots (tillers) of taro).
<i>vaemanu</i>	(N) Shoot (of root food crop); side tuber.
<i>karekare</i>	(N) 1. Very young plant, animal etc.
<i>roro</i>	(N) Bud or shoot of coconut palm near flower bract; masticated with lime and betel leaf when areca nut scarce. Also possibly other buds.

SV:	Sye	<i>nelye-</i>	‘sucker, shoot’
SV:	Anejoñ	<i>nisci-</i>	‘(plant) shoot’
Mic:	Kosraean	<i>sulu-n</i>	‘young shoot of, sprout of’
Fij:	Wayan	<i>ðuli</i>	‘(plant, esp. banana, taro) sucker’
Fij:	Bauan	<i>suli</i>	‘(plant, esp. banana, taro) sucker’
Pn:	Tongan	<i>huli</i>	‘shoot, sprout, twig, or sucker; scion, descendant’
Pn:	Niuean	<i>huli</i>	‘shoot, young plant’
Pn:	Samoan	<i>suli</i>	‘(obsolete) sucker of a banana plant, heir’
Pn:	Hawaiian	<i>huli</i>	‘taro top, used for planting’

French-Wright (1983: 60) also reconstructs a very similar term with the meaning ‘to transplant’. Again there is variation in the initial consonant with Roviana reflecting POc **j* and Arosi reflecting POc **s*. He suggests (1983: 61–62) that *(*s,j*)*uli* could be used in POc to denote the practice of growing taros from suckers which are left in the ground when the mature taro is harvested and then transplanted when a new garden has been prepared, and to the transplanting of fruit trees grown initially from seeds, but replanted to a carefully chosen spot when still small. However, the POc reconstruction with this meaning is not well supported, as it is reflected in only one NW Solomonian and one SE Solomonian language.

POc *(*s,j*)*uli* ‘to transplant’ (French-Wright 1983: 60)

MM:	Roviana	<i>zuli</i>	‘to transplant seedlings etc’
SES:	Arosi	(<i>u</i>) <i>suri</i>	‘to transplant’ (source of <i>u</i> - not known.)

From the fact that modern languages tend to have several forms that denote new growth of plants, we would expect the same to be true of POc, but other terms with similar meanings are not easily reconstructable. However, there are two nominal terms which appear to be candidates. Bender et al. (2003: 28) reconstruct Proto Oceanic **qili* ‘sprout, shoot’ supported by reflexes in Micronesian languages and Nakanai. The combination of the lack of an initial consonant in the Micronesian languages and an initial *h*- in Nakanai support the reconstruction of an initial **q* in POc, and neither the Micronesian forms nor the Nakanai form are plausible reflexes of POc *[*s,j*]*uli(q)*.

POc **qili* (N) ‘sprout, shoot (esp. of banana or taro)’ (Bender et al. 2003)

MM:	Nakanai	<i>hili</i>	‘sprout of banana or something similar’
Mic:	Marshallese	<i>yil</i>	‘taro sprout; immature taro plant’
Mic:	Ponapean	<i>ili</i>	‘(banana, breadfruit, taro) sucker’
Mic:	Chuukese	<i>iri</i>	‘(banana, taro, bamboo) shoot, short sucker, runner’
Mic:	Woleaian	<i>iri</i>	‘young shoots surrounding an old plant; a young plant’
Mic:	Carolinian	<i>il-il</i>	‘young taro shoots which develop from the mature taro root’

A third possible POc term for the new growth of plants is **rama*. This is not a very well-supported reconstruction, but is suggested by the Lou form *rəmən* ‘taro shoot’ and a few terms from North New Guinea languages, including Sissano (Arop) *raman* ‘seedling, shoot, plant’. As Lou and Sissano (Arop) are not languages which reflect final consonants, it seems likely that the final *-n* in these languages reflects the 3SG possessive suffix.

POc **rama* ‘shoot, new leaf, seedling’

Adm:	Lou	<i>rɔmɔ-n</i>	‘taro shoot’
NNG:	Mangap	<i>ram</i>	‘new leaves of sago, used for decoration’
NNG:	Lukep (Pono)	<i>lam</i>	‘sago palm leaf decoration made from top shoot’ (for † <i>ram</i>)
NNG:	Sissano (Arop)	<i>rama-n</i>	‘seedling, shoot, plant’

Taro is propagated by planting either the tops of large corms or the small suckers which grow from the side of the corm, and POc **up(e,a)* denoted this planting material. Its reflexes sometimes denote propagation material for plants other than taro.

POc **up(e,a)* ‘taro seedling’

NNG:	Mutu	<i>(do)uwe</i>	‘seed’
NNG:	Tami	<i>uwe</i>	‘taro seedling’
NNG:	Yabem	<i>owɪ</i>	‘seedling’
PT:	Are	<i>ube</i>	‘taro tops for planting’
PT:	Gapapaiwa	<i>uve</i>	‘taro tops for planting’
PT:	Tawala	<i>uwe</i>	‘taro seedling’
PT:	Motu	<i>uhe</i>	‘the end of yam, kept for planting, any seed for planting’
SES:	Arosi	<i>uha</i>	‘taro sp.’
NCal:	Nyelâyü	<i>(uk)owe</i>	‘taro seedling’
NCal:	Yuanga	<i>uva</i>	‘taro seedling’
NCal:	Pwapwâ	<i>upe</i>	‘taro seedling’

POc also appears to have had a couple of verbal terms that denoted new growth, including **tupul* ‘to send out new growth’ (French-Wright 1983: 78) and **p^wer(e)* ‘to sprout, grow’ (see vol.1, ch.5, §9 for the reconstruction of other terms denoting growth).¹¹

POc **tupul* ‘to send out new growth’ (French-Wright 1983: 78)

PT:	Motu	<i>tuhu-tuhu</i>	‘young shoot’
MM:	Roviana	<i>tuvulu</i>	‘send out new growth, of trees that have been cut down’
Fij:	Bauan	<i>tuvu</i>	‘shoot up, as of a tree’

POc **p^wer(e)* ‘to sprout, grow’

Adm:	Lou	<i>p^we-p^wer</i>	(v) ‘sprout’
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PMic **p^were* ‘to sprout, blossom’ (Bender et al. 2003: 74)

Mic:	Kiribati	<i>p^we-p^we</i>	(v) ‘give off shoots’
Mic:	Ponapean	<i>p^wer</i>	‘appear, blossom (of fruit and flowers)’
Mic:	Carolinian	<i>p^wær</i>	(v) ‘emerge, sprout; go all the way through a hole or tunnel’; (N) ‘sprout’

¹¹ French-Wright (1983: 79) also reconstructs POc **kaka(R,d,l)* ‘to sprout’ and **pisi* ‘to bud, of leaves; to blossom’, but neither of these reconstructions is well-supported.

Table 4.10 Terms for flowers in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>havoro</i>	The general term for flower; to flower, blossom.
<i>pelara-</i>	1. Wide open, of eye. 2. Any flower that closes at night and opens in the morning, e.g. hibiscus flowers.
Wayan Fijian	
<i>sē</i>	Blossom, bloom, flower. (N) Flower, blossom of s.t.
<i>sei</i>	Flower of the <i>vadra</i> pandanus tree. Yellow. <i>vadra sei</i> , (N) Tree (<i>kai</i>) taxon: <i>Pandanus tectorius</i> syn. <i>vadra</i> . Timber used for rafters; old leaves used to wrap cigars and for thatching.
<i>waluwalu</i>	Flower of the breadfruit. The fruit grows when the long thin flower drops.
Tikopia	
<i>sei</i>	Flower, especially as in decoration, e.g. in ear lobe, hence any ear ornament' Poss. occ. uttered as <i>sē</i> , <i>sē rakau</i> flower of plant. Cf. <i>sesei</i> flower (poss. plural of <i>sei</i> , archaic <i>sēsē</i>)
<i>rāsei</i>	(N) Flower, flower ornament
<i>kalokalo</i>	(N) Bright red flowers of coral tree (<i>ηatae</i> 'Erythrina sp.'). Appearance in July/August taken as traditional sign for start of turmeric extraction.
<i>viro</i>	(N) Sago flower.

2.7 Flowers

Oceanic languages tend to have a general term that refers to blooms of any kind, like Nduke *havoro* 'the general term for flower' and Wayan *sē* 'blossom, bloom, flower'. Some languages also have names for the flowers of specific types of plants, such as Tikopia *kalokalo* 'bright red flowers of coral tree (*ηatae* 'Erythrina sp.>') and *viro* 'sago flower'.

POc appears to have had two general terms for flower, **puŋa*, which continues PMP **buŋa*, and **sē*, and it is not clear how they differed. Both forms are reflected most widely in Eastern Oceanic languages; in fact I have found no Western Oceanic cognates of **puŋa* and only one of **sē*.

PMP **buŋa* 'flower, blossom; to flower, bear flowers; first-born child; skin rash, prickly heat; speckled (of fish)' (ACD)

POc **puŋa* 'flower, blossom' (ACD)

SES:	Longgu	<i>vuŋa</i>	(VI) 'to bud, blossom; to flower'; (N) 'a bunch'
NCV:	Lonwolwol	<i>wuŋi-</i>	'flower of'
NCV:	Paamese	<i>huŋe-</i>	'flower; tiny immature fruit on plants with no flowers'
NCV:	Sesake	<i>na-vuŋa</i>	'flower'
SV:	Lenakel	<i>nouŋə-</i>	'flower'
NCal:	Xârâcùù	<i>pũ</i>	'flower'
NCal:	Iaai	<i>vaŋo</i>	'flower'
Pn:	Samoaan	<i>fuŋa</i>	(N) 'flower, blossom; (v) 'be in bloom'

Pn:	Tokelauan	<i>fuŋa</i>	‘flower, blossom’
Pn:	Luangiua	<i>puŋa</i>	‘coconut flower, coconut seeds’

The Fijian, Polynesian and Nakanai forms below suggest the reconstruction of **see* ‘flower’ with a long vowel, but no contrast between short and long vowels is reconstructed for POc. Possibly the POc form was **seqe* as loss of **q* is a regular change in all the languages which reflect it. But this raises a further phonological question. POc **e* reflects PMP **-ay* which only occurred word-finally. It is possible that the first vowel of the POc form was not **e*, and that in Nakanai and Proto Central Pacific a sequence of unlike vowels, perhaps resulting from the loss of medial **q*, merged as *ee*. However, without further cognates, these comments are purely speculative and it can simply be noted that POc **see* ‘flower’ is a non-canonic form which may need revision if additional reflexes are found.

POc **see* ‘flower’ (Geraghty 1983)

MM:	Nakanai	<i>se-sē</i>	‘flower; blossom; (tobacco) seeds’
Fij:	Bauan	<i>sē-</i>	(N) ‘flower’; (V) ‘flower, be in blossom’
Fij:	Wayan	<i>sē</i>	(N) ‘flower, blossom’; (V) ‘blossom, bloom, flower’
Pn:	Tikopian	<i>sē</i>	‘occasional pronunciation of <i>sei</i> (flower) in possessives, e.g. <i>sē rakau</i> (flower of plant)’
Pn:	Futunan	<i>sē</i>	‘to flower, blossom; a flower’
Pn:	Sikaiana	<i>sē</i>	‘flower, bud’

A very similar form, **sei*, appears to be reconstructable for Proto Central Pacific, although the original meaning is not entirely obvious. In Fijian reflexes refer to the flower of the pandanus and in Polynesian languages reflexes refer to flowers that are used as ornaments behind the ear or in the hair.

PCP **sei* ‘flower, especially as an ornament’

Fij:	Bauan	<i>sei</i>	‘flower of the <i>vadra</i> or <i>balawa</i> (pandanus)’
Fij:	Wayan	<i>sei</i>	‘yellow flower of the <i>vadra</i> pandanus tree’
Pn:	Tongan	<i>sei</i>	‘ornamentation (e.g. flower) placed behind the ear’
Pn:	Niuean	<i>hei</i>	(N) ‘floral decoration for bride’; (V) ‘place a flower in hair or behind ear’
Pn:	Rennellese	<i>sei</i>	‘ornament in the lobe of the ear’
Pn:	Tikopia	<i>sei</i>	‘flower, especially as in decoration, e.g. in ear lobe, hence any ear ornament’
Pn:	Samoaan	<i>sei</i>	‘flower worn as ornament (behind ear or in hair)’
Pn:	Tokelau	<i>hei</i>	‘ear or hair ornament of flower or leaf’

The generic terms for flowers in many Western Oceanic languages are innovative, and are not only not cognate with those found in Eastern Oceanic, but are also often not cognate within lower level subgroups.

Just as with leaf terms, modern Oceanic languages tend to have one or two more specific flower terms that denote the flowers of particular types of plants. So alongside *sē* ‘blossom, flower’, Wayan has *sei* ‘flower of the *vadra* pandanus’ and *waluwalu* ‘flower of the breadfruit’. Other languages tend to have specific names for coconut, sago or banana flowers (e.g. Misima *lámun* ‘coconut flower’, Ramoovina *tete* ‘flower of banana’, Tikopia *viro*

Table 4.11 Terms for fruits in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>malete-</i>	Fruit. <i>malet' pevu</i> 'fruit of coconut', <i>malet' manioko</i> 'pawpaw'. Can describe any kind of fruit, whether ripe or already fallen..
<i>mezu-</i>	To be ripe, of <i>kino</i> (cut-nut) or <i>tat'lise</i> (sea-almond) nuts (but not used of canarium nuts). This is determined by the skin of the fruit beginning to soften slightly and the nuts falling down by themselves.
<i>udo-</i>	The spoilage of fruit that happens when fruit-fly or flying foxes attack it. Fruit that is <i>udo</i> often drops to the ground prematurely. In coconuts <i>udo</i> happens when the fruit is still very young.
<i>vara-</i>	A hand of bananas or <i>hea</i> 'betelnuts', but not of <i>kino</i> 'cutnuts (<i>Barringtonia</i>)' or <i>haoro</i> 'Canarium nuts'. Refers to the separate 'hands' of betelnut or bananas that have been torn off from the full bunch.
Wayan Fijian	
<i>vua</i>	1. Fruit; 2. (metaph.) Results, products, offspring. (v) 1. (sub. a plant.) Fruit, bear fruit; 2. (sub. a project, etc.) Produce results, bear fruit. 3. (sub. e.g. people, animal stock.) Increase, multiply.
<i>vuata</i>	1. Crops, food plants, fruit or vegetables which are harvested. cf. <i>marawa</i> , <i>magiti</i> 'vegetables'. 2. Returns, benefits, products of one's work, fruits of one's labour.
<i>ua</i>	Bunch or cluster of fruit.
<i>nia</i>	Flesh or main substance of s.t. Thus: 1. Flesh of an animal body, including meat, fat and marrow, in contrast to skin (<i>taba</i>) and bones (<i>tua</i>); 2. Flesh or main edible part of fruit or root excluding the skin or rind; 3. Tuber of root crop, e.g. taro, yam, sweet potato; 4. Mature inner part of a tree, heartwood. near syn. <i>doa</i> ; 5. Lower part of stem of the kava plant (<i>agona</i>) in contrast to the root (<i>waka</i>) and upper stem (<i>gai</i>); 6. Substance or main content of a speech, book, etc.
<i>mārawa</i>	1. Ground crops, food-plants obtained from plants other than trees; uncooked vegetables, including root crops, bananas, sugarcane, corn, melons, etc. contr. <i>vuata</i> , fruits, <i>magiti</i> , food ready for eating or foodstuffs in general. 2. Used by some as a generic term for all food plants, including tree-crops or fruit.
<i>bā</i>	Hand of bananas. <i>bā i ata</i> , (N) Top or upper hand. <i>bā i rā</i> , (N) Bottom or lower hand.
<i>kalikali</i>	1. Groin, top of the leg where it joins the trunk (of person or animal). nr syn. <i>qiriqiri</i> . 2. The lowest rows of bananas on a stalk, poorly developed. syn. <i>kalikali ni tiaina</i> .
Tikopia	
<i>fua</i>	(N) 1. Fruit 2. Analogous objects to fruit, e.g. eggs of fish or birds.
<i>rere</i>	(v) 1. Move with speed, rush 2. Develop from bud into fruit.
<i>kaureu</i>	(N) Unripe, but damaged fruit, e.g. banana bunch which must be cut to avoid loss.
<i>moa</i>	(N) Banana fruit on stem in formative stage.

‘sago flower’). But again none of these more specific terms appear to be reconstructable for POc. Even within lower level subgroups languages have non-cognate forms. For example, the Papuan Tip languages Gapapaiwa (*sisina* ‘coconut blossoms’), Gumawana (*niyola* ‘blossoms on a coconut palm’) and Misima (*lámun* ‘coconut flower’) have non-cognate terms for coconut flower.

2.8 Fruit

Table 4.11 gives the terms for ‘fruit’ and related meanings in Nduke, Wayan Fijian and Tikopia. All three languages have generic terms for fruit and specific terms relating to bananas.

The term ‘fruit’ in English has a number of senses, including: ‘1. vegetable products in general, that are fit to be used as food by men and animals ... 2. the edible product of a plant or tree, consisting of the seed and its envelope, esp. the latter when it is of juicy pulpy nature 5. the seed of a plant or tree regarded as the means of reproduction, together with its envelope’ (OED). With terms glossed as ‘fruit’ in the dictionaries of Oceanic languages it is often difficult to determine which of the English senses are present in the meaning of the Oceanic term. Ross (1996c: 208–209) concludes that POc **puaq*, the general term for ‘fruit’, denoted fruit as a plant part and plant product, rather than a food category. The number of reflexes of **puaq* that are glossed as ‘seed’ suggests that its meaning encompassed both the seed and its envelope (see §2.9).

PAn **buaq* ‘fruit’ (Dempwolff 1938)

POc **puaq* ‘fruit: generic for fruit as a part of plants, the seed and its envelope (N); to bear fruit (v)’ (Ross 1996c)

NNG:	Gitua	<i>pua</i>	‘seed, egg’
PT:	Wedau	<i>ua</i>	‘fruit’
PT:	Motu	<i>hua-hua</i>	‘fruit, bear fruit’
PT:	Mekeo	<i>pua</i>	‘seed’
MM:	Tabar	<i>ua-ua</i>	‘seed’
MM:	Label	<i>hua</i>	‘seed’
MM:	Teop	<i>vua</i>	‘fruit, seed’
MM:	Roviana	<i>vua</i>	‘fruit’
MM:	Maringe	<i>vua</i>	‘fruit’
SES:	Gela	<i>vua-vua</i>	‘fruit; seed; flower’
SES:	Lau	<i>fu-fua</i>	‘fruit’
SES:	Arosi	<i>hua</i>	‘fruit; counter for fruit, stones, eggs, fish etc; round or lump-like objects; bear fruit’
NCV:	Raga	<i>vwa-i-</i>	‘fruit’
NCV:	Big Nambas	<i>na-va-</i>	‘fruit’
NCV:	Nguna	<i>na-waa</i>	‘fruit’
SV:	Sye	<i>(no)vwa-</i>	‘seed’
		<i>(no)vwa(hay)</i>	‘fruit of any tree’
SV:	Anejoñ	<i>(no)howa-</i>	‘fruit’
Mic:	Chuukese	<i>wuwa</i>	‘fruit, berry’
Mic:	Carolinian	<i>uwa</i>	‘fruit, flower’

Fij:	Wayan	<i>vua</i>	(N) ‘fruit; results, products, offspring’; (v) ‘(plant) bear fruit; (project, etc.) produce results, bear fruit; (people, animal stock) increase, multiply’
Pn:	Tongan	<i>fua</i>	(N) ‘fruit; result; egg’; (v) ‘bear fruit’
Pn:	Niuean	<i>fua</i>	(N) ‘fruit, berry, nut, egg shell, shellfish’; (v) ‘swell’ ¹²
Pn:	Tikopia	<i>fua</i>	‘fruit; objects similar to fruit, such as fish or bird eggs, but not <i>fatu kai</i> (seeds of plants)’
Pn:	Samoan	<i>fua</i>	(N) ‘fruit; flower, bloom; egg; produce’; (v) ‘produce; bear fruit’

POc also had several terms that for clusters or bunches of fruit. The most general of these, **puŋu*, denoted a bunch or cluster of any kind of fruit or nuts.

PMP **puŋu* ‘bunch, cluster (of grain, fruit, areca nuts, etc.)’ (ACD)

POc **puŋu* ‘bunch or cluster of fruit or nuts’ (Ross 1996c: 185)

Adm:	Loniu	<i>he-puŋ</i>	‘one cluster (as of areca nuts)’
Adm:	Titan	<i>sa-buŋ</i>	‘one cluster (as of areca nuts)’
NNG:	Yabem	<i>buŋ</i>	‘bunch (of bananas etc)’
NNG:	Mumeng (Patep)	<i>bun</i>	‘bundle; of timbers, green etc; tie (into a bunch)’
MM:	Nduke	<i>vuŋu-</i>	‘bunch or cluster of nuts or fruit’
SES:	Gela	<i>vuŋu</i>	‘grain of maize or corn; pod, bunch, cluster of fruit’
SES:	Lau	<i>fuŋu</i>	‘bear fruit or seed; a bunch’
SES:	Kwaio	<i>fuŋu</i>	‘bearing fruit; bunch of fruit’
SES:	’Are’are	<i>hunu</i>	‘bear fruit, be in fruit; bunch, bundle’
SES:	Arosi	<i>huŋu-</i>	‘a bunch or cluster of fruit’
NCV:	Mota	<i>vuŋ</i>	‘a bunch of fruit or coconuts, <i>Canarium</i> almonds (but not bananas or pandanus)’

POc **jamu((q)a)*, on the other hand, apparently referred to clusters of fruit, or flowers, on palms. This term is reflected with such a meaning in Kairiru, Rotuman and Rarotongan, but in other languages, such as Wayan and Tikopia, reflexes have come to denote the spathe or the covering of a coconut flower cluster. The addition of this latter meaning appears to be restricted to Central Pacific languages, and so is not reconstructed as a secondary meaning for the POc term. The Polynesian forms here are taken to be reflexes that have undergone metathesis (Geraghty 1986: 301).

POc **jamu((q)a)* ‘cluster of flowers or fruit, usually palms’ (Ross 1989: 474)

NNG:	Kairiru	<i>iyam</i>	‘bunch of palm fruit’
NNG:	Gedaged	<i>damu</i>	‘a bunch, cluster (of nuts or fruit)’
Fij:	Rotuman	<i>jamuʔa</i>	‘branching flower and fruit stem of coconut or fan palm’
Fij:	Wayan	<i>sāmoa</i>	‘hard sheath or calyx enclosing flower of coconut (used as torch); coconut flower before sheath bursts’

¹² Sperlich (1997: 85) writes that Niuean *fua* ‘has a wide meaning range, mainly related to natural phenomena of growth, offspring, swelling and protective encasement used by various animals and plants’.

Pn:	Tongan	<i>toume</i>	‘coconut spathe, often used for torches’
Pn:	Tikopia	<i>taume</i>	‘coconut spathe, when dry used for fuel’
Pn:	Tuvalu	<i>taume</i>	‘fruit-bearing coconut shoot; coconut spathe’
Pn:	Rarotongan	<i>taume</i>	‘coconut spathe’ (but examples refer clearly to spadix [flower spike])

POc also had a distinct term, **qitiŋ*, that denoted a hand or bunch of bananas. The balance of the evidence suggests that ‘hand’ was the usual meaning.

PMP **qitiŋ* ‘bunch of bananas’ (ACD)

POc **qitiŋ* ‘a hand or bunch of bananas’ (based on ACD)

PT:	Gumawana	<i>kisi</i>	‘hand of bananas’
MM:	Sursurunga	<i>ŋiti-n</i>	‘hand of bananas’
MM:	Roviana	<i>itiŋi-na</i>	‘a hand of bananas’
SES:	Gela	<i>iti (ni vudi)</i>	‘the stem of a bunch of bananas’
SES:	Lau	<i>ī</i>	‘hand of bananas’
Fij:	Rotuman	<i>ifi</i>	‘hand of bananas; (small kinds of fruit) bunch, cluster’

Also attributable to POc is a distinct term for the stem of fruit, probably denoting bananas in particular.¹³

POc **kulo* ‘stem of fruit, especially banana’

Adm:	Lou	<i>kolu(en)</i>	‘fruit stem’
NNG:	Poeng	<i>kule-na</i>	‘(banana) stem’
SES:	Gela	<i>kulo</i>	‘(banana) stem’
Mic:	Marshallese	<i>kəl^uæ</i>	‘fruit stem; stalk, leaf-stem, petiole’

2.9 Seeds

Table 4.12 gives the terms for ‘seeds’ in Nduke, Wayan and Tikopia. Nduke has a single term, *kiko-*, which is a general term for seeds or grain. Wayan, on the other hand, has a number of different terms, three of which, *mata*, *gele* and *kawa*, denote seeds in general, although with *mata* and *kawa* the seed of a plant is only one of a range of related meanings. Wayan also has a term *tibou* that denotes the seeds of mangrove trees.

‘Seed’ in English refers to ‘the ovules of a plant or plants (chiefly, when in the form of ‘grains’ or small roundish bodies) esp[ecially] as collected for the purpose of being sown’ (OED), and can refer to a variety of objects, including the large stone-like seeds of some fruit, grains of grasses, beans, the scale-like seeds of pine cones etc. While many modern Oceanic languages have apparently monosemous terms glossed as ‘seed’, other languages have polysemous terms with primary meanings of ‘stone’, ‘fruit’ or ‘louse egg’. POc appears to have been like these latter languages.

¹³ Blust (1976) reconstructs a term **kuRo* ‘stem, trunk’ on the basis of Gela *kulo* ‘stem of a banana’ and Samoan *?uo* ‘short thick log (about six feet long)’, but the additional data presented above indicate that the Samoan form is not cognate, and that the POc term was more restricted in its meaning.

Table 4.12 Terms for seeds in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>kiko-</i>	A general term for a seed or grain.
Wayan Fijian	
<i>mata</i>	Something which is the focal point or most important part of s.t., e.g. eye of needle, mesh of net, entrance to house, blade of knife, point of a spear, seed, source of water, etc.
<i>gele</i>	Seed of a plant, pips or stones of fruit.
<i>kawa</i>	That which is reproduced by a plant or animal: seed, progeny, offspring, descendants, stock.
<i>tībou</i>	Seeds of mangrove (<i>tiri</i> or <i>toŋo</i>).
Tikopia	
<i>koru</i>	(N) Seed or kernel of large fruit, e.g. <i>Areca</i> . Also a dry breadfruit; and (mod.) ship's biscuit.
<i>fatufatu</i>	(N) Stone, rock; knob, knot, nodule, kernel (e.g. <i>fatu kofe</i> 'bamboo nodule', <i>fatu kai</i> 'melon, melon seed'); Parts of body, protuberant or kernel-like (e.g. knuckle, Adam's apple etc).
<i>nukurū</i>	(N) Dried kernel of areca nut, stored for betel chewing.
<i>kākā</i>	(N) Dry, woody areca nut, in late stage.

In a number of modern Oceanic languages, including Manam, Carolinian and Tikopia, reflexes of POc **patu* 'stone' are polysemous and can also refer to the seeds of plants. In other languages, such as Lukep, Marovo and Emae, reflexes of POc **patu* appear to have lost the 'stone' meaning and remain as distinct terms for 'seed'. While it is possible that the shift from the meaning 'stone' to that of 'seed' occurred independently in different groups of Oceanic languages, it seems probable that POc **patu* was polysemous and could denote both stones and the seeds of plants. The most natural polysemy of **patu* would have been 'stone' and 'large stone-like seeds'. The Lukep, Kiribati and Samoan reflexes suggest that **patu* may have also denoted small seeds such as those of melons and citrus fruits, but it is not clear if **patu* could refer to the seeds of all plants.

PAn **batu* 'stone'

POc **patu* 'stone, rock; seed' (vol.2, ch.3, §7.1)

NNG:	Lukep (Pono)	<i>patu-</i>	'small seeds such as corn, melon, carrots etc'
NNG:	Takia	<i>patu-</i>	'seed, (small) fruit of tree, nut, egg; coin'
NNG:	Manam	<i>patu</i>	'stone, seed, money'
PT:	Tubetube	<i>patu</i>	'seed'
MM:	Siar	<i>patu-n</i>	'seed'
MM:	Marovo	<i>patu-na</i>	'seed'
SES:	Tolo	<i>vatu-na</i>	'seed'
Mic:	Kiribati	<i>ati</i>	'seed, (fruit) pips; block of coral, rock, stone; islet'
Mic:	Carolinian	<i>fāy</i>	'stone, rock, seed, testicles'

Pn:	Tikopia	<i>fatu-fatu</i>	‘stone, rock; knob, knot, nodule, kernel; protuberent or kernel-like body-part (e.g. knuckle, adam’s apple etc)’
Pn:	Emae	<i>fatu</i>	‘seed’
Pn:	Samoan	<i>fatu</i>	‘heart; seed, pip; grain; core, essence’

Holzkecht (1989: 87) presents data from a number of Markham (NNG) languages to support the reconstruction of POc **lija(n)* ‘seed’, the primary meaning of which was probably ‘nit, louse egg’ (Ross 1989: 481–482). More detailed Oceanic data indicates that the POc form was **lisaq* ‘nit, louse egg’, reflecting an earlier PAn term **liseqeS* ‘nit, louse egg’ (Blust 2002), and that a second form, **lejan* ‘nit’, is reconstructable for PWoc. Reflexes of POc **lisaq* ‘nit, louse egg’ with the meaning ‘seed’ occur in Sa’a (SES) and Wusi (NCV), so it is possible that this was a secondary meaning in PEOc. The exact reference of PEOc **lisa* ‘seed’ is unclear, but it probably denoted small seeds like grain at least, and may have referred more generally to the seeds of plants. The ‘seed’ meaning of reflexes of PWoc **lejan* in several Markham (NNG) languages, including Adzera *niju-n* ‘seed’ and N Watut *nejo* ‘seed’, indicate that a similar shift in meaning has also occurred with reflexes of this form.

PAn **li(ŋ)sa* ‘nit, louse’s egg’ (Blust 1972b)

PEOc **lisa* ‘nit, louse egg; seed’

SES:	Sa’a	<i>lite</i>	‘seed, kernel’
NCV:	Wusi	<i>lise</i>	‘seed’

As noted in §2.8, POc **puaq* was another term that could refer to the seeds of a plant as part of a broader meaning that also encompassed ‘fruit’. A number of Oceanic languages have a distinct term for the seeds of the breadfruit, but as can be seen from the following list, the modern terms are rarely cognate.

Adm:	Lou	<i>kom^wit-</i>	‘breadfruit seed’
NNG:	Kaulong	<i>emlu</i>	‘breadfruit seed’
NNG:	Mangseng	<i>salemi</i>	‘breadfruit seed’
MM:	Bola	<i>baki</i>	‘breadfruit seed’
MM:	Nakanai	<i>kako</i>	‘breadfruit seed’
MM:	Ramoaina	<i>tat</i>	‘breadfruit seed’
SES:	Gela	<i>dui</i>	‘breadfruit seed’
Mic:	Kosraean	<i>kɔlɔ</i>	‘breadfruit seed’
Mic:	Carolinian	<i>b^wuxili</i>	‘edible seeds from one variety of breadfruit’

The data given by Ross (1996c: 188) allow the reconstruction of PWoc **kalijo* ‘edible kernel of breadfruit segments’, but no term with this meaning is reconstructable for POc.

PWoc **kalijo* ‘edible kernel of breadfruit segments’

NNG:	Mangap	<i>kiliizi</i>	‘breadfruit seed’
NNG:	Sio	<i>kalinzo</i>	‘breadfruit seed’
NNG:	Malasanga	<i>kariro</i>	‘breadfruit fruit’
NNG:	Lukep (Pono)	<i>kadidi</i>	‘breadfruit seed’ (*-l- assimilated to -d-)
NNG:	Takia	<i>alid</i>	‘breadfruit seed’

NNG: Manam	<i>kaizo</i>	‘edible breadfruit seed’
NNG: Ali	<i>alic</i>	‘breadfruit’
MM: Halia	<i>ariro</i>	‘ <i>Artocarpus leeuwenii</i> ’ (Glennon & Glennon 2005)
MM: Teop	<i>ariko</i>	‘seed of breadfruit tree’ ¹⁴

The breadfruit is a syncarp, a compound fruit with many segments arranged around the core, which itself is the spike of the original flower. POc **malo-* denoted both the flower spike and the fruit core.

POc **malo-* ‘breadfruit flower, breadfruit core’ (Blust 1972*b*: **malo(n)* ‘core of the breadfruit’)

NNG: Bariai	<i>malo</i>	‘breadfruit flower’
NNG: Gedaged	<i>malo-</i>	‘core of the breadfruit’
Fij: Bauan	<i>malo</i>	‘core of the breadfruit’
Pn: Tongan	<i>malo</i>	‘flower-spike of the breadfruit’

2.10 Outer coverings

This section looks at terms for the outer coverings of parts of plants, such as the bark of woody stems, rind or peel of fruits and husk or shell of nuts. In some modern Oceanic languages there is a general term that covers all such meanings. For example, in Wayan *taba* denotes any sort of outer covering or layer, including skin or hide, bark, rind or husk of fruit and the outer shell of things like eggs. Similar terms are found in other languages, such as Longgu *pagepage* ‘bark; skin of snake or lizard; skin of an animal that sheds; skin that peels, of human; skin of fruit or tubers (e.g. cassava, sweet potato); any skin removed from “owner”’, and Mumeng (Patep) *ninəvi* ‘skin, of person, animal, fruit, tree’. Nduke, in contrast, has a number of quite specific terms, *tutupa* ‘bark of tree’, *poko-* ‘the husk or covering of grain’ and *pululu* ‘the cover over fruit found on some palm trees’. Many languages, like Nduke and Tikopia, have specific terms for the husk of coconuts.

In many modern Oceanic languages the same word is used for skin (of animals and people), skin of fruit and bark (of trees), e.g. Xârâcùù *kä* ‘skin, hide; bark, peel (of fruit)’, Iduna *kwafilina* ‘skin (of fruit, plants, animals); bark of tree’, Mangseng *peti* ‘skin, peel, bark’ and Labu *anasɔ* ‘skin; bark; peel’. And this also appears to have been true of POc **kulit*. Also reconstructable for POc (and PMP) is a verbal derivative **kulit-i-*, with the transitive suffix **-i*, denoting the removal of skin or bark.

PMP **kulit* (N) ‘skin’ (Dempwolff 1938)

PMP **kulit-i* (VT) ‘to remove the skin of s.t., to remove bark from a tree’ (ACD)

POc **kulit* (N) ‘skin (of animals, people, fruit), bark (of trees)’ (Ross 1988)

POc **kulit-i-* (VT) ‘to skin s.t., to remove bark from a tree’

Adm: Titan	<i>kuli-n</i>	‘skin’
NNG: Lukep (Pono)	<i>kuli-</i>	‘skin, bark’

¹⁴ Reflects **kaligo* rather than **kalijo*.

Table 4.13 Terms for outer coverings in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>poko-</i>	The husk or covering of grain. Variant: <i>popoko-</i> .
<i>pululu</i>	The cover over fruit found on some palm trees.
<i>tutupa-</i>	The bark of a tree.
<i>punutu-</i>	Fibrous epidermis round the base of a coconut frond. The <i>punutu</i> looks like an open-weave cloth, and is used for straining coconut ‘milk’ from squeezed coconut flesh.
<i>rereto-</i>	Spathe of the coconut, the ‘boat’ that accompanies the flowers and baby coconuts. The flowers and fruits (coconuts) are themselves supported by the <i>bayutu</i> (stem).
<i>pepenete-</i>	Husk of a mature coconut, and also the thick coir or fibre that makes up the inside of the husk.
Wayan Fijian	
<i>sau</i>	1. Shell or endocarp of any organism; 2. Anything which has had the good parts taken out, which is reduced to its waste or useless parts; thus, waste material, offal, rind or husk of fruit, food refuse, etc; 3. Rubbish in general, refuse, garbage.
<i>taba</i>	Outer or covering layer. Thus: 1. Skin or hide; 2. Bark; 3. Rind or husk of fruit; 4. Shell or outer case (of egg, football); 5. Page or leaf of paper.
<i>taliŋa</i>	1. Ear (of animal); 2. Carved knob or horn at base of curve on <i>kiakavo</i> club; 3. Sheath or calyx containing the seed and flower of certain fruits. <i>Taliŋa ni kulu</i> sheath or calyx containing the seed and flower of breadfruit; <i>taliŋa ni tiaina</i> sheath or calyx containing the seed and flower of banana.
<i>basili</i>	Dead skin of the stem of a banana plant.
<i>sāmoa</i>	1. Hard sheath or calyx enclosing the flower of a coconut. Used as a torch. syn. <i>basiwara</i> . 2. Coconut flower before the sheath bursts.
Tikopia	
<i>kiri</i>	(N) Skin (of man, animal); bark (of tree). Cf. <i>raukiri</i> ‘bark of tree’.
<i>moko</i>	(N) Outer (covering), applied especially to bark, skin.
<i>vākai</i>	(N) Fibre of inner cortex of plants, esp. hibiscus; used for cord, pads for expressing coconut cream, pad for preparing kava and (dyed) ornament for pandanus mats.
<i>penu</i>	(N) 1. Integument, outer covering of object, as shell, husk, rind etc.
<i>paku</i>	(ADJ) 1. blunt 2. hard 3. rind, crust.
<i>puru</i>	(N) Husk, primarily of coconut (<i>puru niu</i>), since no other palm nut husk of economic interest; a fibrous dense material used as fuel or for domestic purposes such as cleaning wooden bowls, but mainly as lashing or after special treatment, for preparation of sinnet cord.
<i>taume</i>	(N) Spathe or sheathing-leaf of flower of coconut palm; when dry used for fuel. Traditionally supplied fire for the ritual dancing in <i>Marae</i> .

PT:	Misima	<i>kúnis</i>	‘(humans, animals, fish, food) skin; (tree) bark; (fish) scales; (coconut) husk’
MM:	Nakanai	<i>kuli-kuli</i> <i>kulisi</i>	‘skin (a piece rather than the whole); bark; peel’ ‘(skin) have scrape; remove tree bark or fruit skin’
MM:	Ramoaaaina	<i>kuliti</i>	‘peel off in flakes’
SES:	Gela	<i>(γui)γuli</i> <i>γuliti</i>	(N) ‘skin’ (V) ‘peel skin or bark’
SES:	Bugotu	<i>(γui)γuli-ña</i> <i>γuliti</i>	(N) ‘skin, bark’ (V) ‘flay, skin’
SES:	Tolo	<i>huli-na</i>	‘(human, fruit) skin; (tree) bark’
SES:	Kwara’ae	<i>?uli-?uli</i>	‘bark, skin with flesh (thicker than <i>ta?eta?e</i> ‘skin, bark, husk’)’
SES:	Arosi	<i>?uri-na</i>	‘human skin, animals, roots, fruits; inner tree bark’
NCV:	Lonwolwol	<i>ul</i>	‘(human, tree) skin’
NCV:	Paamese	<i>uli-</i>	‘tree bark (especially the fibrous kind which easily peels off in long strips and can be used for tying things)’
Mic:	Kiribati	<i>kun</i>	‘skin, peel, bark, crust, membrane, book cover’
Mic:	Kosraean	<i>kolo-</i>	‘skin, peel, bark, hide, rind, pillow case’
Fij:	Rotuman	<i>?uli</i>	‘skin, peel, bark, crust’
Fij:	Bauan	<i>kuli-</i> <i>kulit-a</i>	(N) ‘skin, peel, bark’ (V) ‘peel cooked taro or food cooked in water; strip off the skin or bark of a tree’

In Proto Remote Oceanic there is evidence for doublet forms **kulit* and **kilit*, with **kilit* reflected in Namakir of North Central Vanuatu, Western Micronesian languages and Polynesian languages. However, it is likely that these reflect independent developments in Proto Micronesian, Namakir and PPn.

PROc **kilit* ‘skin, bark’

NCV:	Namakir	<i>kili-n</i>	‘skin, bark’
Mic:	Marshallese	<i>kil</i>	‘skin’
Mic:	Mokilese	<i>kili-</i>	‘skin, bark, peel, hide’
Mic:	Mortlockese	<i>kili-n</i>	‘skin, bark (3s)’
Mic:	Chuukese	<i>sīr-</i>	‘skin, bark’
Mic:	Woleaian	<i>xir</i>	‘bark, skin’
Mic:	Carolinian	<i>xīl</i>	‘skin, bark’
Mic:	Ulithian	<i>xīli-</i>	‘bark, skin’
Pn:	Tongan	<i>kili</i>	‘skin; peel; rind; bark’
Pn:	Niuean	<i>kili</i>	‘bark; skin’
Pn:	Tikopia	<i>kiri</i>	‘(human, animal) skin; (tree) bark’
Pn:	E Futunan	<i>kili</i>	‘skin; bark, (fruit) peel’
Pn:	Hawaiian	<i>?ili</i>	‘skin, complexion, hide, scalp, bark, rind, peel’

Specific terms for the outer coverings of different parts of the coconut are also reconstructable for POc and are presented in chapter 12.

Table 4.14 Terms for sap or resin in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>oto-</i>	The sap or gum of trees and some fruits (e.g. unripe pawpaw). <i>Oto</i> appears when you cut the stem of a tree or plant.
Wayan Fijian	
<i>toya</i>	Sap of a tree, especially when runny. contr. <i>būlei</i> .
<i>būlei</i>	1. Gum, sticky sap exuded from tree or fruit. 2. Chewing gum.
<i>makadre</i>	(N) Resin or sap of the kauri pine (<i>dakua</i>), not present on Waya. cf. <i>toya</i> . Used for torches and for glazing pots.
Tikopia	
<i>piki</i>	1.(v) Cling; stick to; adhere; clasp. 2. (N) Adhesive material: gum, resin etc from breadfruit and other trees.
<i>vale</i>	(N) Resin; also saliva.
<i>toto</i>	(N) 1. Blood. 4. Sap of plants and trees.

2.11 Sap, resin

Table 4.14 gives the terms for sap or resin in Nduke, Wayan and Tikopia. Nduke appears to have a single term *oto-* ‘the sap or gum of trees and some fruits’. Tikopia and Wayan, on the other hand, have several different terms. In Wayan *toya* denotes sap, especially when it’s runny, *būlei* denotes sticky sap or gum, and *makadre* denotes the gum or resin of the kauri tree which is used for glazing pots.

The Oceanic data, shown in the cognate set below, suggest the reconstruction of POc **bulut*, and perhaps of a variant POc **bulit*, referring to the sap of plants and other sticky substances. It was also apparently an Undergoer subject verb ‘to be sticky’ with a corresponding transitive form **bulut-i-* ‘to stick something to something’. Reflexes of **bulut* in a number of Oceanic languages have narrower meanings than that reconstructed for POc, denoting kinds of sap that have a particular purpose. For example, ‘Are’are *purui* and Sa’a *pulu* denote the use of putty nut gum to caulk canoes. Samoan *pulu* also denotes the substance used for caulking, in this case, breadfruit sap, and Mota *pulu* and NE Ambae *bulu* denote the sap of the *Canarium* almond which is used for tattooing.

PAn **belit*, **bulit* ‘viscous, sticky’ (ACD)

POc **bul[i,u]t* (N) ‘sap (of plant) or other sticky substance’; (VT) ‘be sticky’ (Capell 1943: **bulu(t)*)

POc **bulut-i-* (VT) ‘to stick something to something’

Adm: Lou	<i>pulut</i>	‘sticky’
Adm: Titan	<i>βulút-i</i>	‘stick to s.t. (VT)’
MM: Nakanai	<i>bulu</i>	‘soup, any liquid’
	<i>bulu-bulu-</i>	‘sap of tree’
MM: Ramoaaina	<i>bulit</i>	‘stick, glue; sap; the sap of the breadfruit tree’
MM: Siar	<i>polo-n</i>	‘sap of a tree’

SES:	Kwaio	<i>bulu?-ia</i>	‘caulk, tamp a post; gum; mix together’ ¹⁵
SES:	’Are’are	<i>puru-i-</i>	‘gum, stick, caulk joints of canoe planks with puttynut’
SES:	Sa’a	<i>pulu</i>	‘pitch, gum, native cement; a nut, <i>Parinarium laurinum</i> , is scraped on rough coral rock and darkened in colour with a mixture of charcoal and the juice of the <i>o?a</i> tree; the cement hardens almost immediately’
NCV:	Mota	<i>pul, pulu</i>	‘gum of trees, particularly of <i>Canarium</i> ; torch; tattoo done with <i>Canarium</i> gum; birdlime, to catch birds with; to stick’
		<i>pulut</i>	‘to make stick (VT)’
NCV:	NE Ambae	<i>bulu</i>	‘sap of <i>Canarium</i> , used in the making of tattoos’
		<i>bulus-i</i>	‘to join (VT)’
Mic:	Marshallese	<i>p^uil</i>	‘sap, chewing gum’
Mic:	Kosraean	<i>ful</i>	‘breadfruit sap’
Mic:	Pulo-Annan	<i>v^uuni-</i>	‘sap, gum, glue’
Fij:	Wayan	<i>bulu</i>	‘adhere, be attached, stick to a surface; be patched, sealed, filled (of a tooth), have s.t. glued on top to cover it’
		<i>bulu-bulu</i>	‘be patched, sealed with a patch; be sticky, gluey, adhesive, cloggy’
		<i>bulut-i-</i>	‘to patch s.t., stick a patch on s.t.’
Fij:	Rotuman	<i>pulu</i>	‘sap, gum; any adhesive substance — gum, paste, sealing-wax, solder etc; chewing gum’ cf. <i>pulpulu</i> ‘sticky’
Pn:	Tongan	<i>pulu</i>	‘white sap, especially of breadfruit tree’
		<i>pupulu</i>	‘sticky, adhesive’
Pn:	Samoan	<i>pulu</i>	‘breadfruit gum, used as putty especially for caulking canoes; chewing gum; rubber’
cf. also:			
SES:	Arosi	<i>buru</i>	‘tree species, <i>Parinarium laurinum</i> ; the gum is used to caulk canoes’

2.12 Thorns

As can be seen from Table 4.15 Wayan, Tikopia and Nduke all have a single term for the thorns of a plant.

Proto Austronesian **Cenek* ‘thorn’ (ACD) appears to be reflected within Oceanic only by the Bauan Fijian verb *tono-ka* ‘to pierce, poke’. Ross (1996c: 189) reconstructs **ruRi*

¹⁵ The *-?ia* ending of Kwaio *bulu?ia* probably reflects the transitive suffix and 3sg object suffix. While there is no corresponding intransitive form †*bulu*, Kwaio does have other forms that look to be derived from an original base **bulu*, such as *bulua* ‘squeeze together’ and *iola bulubulu* ‘a traditional composite canoe’ (*iola* ‘canoe’) (Keesing 1975: 29).

Table 4.15 Terms for thorn in Nduke, Wayan Fijian and Tikopia

Nduke	
<i>robo-</i>	Thorns of a plant, e.g. lime tree thorns or Bougainvillea, and also sharply serrated leaves.
Wayan Fijian	
<i>voto</i>	1. Thorn, prickle. 2. Spike or spines of a fish, such as the <i>sokisoki</i> , Pufferfish. 3. Barb or tail needle of a stingray. 4. Gooseflesh.
Tikopia	
<i>sina</i>	(N) Thorn, spine.

as the general term for thorns and spines in POc, noting that some reflexes (e.g. Lou and Lukep) refer specifically to the barbs of sago leaves and bark, and the Titan reflex to the sago plant itself. Reflexes of this term have only been found in Admiralty, North New Guinea and Papuan Tip languages. While Bilibil, Takia and Kis and Gapapaiwa reflect POc **druRi*, Numbami and Mapos-Buang and Iduna reflect **ruRi*, and the Admiralty forms are compatible with either **ruRi* or **druRi*.

PMP **duRi* ‘thorns’ (Dempwolff 1938)

POc **(dr,r)uRi* ‘thorns’

Adm: Lou	<i>ruwi</i>	‘barbs on sago bark’
Adm: Titan	<i>nrúwi</i>	‘a type of sago which has a lot of thorns’
NNG: Bilibil	<i>dur</i>	‘thorn’
NNG: Lukep (Pono)	<i>riri(ni)</i>	‘sharp points on sago and pandanus leaves (IP noun)’
NNG: Takia	<i>duduru-</i>	‘thorn (inalienable)’
NNG: Kis	<i>dulu</i>	‘thorn’
NNG: Numbami	<i>luli</i>	‘thorn’
NNG: Mapos Buang	<i>ruru(k)</i>	‘thorn’
PT: Gapapaiwa	<i>tui-ri-na</i>	‘his bone’
PT: Iduna	<i>lulu</i>	‘bone’

Blust (1976) reconstructs POc **poto(k)* ‘thorn, barb of stingray’. However, while the ‘thorn’ meaning is well-supported, the ‘stingray barb’ meaning appears to be restricted to Central Pacific languages, and so may not have been present in POc.

POc **poto(k)* ‘thorn, barb of stingray’ (Blust 1976)

Adm: Titan	<i>poto-n</i>	‘thorn’
Fij: Bauan	<i>voto</i>	‘a thorn, prickle; root of bodily hair (not of the head)’ cf. <i>voto-ka</i> ‘to prick (VT)’
Fij: Wayan	<i>voto</i>	‘thorn, prickle; spike or spines of a fish; gooseflesh’
Pn: Tongan	<i>foto</i>	‘barb of stingray’
Pn: Niuean	<i>foto</i>	‘thorn, barb, spike, bristle (used both literally and figuratively, describing personal characteristics)’
Pn: Samoan	<i>foto</i>	‘sting (of stingray)’

In a number of languages terms for ‘thorn’ reflect POc terms that are best reconstructed with the meaning ‘needle’. Thus POc **saRum* ‘needle, tattooing needle (typically made from wing-bone of flying fox)’ (vol.1, ch.4, §3.2.1) is reflected in Carolinian *tou-tow* as the general term for thorns of plants. The same is true of the Sa’a reflex of POc **sika* ‘netting needle’ (vol.1, ch.8, §2). Milke (1961) reconstructs **sika* for POc with the meaning ‘netting needle, thorn’, but the ‘thorn’ meaning appears to be reflected only in Sa’a *sike* ‘thorn’, suggesting that the original meaning was ‘netting needle’ and that the Sa’a form is innovative.

3 Concluding remarks

This chapter presents more than 40 POc reconstructions of terms that denote the parts of plants. In general the number and types of terms that are reconstructable for POc within each of the 12 semantic categories are similar to those found in modern Oceanic languages. For example, modern languages tend to have several terms that refer to the roots of plants, typically including a term for roots in general and a number of more specific terms denoting different types of roots. Similarly, for POc a general term for roots, **wakaR*, and several more specific terms, **lali(t,c)* ‘buttress roots’, **Ramut* ‘fine, hair-like roots’ and **wako(t)* ‘mangrove (aerial) roots’, can be reconstructed. The same is true for terms referring to outer coverings. POc **kulit* denoted the skin of fruits and the bark of trees, as well as the skin of animals and people. Alongside **kulit*, POc also had specific terms for coconut husk (**punut*, **p^(w)enut*) and for the sheath of fibrous material around the base of a coconut frond (**Runut*, **nuRut*). Many modern Oceanic languages have similar types of terms for outer coverings.

Modern Oceanic languages also tend to have extensive terminologies for the parts of the coconut palm, its fruit and their uses (Table 4.1). Chapter 12 is devoted to this topic.

The number of general plant part terms reconstructed for POc, over 30, is similar to the numbers of such terms in Wayan (nearly 50), Tikopia (nearly 50) and Nduke (over 30). However, these modern languages have a much larger number of terms for the parts of particular types of plants (nearly 20 in all three languages), than can be reconstructed for POc (7 terms in this chapter). This difference was particularly apparent with the terms for leaves. Table 4.8 gave a selection of the range of terms for leaves in a number of Oceanic languages, demonstrating how modern Oceanic languages typically have several terms for the leaves of particular types of plants, including coconut, taro and pandanus. Ross (1996c) reconstructs POc terms for taro leaves (**gal(a,o)*) and palm fronds (**[pa]paq[a-]*), and POc **sulu(q)* ‘coconut leaf torch’ could probably also refer to dry coconut leaves, but other terms for the leaves of particular types of plants do not appear to be reconstructable.

Table 4.2 shows the range of terms in a number of modern languages for parts of banana plants. Many Oceanic languages, including Lou, Iduna, Gapapaiwa, Gumawana, Ramoaaina, Gela, Longgu, Wayan, and E Futunan, have terms that specifically denote the new shoots or suckers of banana plants, but such a specific term does not appear to be reconstructable for POc. Rather, POc **[s,j]juli(q)* apparently denoted propagation material in general (including suckers and shoots), though it may have referred especially to the suckers of banana and taro. Modern Oceanic languages also tend to have more specific terms for bunches of bananas than can be reconstructed for POc. Thus Lou has a term *pɔɔk* denoting a new bunch of bananas and several terms for hands of bananas, including *top^wan* ‘first banana hand’, *ɲɔɔɛn* ‘last hand of bananas’, *set* ‘one hand of bananas’ and *turet* ‘two hands of bananas’. For POc only the more general term **qitiŋ* ‘hand of bananas’ can be reconstructed.

It is unlikely that the structure and detail of the POc terminology for plant parts differed much from that of modern Oceanic languages. Our inability to reconstruct as many POc names for the parts of specific plants as there are in modern languages probably stems from two factors: (i) a rapid rate of lexical replacement in such names; (ii) shortcomings in the data for modern Oceanic languages. Both factors would reduce the number of cognate sets. It is possible that a faster rate of lexical replacement with specific plant part terms reflects a lower frequency of use. In small migrating communities, where it is likely that the younger people move on while the elders remain at home, there may be a tendency for less frequently used lexical items to be forgotten and later replaced if and when needed.

5 *Wild plants of the coastal strand*

MALCOLM ROSS

1 Introduction

Tropical coastal habitats are of two kinds, depending on whether or not fresh as well as salt water is available along the coastal strip. If fresh water is available, then a mangrove swamp may occur (chapter 6). If there is no fresh water or if mangroves are removed by human agency, a beach is formed.¹ In NW Island Melanesia beaches are usually sandy (rather than pebbly) and range from almost white, from the erosion of coral reefs and shells, to almost black, from the erosion of volcanic rocks. A beach creates an environment for coastal strand vegetation, which typically consists of three zones, the first two usually forming quite narrow bands:²

- herbaceous zone (§3);
- beach scrub (§4);
- littoral forest (§5).

There is sometimes also an underwater zone in the coastal shallows which is home to sea-grasses and seaweeds.

Where the coast is gradually being built out by the accretion of sand, a succession of ridges develops, parallel to the beach. Ridges closer to the beach are typically about two metres high (Paijmans 1976: 27–28). The **herbaceous zone** begins at the high-tide mark and occupies the beach up to the first ridge. It has a cover of creeping plants which include *Ipomoea pes-caprae* (§3.1), *Canavalia rosea* (syn. *C. maritima*) (no reconstruction) and *Wedelia biflora* (§3.2), as well as grasses and sedges which include *Thuarea involuta* (ch.8, §3).

On their landward side the beach ridges merge into gently undulating flats which provide the environment for **beach scrub**. The border between the herbaceous zone and beach scrub is often vague and the two zones overlap. Beach scrub consists of shrubs like *Pemphis acidula* (§4.1.4) and *Scaevola taccada* (§4.1.5) and low-growing bushy-crowned trees like *Cordia subcordata* (§4.1.1), *Hernandia nymphaefolia* (§4.1.2), *Hibiscus tiliaceus* (§4.1.3), *Thespesia*

¹ I am grateful to Will McClatchey for elucidating this contrast.

² Except where otherwise indicated, this introduction is based on material in Mueller-Dombois & Fosberg (1998: 50–70).

populnea (§4.1.6), *Tournefortia argentea* (§4.1.7) and *Vitex trifolia* (§4.1.8), often densely tangled with climbers like *Flagellaria indica* (§4.2.1). Beneath the shrubs is a ground layer of ferns, grasses, gingers and herbs which includes *Crinum asiaticum* (ch. 13, §6.6) (Mueller-Dombois & Fosberg 1998: 50).

Landwards, there is a transition, abrupt or gradual, from beach scrub to **littoral forest** (although it is common in NW Island Melanesia for littoral forest to have been displaced by coconut groves). This forest is often dominated by evergreen broadleaf trees like *Barringtonia asiatica* (§5.2), *Calophyllum inophyllum* (§5.3), *Heritiera littoralis* (ch.6, §4.4) and *Terminalia catappa* (ch.11, §2.4) (and in the Solomons *Cerbera manghas*, ch.6, §4.1) or the screwpine *Pandanus tectorius* (or on coral soil *P. dubius*) (ch.11, §2.5) or sometimes *Casuarina equisetifolia* (§5.4). Where beach ridges have been eroded, littoral forest borders immediately on the beach, and *Barringtonia asiatica* (§5.2) predominates. Trees of lesser stature reported by Peekel (1984) in the littoral forest in New Ireland include *Adenanthera pavonina* (§5.1), *Guettarda speciosa* (§5.8) and *Pongamia pinnata* (§5.12). In the Solomons the lower storey includes *Hibiscus tiliaceus* (§4.1.3), *Diospyros* species (ch.7, §5.5), *Kleinhovia hospita* (ch.7, §5.7), *Ficus austrina* (no reconstruction), *Premna corymbosa* §5.13) and *Morinda citrifolia* (ch.13, §3.4) (Paijmans 1976: 29–20, Henderson & Hancock 1988: 321, Mueller-Dombois & Fosberg 1998: 50, 59, 70).

As the chapter numbers in the crossreferences above indicate, it is difficult to draw a line between littoral forest and lowland rain forest, as the two shade into each other. Trees which grow in lowland rain forest generally are mostly assigned to chapter 7. Certain trees of damper littoral forest also thrive on the landward margins of mangrove forests (*Heritiera littoralis*, *Cerbera manghas*) and are treated in chapter 6. *Terminalia catappa*, *Pandanus tectorius* and *Morinda citrifolia* fall under the rubric of tended or cultivated plants and are discussed in chapter 11.

From the perspective of linguistic reconstruction the shrubs and trees of the beach scrub zone and the littoral forest stand out because their names are quite easy to reconstruct, their Proto Oceanic (POc) names are often continuations of earlier forms, and they display continuity within Oceania. There are probably three main reasons for this. The first is simply that these plants have a very wide Pacific distribution, an obvious condition of continuity in naming. The second is probably that, being just behind the beach, they were easily accessible from people's homes in beachside villages, and, thirdly, they also happen to be useful plants.

2 Coastal shallows

The coastal shallows are home to seagrasses and seaweeds and, if there is a reef, to any number of marine plants. Seagrasses are those families of Angiosperms (flowering plants) that spend their entire life cycle under water. Seaweeds, on the other hand, are algae.

POc had a generic term for mosses, algae and seaweeds, namely **lumut* or **limut* (§4.6). Beyond this, comparative lexical material on these plants is thin, and only two further reconstructions are offered here. Glosses in the sources are vague, often not distinguishing between seagrass and seaweed. There are no species identifications.

The Tawala description below, 'seaweed like kunai grass in appearance', is a reasonable characterisation of seagrasses of the genus *Enhalus*, which is characterised by long narrow leaves (Peekel 1984: 42–44, Hviding 2005: 13) and this is the (weak) basis for the gloss of PNGOc **domu*.

PNGOc **domu* ‘seagrass sp., perhaps *Enhalus*’

NNG:	Numbami	<i>do-domu</i>	‘seaweed, sea grass’
PT:	Ubir	<i>dom</i>	‘seaweed long species’
PT:	Gapapaiwa	<i>tom-tom</i>	‘seaweed type’
PT:	Tawala	<i>tom-tom</i>	‘seaweed like kunai grass in appearance’
PT:	Kilivila	<i>do-dom</i>	‘seaweed’

The glosses of the items supporting the reconstruction of POc **karag^wam* are both too vague and too varied to allow the denotatum to be further pinned down. The Drehet gloss suggests a seaweed, Andra a seagrass. The Motu gloss is somewhat confusing, as *Fucus* is a genus of algae, not seagrass.

POc **karag^wam* ‘seaweed, seagrass’³

Adm:	Drehet	<i>kurak</i>	‘seaweed’
Adm:	Andra	<i>korek</i>	‘seagrass sp. growing on reef flat’ (unexpected vowels)
PT:	Molima	<i>kalagoma</i>	‘a seaweed’
PT:	Tawala	<i>yaleg^wama</i>	‘seaweed type, brown’
PT:	Muyuw	<i>yalig</i>	‘seaweed used to paint canoes’
PT:	Motu	<i>alaga</i>	‘seaweed like grass, <i>Fucus</i> sp.’
MM:	Nakanai	<i>lega</i>	‘seaweed sp.’
MM:	Patpatar	<i>karaguo</i>	‘seaweed’
MM:	Tolai	<i>kala-kalag</i>	‘seaweed sp.’
SES:	Lau	<i>?alaga</i>	‘seaweed’
SES:	Arosi	<i>?araga</i>	‘seaweed’
Mic:	Kiribati	<i>kean</i>	‘seagrass’

3 The herbaceous zone

3.1 *Ipomoea* spp., morning glory (Convolvulaceae)

Within the Evans’ **waRoc* ‘vines and creepers’ taxon (ch.3, §4.4) there was apparently a subtaxon **puRe*, which consisted of beach creepers. Clark (1996) takes the PEOc reflex to have denoted shore creepers of the genus *Convolvulus*. The evidence for this in the cognate set below is at first sight thin. However, there is a strong tendency in the botanical literature for *Ipomoea* species (‘morning glory’) to have synonyms in the genus *Convolvulus*, and it is likely that some, if not all, of the *Convolvulus* glosses below denote *Ipomoea* species. It is thus possible that POc **puRe* prototypically denoted *Ipomoea grandiflora* (syn. *Ipomoea tuba*, *Convolvulus tuba*, *Calonyction grandiflorum*) and *Ipomoea pes-caprae* (Figure 5.1, left), beach creepers with trumpet-like flowers, white and purple respectively, commonly found on beaches in the Bismarck Archipelago (Peekel 1984: 461). Eastern Polynesian reflexes reflect a shift in denotatum to the gourd *Lagenaria siceraria* (ch.13, §7.1).

³ The form of the reconstruction is puzzling, as it appears to contain the labialised velar **g^w*, but this POc phoneme has not previously been reconstructed. How this should be interpreted is not yet clear.

No reconstruction can be made for another beach creeper, *Canavalia rosea* (syn. *C. maritima*), which typically co-occurs with *Ipomoea pes-caprae*. It is possible that it was included, at least at some locations, in the **puRe* subtaxon.

POc **puRe* ‘taxon of beach creepers; perhaps prototypically *Ipomoea grandiflora* and *Ipomoea pes-caprae*’

Adm:	Lou	<i>p^wi-p^wi</i>	‘vine which grows on the sand’
NNG:	Kairiru	<i>wul (kabuk)</i>	‘wax gourd, <i>Benincasa hispida</i> ’
PT:	Muyuw	<i>(igina)p^wey</i>	‘ <i>Ipomoea pes-caprae</i> ’
MM:	Nakanai	<i>vule</i>	‘ <i>Crinum</i> sp.’
MM:	Kia	<i>fu-fure</i>	‘ <i>Ipomoea pes-caprae</i> ’ (W. McClatchey, pers. comm.)
MM:	Kokota	<i>fu-fure</i>	‘a flowering plant, grows as a littoral creeper’
MM:	Gao	<i>fu-fure</i>	‘ <i>Ipomoea pes-caprae</i> ’ (W. McClatchey, pers. comm.)
SES:	Lau	<i>fule-fule</i>	‘sp. creeper on the shore’
SES:	Arosi	<i>hure</i>	‘beach creeper, <i>Convolvulus</i> sp.’
SES:	Sa’a	<i>hule</i>	‘ <i>Convolvulus</i> sp. growing on beach.’
NCV:	Uripiv	<i>na-wu-wu (ne dis)</i>	‘creeper growing at seashore’ (<i>dis</i> ‘sea’)
NCV:	Paamese	<i>hua-hue</i>	‘beach morning glory’ ⁴
NCV:	Lewo	<i>(ma)wo-we</i>	‘ <i>Ipomoea</i> sp.’
SV:	Kwamera	<i>nə-fua</i>	‘beach vine sp. with yellow trumpet-shaped flowers’ ⁴
SV:	Anejom̃	<i>no-hou</i>	‘vine sp. on beach with purple flower’ ⁵
NCal:	Xârâcùù	<i>k^we</i>	‘gourd’
Pn:	Tongan	<i>fue</i>	‘generic term for vines’ (Whistler 1991b: 35)
Pn:	Niuean	<i>fue</i>	‘creeping vine, <i>Merremia peltata</i> ’
Pn:	E Futunan	<i>fue</i>	‘ <i>Canavalia maritima</i> ’
Pn:	Rennellese	<i>hue</i>	‘ <i>Ipomoea pes-caprae</i> ’
Pn:	Tikopia	<i>fue</i>	‘a beach vine’
Pn:	W Futunan	<i>fue</i>	‘sweet potato sp.’
Pn:	Samoan	<i>fue</i>	‘generic for vines and creepers’ (Whistler 2000: 166)
Pn:	Tuvalu	<i>fue</i>	‘ <i>Canavalia maritima</i> ’
Pn:	K’marangi	<i>hue</i>	‘ <i>Ipomoea alba</i> ’
Pn:	Tokelauan	<i>fue</i>	‘a vine, <i>Ipomoea macrantha</i> ’
Pn:	Tuamotuan	<i>hue</i>	‘gourd’
		<i>(poo)hue</i>	‘ <i>Convolvulus</i> sp.’

Proto Eastern Polynesian **fue* ‘gourd, *Lagenaria siceraria*’

Pn:	Tahitian	<i>hue</i>	‘gourd, calabash’
Pn:	Rapanui	<i>hue</i>	‘gourd, <i>Lagenaria siceraria</i> ’
Pn:	Rarotongan	<i>?ue</i>	‘gourd, <i>Lagenaria siceraria</i> ’
Pn:	Māori	<i>hue</i>	‘gourd, <i>Lagenaria siceraria</i> ’

⁴ Presumably an *Ipomoea* sp.

⁵ Possibly *Ipomoea pes-caprae*.



Figure 5.1 Left *Ipomoea pes-caprae*, morning glory. Right *Wedelia biflora*.

3.2 *Wedelia biflora* (syn. *Wollastonia biflora*) (Asteraceae)

Wedelia biflora (Figure 5.1, right) is a herbaceous or half-shrubby coastal plant, usually 1.5–2.5 m tall, with yellow flowers. On the beach it sometimes forms impenetrable thickets, but it also occurs in the littoral forest, where it climbs as high as 6 m (Peekel 1984: 561).

The leaves are filled with a tasty milk-like sap, and Tangga speakers (offshore east of southern New Ireland) boil and eat them (Bell 1947: 244). At Marovo the leaves are an ingredient in cures for stomach ache (Hviding 2005: 108).

The following comparison is due to Blust (ACD), who associates it with PMP **qatay* ‘liver’, since sources from the Philippines and northern Sulawesi suggest that the plant owes its name to the fact that its leaves are shaped like a pig’s liver.

Bender et al. (2003) reconstruct Proto Chuukic **adi-adi* ‘*Wedelia biflora*’. It is hard to believe that this is not associated with the reconstruction above, but this association must be by borrowing (perhaps from Yapese), as the Proto Chuukic form would reflect POC †**(q)a(s,j)u-(q)a(s,j)u*, not **qate-qate*.

PMP **qatay-qatay* ‘a climbing plant, *Wedelia biflora*’ (ACD)

POC **(qate-)qate* ‘*Wedelia biflora*’

Yap:	Yapese	ʔæθ	‘flower of a type of plant’
Pn:	Tongan	ate	‘shrub, <i>Wedelia biflora</i> ’ (for expected †ʔate)
Pn:	W Uvean	ate	‘shrub, <i>Wedelia</i> sp.’
Pn:	Anutan	ate	‘plant spp., <i>Wedelia biflora</i> , <i>Adenostemma lavenia</i> ’
Pn:	Samoaan	ate-ate	‘shrub, <i>Wedelia biflora</i> ’

cf. also:

Proto Chuukic **adi-adi* ‘*Wedelia biflora*’ (Bender et al. 2003)

Mic:	Mortlockese	etiyet	‘ <i>Wedelia biflora</i> ’
Mic:	Chuukese	ətiwət	‘ <i>Wedelia biflora</i> ’
Mic:	Puluwatese	yətiyæt	‘ <i>Wedelia biflora</i> ’
Mic:	Satawalese	yatiyat	‘ <i>Wedelia biflora</i> ’
Mic:	Ulithian	yaθyəθ	‘ <i>Wedelia biflora</i> ’

4 Beach scrub

4.1 Woody shrubs and small trees

4.1.1 *Cordia subcordata*, kerosene wood, island walnut, sea trumpet, Pacific rosewood, P *kerasin wud*, B *burao blong solwata* (Boraginaceae)

A twisted shore tree 8–15 m tall, *Cordia subcordata* (Figure 5.2, left) is well known for its very strong black-veined heartwood, which may remain as a skeleton after the rest of a dead tree has rotted away (W. McClatchey, pers. comm.). It occurs in varieties with orange and yellow flowers (Peekel 1984: 471, Hviding 2005: 131).

Its wood is lightweight but durable. In the western Solomons, in Vanuatu and on Waya Island it is used for carving (Gowers 1976: 56, Hviding 2005: 131, Gardner & Pawley 2006, Friday & Okano 2006). In earlier times the Marovo also used it for house posts, but its use in construction seems never to have been widespread. On New Ireland, however, the ceremonial V-shaped entrance to a men's house was always made of *C. subcordata* (Record 1945). In Tonga it was used for carving and for construction (Whistler 1991b: 108). Gowers (1976: 56) and Capell (1941) report that its sap served as an adhesive in Vanuatu and Fiji.

POc **kanawa(n)*, **toRu* and **jasi* and PWOc **nagi* are all reconstructable, but contrasts in meaning are unclear.

PMP **kanawa* ‘*Cordia* spp.’ (ACD)⁶

POc **kanawa(n)* ‘*Cordia subcordata*’

NNG:	Kove	<i>kanau</i>	‘ <i>Cordia subcordata</i> ’ (Chowning 2001: 83)
PT:	Misima	<i>ganawan</i>	‘ <i>Cordia subcordata</i> ’
MM:	Kara (E)	<i>keno</i>	‘ <i>Cordia subcordata</i> ’
MM:	Patpatar	<i>kanawa</i>	‘ <i>Cordia subcordata</i> ’
MM:	Tolai	<i>kanao</i>	‘ <i>Cordia subcordata</i> ’
Mic:	Kiribati	<i>kanawa</i>	‘ <i>Cordia subcordata</i> ’
Mic:	Mokilese	<i>kanaw</i>	‘tree sp.’
Mic:	Woleaian	<i>xariiw</i>	‘ <i>Cordia subcordata</i> ’
Mic:	Chuukese	<i>anaw</i>	‘ <i>Cordia subcordata</i> ’
Mic:	Puluwatese	<i>yānaw</i>	‘ <i>Cordia subcordata</i> ’
Fij:	Wayan	<i>nawa-nawa</i>	‘ <i>Cordia subcordata</i> ’
Fij:	Bauan	<i>nawa-nawa</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Tongan	<i>(pua tau)kanave</i>	‘ <i>Cordia subcordata</i> ’
Pn:	E Uvean	<i>kanava</i>	‘ <i>Cordia subcordata</i> ’
Pn:	E Futunan	<i>kānava</i>	‘tree sp. with black wood and small red flower, found at Alofi’
Pn:	Samoan	<i>(tau)anave</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Tokelauan	<i>tānava</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Nukuoro	<i>ganava</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Nukuria	<i>ganava</i>	‘ <i>Cordia subcordata</i> ’

⁶ Wolff (1994) argues that this term should not be reconstructed for PMP but started its life somewhere in eastern Indonesia and spread in non-Oceanic languages by borrowing. However, the ACD includes Palauan *kelau* ‘*Cordia sebestena*’, which supports the PMP reconstruction.

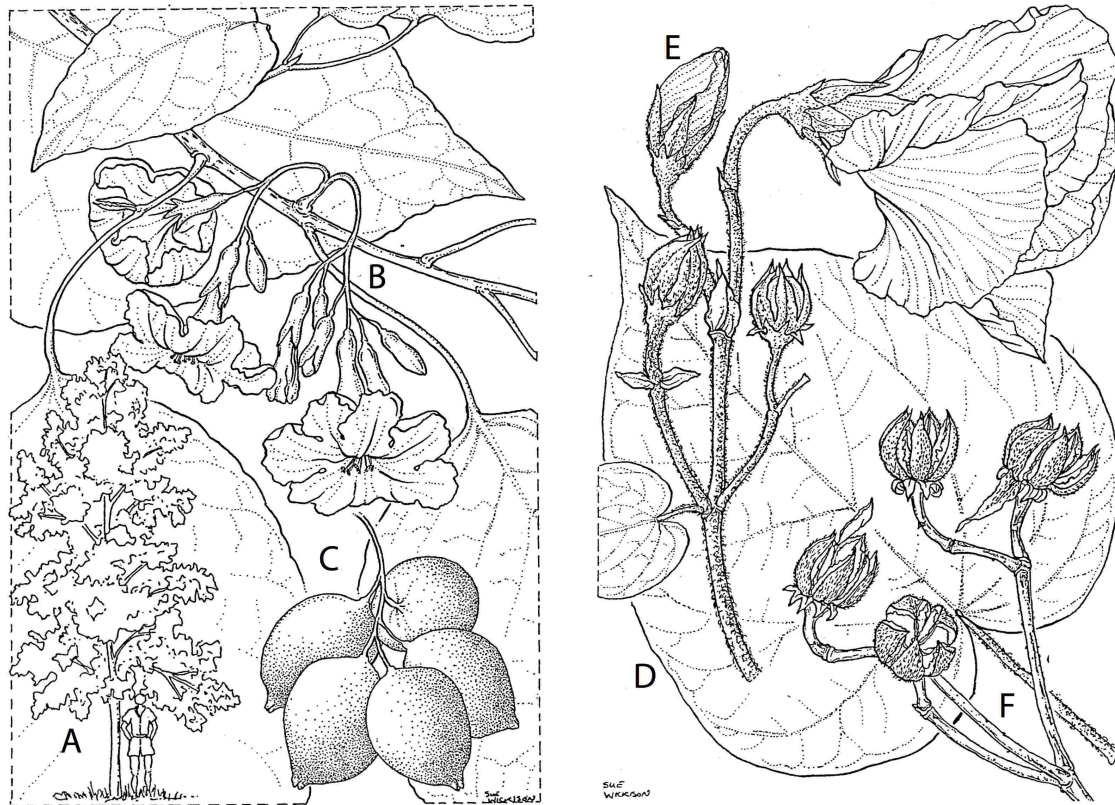


Figure 5.2 Left *Cordia subcordata*, kerosene wood: A, tree; B, small branch with flowers and leaves; C, fruit cluster **Right** *Hibiscus tiliaceus*, cotton wood: D, leaf; E, shoot with flower; F, matured over-ripe fruit cluster.

POc *toRu ‘*Cordia subcordata*’

MM:	Nehan	<i>to-tor</i>	‘ <i>Cordia subcordata</i> ’
MM:	Petats	<i>to-tol</i>	‘ <i>Cordia subcordata</i> ’
Fij:	Wayan	<i>tou-tou</i>	‘tree of coastal slopes and rocky places inland: <i>Gyrocarpus americanus</i> ’
Fij:	Bauan	<i>tou</i>	‘ <i>Cordia aspera</i> , sap used as a paste’
Pn:	Tongan	<i>tou</i>	‘ <i>Cordia aspera</i> ’
Pn:	E Uvean	<i>tou</i>	‘ <i>Cordia aspera</i> ’
Pn:	Tikopia	<i>tou</i>	‘unidentified tree with soft light timber, no economic use’
Pn:	Samoa	<i>tou</i>	‘ <i>Cordia aspera</i> ’
Pn:	Tongarevan	<i>tou</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Rarotongan	<i>tou</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Tahitian	<i>tou</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Tuamotuan	<i>tou</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Hawaiian	<i>kou</i>	‘ <i>Cordia subcordata</i> ’
Pn:	Marquesan	<i>tou</i>	‘ <i>Cordia subcordata</i> ’

The term **jasi* is reconstructed for PCEMP and POc (rather than PEOc, as the data here imply) because there appears to be an external cognate in Timorese (*nonwai*) *tasi* ‘*Cordia subcordata*’ (Heyne 1950: 1306).

PCEMP **jasi* ‘*Cordia subcordata*’

POc **jasi* ‘*Cordia subcordata*’

SES: Kwara’ae (*fofo*)*tasi* ‘*Cordia subcordata*’

NCV: Nduindui (*fifai*) *na-tahi* ‘*Cordia subcordata*’

PPn **tahi* ‘heartwood, including that of *Cordia subcordata*’

Pn: Tongan *tahi* ‘hard heart or solid centre of certain kinds of tree’

Pn: E Uvean *tahi* ‘old (of wood)’

Pn: Samoan *tai* ‘heart of a tree’

Pn: Tuvalu *tai(ki)* ‘heartwood’

Pn: Tokelauan *tai(tea)* ‘white wood of *Cordia subcordata*’

tai(uli) ‘dark wood of *Cordia subcordata*’

Pn: Rarotongan *tai(ki)* ‘heartwood’

Pn: Māori *tai(ki)* ‘heartwood’

PWOc **nagi* ‘*Cordia* sp.’

PT: Muyuw (*a*)*nag* ‘*Cordia* sp.’

MM: Nduke *na-nagi* ‘*Cordia* sp.’

MM: Marovo *nagi-nagi* ‘*Cordia subcordata*’

4.1.2 *Hernandia nymphaefolia* (syn. *H. peltata*), sea hearse tree, lantern tree, B *nambirimбири*, *napiripiri*, *bluwud* (Hernandiaceae)



Figure 5.3 *Hernandia nymphaefolia*, sea hearse tree

Peekel (1984: 192) describes *Hernandia nymphaefolia* as ‘one of the most frequent beach trees’ in New Ireland. It is a small tree with hard white wood, white flowers and spherical white fruit about 3 cm in diameter which ripen to pink (Gowers 1976: 85).

The Nakanai of New Britain and people in parts of Vanuatu use the trunk for making canoe hulls. The Nakanai also use the wood for hourglass drums (Floyd 1954, Gowers 1976: 85).

Bennett (n.d.) comments that at Biliau (north coast of New Guinea) the flowers are used on a hook to attract fish when one is fishing from a moving boat.

On Waya Island (Fiji) the flowers are said to have provided medicine for asthma (Gardner & Pawley 2006), and Gowers also reports that it was held to have medicinal properties in Vanuatu.

There is some evidence that for early Oceanic speakers *Hernandia nymphaefolia* and *Thespesia populnea* (§4.1.6) formed a taxon.⁷ Both are small shore trees and both have hard wood that is used for hourglass drums. In Lau the regular reflex of POC **biRi-biRi* ‘*H. nymphaefolia*’ denotes ‘*T. populnea*’. In Wayan Fijian the same is true of a borrowed reflex of **biRi-biRi*. The Kiribati reflex of **biRi-biRi* appears to denote both tree species.

The Nduke and Roviana reflexes appear to denote *Excoecaria agallocha* (ch.6, §4.3), the leaves of which resemble those of *H. nymphaefolia* (W. McClatchey, pers. comm.).

Clark (1996a) takes the **-r-* of PNCV **biri-biri* below to reflect POC **-r-*, but loss of the rhotic in PPn **pipi* points to POC **-R-*. Recent work by Lynch (2007) shows that PNCV **-r-* may reflect either POC **-r-* or POC **-R-*, confirming that the POC form was almost certainly **biRi-biRi*. There is a margin of uncertainty because the Polynesian forms have short *i* where long vowels are expected, and the authors of POLLEX suggest that this may reflect borrowing.

The Seimat and Micronesian forms reflect POC †**biŋi-biŋi* rather than **biRi-biRi*. It is possible that the Seimat form represents a borrowing from a Micronesian language, but PMic **-ŋ-* remains unexplained.

POC **biRi-biRi* ‘*Hernandia nymphaefolia*’ (PNCV Clark 1996a; PEOc Geraghty 1990)

Adm:	Seimat	<i>biŋi-biŋi</i>	‘ <i>Hernandia ovigera</i> ’ (Sorensen 1950)
NNG:	Bing	<i>pir-pir</i>	‘tree sp. (with white flowers; grows beside the sea)’
MM:	Kara (E)	<i>vi-vi</i>	‘ <i>Hernandia nymphaefolia</i> ’
MM:	Patpatar	<i>bir-bir</i>	‘ <i>Hernandia nymphaefolia</i> ’
MM:	Tolai	<i>(palu)bir</i>	‘ <i>Hernandia nymphaefolia</i> ’
MM:	Sursurunga	<i>bir-bir</i>	‘large tree that grows on sand’
MM:	Nehan	<i>bir-bir</i>	‘ <i>Hernandia nymphaefolia</i> ’
MM:	Kubukota	<i>biri-biri</i>	‘a tree that grows on the shore, whose leaves are used as medicine for stings from certain fish’
MM:	Nduke	<i>bi-biri</i>	‘tree of mangrove areas, sap injures the eyes’ (perhaps <i>Excoecaria agallocha</i>)
MM:	Roviana	<i>biri-biri</i>	‘beach tree, sap injures the eyes’ (perhaps <i>Excoecaria agallocha</i>)

PEOc **biRi-biRi* ‘k.o. shore tree, *Hernandia nymphaefolia*’

SES:	Gela	<i>bi-bili</i>	‘k.o. tree’
SES:	Lau	<i>bili-bili</i>	‘tree sp., <i>Thespesia populnea</i> ’
SES:	Arosi	<i>biri-biri</i>	‘tree sp.’

PNCV **biri-biri* ‘k.o. shore tree, *Hernandia nymphaefolia*’

NCV:	Mwotlap	<i>biy-biy</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Mota	<i>pir-pir</i>	‘tree sp.’
NCV:	NE Ambae	<i>biri-biri</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Raga	<i>biri-biri</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Paamese	<i>viriviri</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Lewo	<i>(pur)pel-pele</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Namakir	<i>bi-bir</i>	‘ <i>Hernandia nymphaefolia</i> ’
NCV:	Nguna	<i>na-peperi</i>	‘ <i>Hernandia nymphaefolia</i> ’

⁷ According to Madulid (2001a: 104) Tagalog *banago*, reflecting PMP **banaRo* ‘*T. populnea*’, is used for both species.

- NCV: S Efate *na-ipur* ‘*Hernandia nymphaefolia*’
 PMic **piji-piji* ‘*Hernandia nymphaefolia*’
 Mic: Kiribati *piji-pij* ‘*Thespesia populnea* and probably *Hernandia nymphaefolia*’
 Mic: Marshallese *pij-pij* ‘*Hernandia nymphaefolia*’
 PCP **bibi* ‘*Hernandia* spp.’
 Fij: Wayan *wiri-wiri* ‘*Thespesia populnea*’ (borrowing: exp form is †*bibi*)
 PPn **pi-pi* ‘k.o. shore tree, *Hernandia nymphaefolia*’ (exp form is †*pipi*)
 Pn: Niuean *pi-pi* ‘a large tree, *Hernandia moerenhoutiana*’
 Pn: Tongan *pi-pi (failolo)* ‘*Atuna racemosa*’
 Pn: E Futunan *pi-pi* ‘tree with a soft black interior like a fir’
 Pn: Samoan *pi-pi* ‘tree, *Hernandia moerenhoutiana*’
 cf. also:
 PT: Misima *bi-biu* ‘*Hernandia nymphaefolia*’
 Fij: Rotuman *pi-pi* ‘*Atuna racemosa*’ (W. McClatchey, pers. comm.)

PROc **buavu* ‘*Hernandia* sp.’

- NCal: Nyelâyu *p^hoap* ‘*Hernandia ovigera*’
 Fij: Wayan *buevu* ‘*Hernandia nymphaefolia*’

4.1.3 *Hibiscus tiliaceus*, beach hibiscus, TP *mangas*, P, B *burao* (Malvaceae)

Hibiscus tiliaceus is a small sprawling, tangled shore tree with small girth, a branching trunk and pale yellow flowers (Figure 5.2, right). It grows 5–15 m tall (Peckel 1984: 364, Henderson & Hancock 1988: 161). Barrau (1965) reports that the bark was eaten in New Caledonia, and almost every source agrees that it provides fibre to make cordage, mats and nets (e.g. Floyd 1954, O’Collins & Lamothe 1989, Whistler 1991b: 29).

The POc term for *Hibiscus tiliaceus* was **paRu*. Blust (ACD) suggests that it is reflected in terms for ‘tie’ like Bauan *vau* ‘tie, bind’ and Samoan *fau* ‘bind, lash together’, but it is now clear that these terms reflect POc **paqu(s)*, **paqus-i-* ‘bind, lash; construct canoe by tying together’ (vol.1, ch.9, §10).

PMP **baRu* ‘*Hibiscus tiliaceus*’ (ACD)POc **paRu* ‘*Hibiscus tiliaceus*’

- Adm: Lou *po* ‘*Hibiscus tiliaceus*’
 NNG: Kove *vahu* ‘*Cordia subcordata*’
 NNG: Gitua *paru* ‘*Hibiscus tiliaceus*’
 NNG: Tami *pa-palau* ‘*Hibiscus tiliaceus*’
 NNG: Kairiru *fyar* ‘*Hibiscus*’
 PT: Muyuw *(ayo)vay* ‘*Hibiscus tiliaceus*’ (F. Damon, pers. comm.)
 PT: Hula *valu* ‘*Hibiscus tiliaceus*’
 MM: Bola *varu* ‘*Hibiscus tiliaceus*’
 MM: Kara (E) *fai* ‘*Hibiscus tiliaceus*’

MM:	Tolai	<i>va[r]-var</i>	‘k.o. tree, the bark of which is used as string’
MM:	Varisi	<i>varu</i>	‘ <i>Hibiscus tiliaceus</i> ’ (W. McClatchey, pers. comm.)
MM:	Babatana	<i>varu</i>	‘ <i>Hibiscus tiliaceus</i> ’
MM:	Nduke	<i>varu</i>	‘ <i>Hibiscus tiliaceus</i> ’
MM:	Roviana	<i>varu</i>	‘ <i>Hibiscus tiliaceus</i> ’
MM:	Marovo	<i>(leru) varu</i>	‘a forest tree growing near rivers, <i>Agathis macrophylla</i> ’ (<i>leru</i> ‘ <i>Hibiscus tiliaceus</i> ’)
TM:	Äiwoo	<i>(nuo)po</i>	‘ <i>Hibiscus tiliaceus</i> ’
PEOc * <i>paRu</i> ‘ <i>Hibiscus tiliaceus</i> ’			
SES:	Gela	<i>valu</i>	‘tree sp.’
SES:	Lengo	<i>valu</i>	‘ <i>Hibiscus tiliaceus</i> ’
SES:	Longgu	<i>valu</i>	‘ <i>Hibiscus tiliaceus</i> ’
SES:	’Are’are	<i>haru</i>	‘shrub sp.’
SES:	Arosi	<i>haru</i>	‘tree sp.’
NCV:	NE Ambae	<i>vae</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Mota	<i>varu</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Araki	<i>(vi)ḡa</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Naman	<i>nə-veve</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Tape	<i>vive</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Uripiv	<i>vava</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCV:	Paamese	<i>vea-vee</i>	‘ <i>Hibiscus tiliaceus</i> ’
PSV * <i>nə-vau</i> ‘ <i>Hibiscus tiliaceus</i> ’ (Lynch 2001c)			
SV:	Sye	<i>n-vau</i>	‘ <i>Hibiscus tiliaceus</i> ’
SV:	Kwamera	<i>ne-vo</i>	‘ <i>Hibiscus tiliaceus</i> ’
SV:	Anejom̃	<i>n-hau</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCal:	Iaai	<i>viiu</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCal:	Xârâcùù	<i>pe</i>	‘ <i>Hibiscus tiliaceus</i> ’
NCal:	Nyelâyü	<i>payi</i>	‘ <i>Hibiscus tiliaceus</i> ’
PCP * <i>vau</i> ‘ <i>Hibiscus tiliaceus</i> ’			
Fij:	Rotuman	<i>hau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Fij:	Wayan	<i>vau</i>	‘ <i>Hibiscus tiliaceus</i> , <i>Kleinhovia hospita</i> ’ ⁸
Fij:	Bauan	<i>vau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Niuean	<i>fou</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Tongan	<i>fau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Pukapukan	<i>wau</i>	‘tree sp. whose bark is used for cordage’
Pn:	Rennellese	<i>hau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Tikopia	<i>fau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Emae	<i>fau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Samoan	<i>fau</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Rarotongan	<i>?au</i>	‘ <i>Hibiscus tiliaceus</i> ’
Pn:	Hawaiian	<i>hau</i>	‘ <i>Hibiscus tiliaceus</i> ’

⁸ Gardner & Pawley (2006) record Wayan *vau* for both *H. tiliaceus* and *Kleinhovia hospita*. This homonymy has arisen through consonant losses in two POc etyma, **paRu* ‘*Hibiscus tiliaceus*’ and **paqu* ‘*Kleinhovia hospita*’.

The cognate set below contains a number of puzzles. It has just one Western Oceanic member, Kokota *fayalo*, but this is likely to be a borrowing from a SE Solomonic language, and so the protoform is reconstructed for PEOc, not for POc. As Lynch (2004a) points out, a number of the forms from Malakula display metathesis, reflecting **b^walaka* rather than **b^wakala*, whilst Anejoñ displays loss of medial **-k-*. These appear to be local innovations. More problematic are the discrepancies between the SE Solomonic forms and all other reflexes, as they make a reliable PEOc reconstruction impossible. Proto SE Solomonic **vayalo* ‘*Hibiscus tiliaceus*’ looks very like an irregular (borrowed?) reflex of POc **paRu* above, which was also regularly reflected as Proto SE Solomonic **valu*, as the SES forms above show. The PNCV form **b^wakala* displays the rounding feature not on its final syllable (cf Proto SE Solomonic **-o*) but on its first syllable. This is decidedly unusual, but, as the alternative Kwara’ae dialectal form *faʔola* shows, rounding shift does occur.

PEOc **pakalo*, **p^wakala* (?) ‘*Hibiscus* sp.’

MM: Kokota *fayalo*

Proto SE Solomonic **vayalo* ‘*Hibiscus tiliaceus*’

SES: Bugotu *vayaðo* ‘*Hibiscus tiliaceus*’ (Henderson & Hancock 1988)

SES: Gela *vayalo* ‘tree sp.’

SES: Birao *vahalo* ‘*Hibiscus tiliaceus*’

SES: Kwara’ae *faʔalo, faʔola* ‘*Hibiscus tiliaceus*’ (Henderson & Hancock 1988)

SES: Dori’o *faʔalo* ‘*Hibiscus tiliaceus*’

SES: Arosi *haʔaro* ‘*Hibiscus tiliaceus*’

SES: Kahua *haʔaro* ‘*Hibiscus tiliaceus*’

PNCV **b^wakala* ‘*Hibiscus* sp.’ (Clark 1996a)

NCV: Mwotlap *na-b^wyal* ‘*Hibiscus rosa-sinensis*’

NCV: Mota *b^wayala* ‘flowering hibiscus of many varieties’

NCV: Naman *belag* ‘*Hibiscus tiliaceus*’ (metathesis)

NCV: Neve’ei *ne-b^welagu* ‘*Hibiscus tiliaceus*’ (metathesis)

NCV: Avava *balaya* ‘*Hibiscus tiliaceus*’ (metathesis)

NCV: Larëvat *balgo* ‘*Hibiscus tiliaceus*’ (metathesis)

NCV: S Efate *na-p^wkal* ‘*Hibiscus rosa-sinensis*’

PSV **nə-b^wal* ‘*Hibiscus* sp.’ (Lynch 2001c)

SV: Anejoñ *n-p^wal* ‘*Hibiscus* sp.’

NCal: Pije *pakēla* ‘*Hibiscus abelmoschus*’

NCal: Nêlêmwa *paxēla* ‘*Hibiscus abelmoschus*’

cf. also:

SES: Lau *fakaso* ‘*Hibiscus tiliaceus*’

SES: Kwara’ae *fakusu* ‘*Hibiscus tiliaceus*’

4.1.4 *Pemphis acidula* (Lythraceae)

Pemphis acidula is a small twisted beach tree (Figure 5.4, left) with very hard, tough wood used at Marovo to make tools such as pestles, husking sticks and weapons (Hviding 2005: 131), in Tonga for tool handles and house parts (Whistler 1991b: 39) and in Tahiti to make combs

(POLLEX). Its distribution seems to be patchy: it is not mentioned by Peekel (1984) for the Bismarcks nor by Borrell (1989) for Kairiru (Schoutens). Will McClatchey (pers. comm.) suggests that its distribution across Oceania was once quite uniform but that it was so useful that it was pushed to extinction in some places. The reconstruction of POc **ŋiRac* is unproblematic as its reflexes are regular.

PMP **ŋiRaj* ‘*Pemphis acidula*’⁹

POc **ŋiRac* ‘*Pemphis acidula*’ (Geraghty 1990: PEOc **ŋiRa*)

PT:	Misima	<i>nila-nila</i>	‘ <i>Pemphis acidula</i> ’
MM:	Nehan	<i>gihes</i>	‘ <i>Pemphis acidula</i> ’
MM:	Nduke	<i>ŋirasa</i>	‘ <i>Pemphis acidula</i> ’
MM:	Marovo	<i>ŋirasa</i>	‘ <i>Pemphis acidula</i> ’
MM:	Kia	<i>ŋi-ŋirasa</i>	‘ <i>Pemphis acidula</i> ’ (W. McClatchey, pers. comm.)
NCV:	Uripiv	<i>ne-ŋir</i>	‘ <i>Pemphis acidula</i> ’
SV:	Anejoñ	<i>ne-ŋiye</i>	‘ <i>Pemphis acidula</i> ’
Mic:	Kiribati	<i>ŋea</i>	‘ <i>Pemphis acidula</i> ’
Mic:	Marshallse	<i>(kə)ŋe</i>	‘ <i>Pemphis acidula</i> ’
Mic:	Chuukese	<i>(ē)ŋi</i>	‘ <i>Pemphis acidula</i> ’
Mic:	Woleaian	<i>(xai)ŋiy</i>	‘ <i>Pemphis acidula</i> ’

PCP **ŋi(a)-ŋia* ‘*Pemphis acidula*’

Fij:	Bauan	<i>ŋi-ŋia</i>	‘ <i>Pemphis acidula</i> ’
Fij:	Wayan	<i>ŋia-ŋia</i>	‘ <i>Pemphis acidula</i> ’
Pn:	Tongan	<i>ŋi-ŋie</i>	‘shore shrubs or small trees <i>Pemphis acidula</i> and <i>Suriana maritima</i> ’
Pn:	Niuean	<i>ŋi-ŋie</i>	‘ <i>Pemphis acidula</i> ’
Pn:	Rennellese	<i>ŋi-ŋie</i>	‘shrub sp. growing on coastal ledges.’
Pn:	Pukapukan	<i>ŋi-ŋie</i>	‘tree sp.’
Pn:	Sikaiana	<i>n-nie</i>	‘a plant with strong wood’
Pn:	Takuu	<i>n-nie</i>	‘ <i>Pemphis acidula</i> ’
Pn:	Tokelauan	<i>ŋa-ŋie</i>	‘ <i>Pemphis acidula</i> ’
Pn:	Mangaia	<i>ŋa-ŋie</i>	‘a littoral shrub’
Pn:	Tahitian	<i>(ā)ŋie</i>	‘ <i>Pemphis acidula</i> ’
Pn:	Tuamotuan	<i>ŋie-ŋie</i>	‘ <i>Pemphis acidula</i> ’

4.1.5 *Scaevola taccada* (syn. *S. koenigii*, *S. sericea*, *S. frutescens*), *B haf flaoa* (Goodeniaceae)

Peekel (1984: 553) describes *Scaevola taccada* as a ‘stiffly erect shrub with finger-thick fleshy green twigs, 2–4 m tall’ and ‘common, on sandy beaches’ (Figure 5.4, middle). The shrubs grow in dense clusters near the beach (Hviding 2005: 122). It is probably the best distributed plant on the Pacific islands, found on the smallest islets and the largest islands (W. McClatchey, pers. comm.). The light green leaves are somewhat succulent with a waxy covering

⁹ PMP **ŋiRaj* is reconstructed above on the basis of the data here, Palauan *ŋis* ‘*Pemphis acidula*’ (noted by Geraghty 1990) and Ilokano *ŋirad* ‘*Pemphis* sp.’ (Madulid 2001a).



Figure 5.4 Left *Pemphis-acidula*. Middle *Scaevola taccada*. Right *Thespesia populnea*.

and are alternately arranged along the stem. The white or cream flowers, often with purple streaks, are 8–12 mm long and have a pleasant smell. All five petals are on one side of the flower, so that they look as if they have been torn in half (hence the Bislama term *haf flaoa*). The fruit of *S. taccada* are fleshy white oblong berries of varying size, the smallest about 1 cm long.

On Lihir the leaves are squeezed in salt water and the resultant sap is used for various medicinal purposes. The leaves are heated over the fire and rubbed on the skin to relieve pain in joints, bones, and muscles (S. Foale 2001). The stem bark was used for medicinal purposes in Tonga (Whistler 1991*b*: 38). At Marovo the leaves are used during fishing trips to shield the catch from the sun and to parcel up food. Newly broken leaves and branches provide evidence that a turtle has made a nest nearby (Hviding 2005: 122).

PEMP **nasu-nasu* is reconstructed on the basis of the Oceanic data here, plus Weda (S Halmahera) *nesnas* and Biak *anas*, both ‘*Scaevola taccada*’ (Heyne 1950: 1428). It happens that **-u* is lost from POc **CVCu* forms in Pak and in the Western Oceanic and Southern Vanuatu languages in which reflexes occur. Thus although only reflected in Micronesian and Polynesian languages, medial and final **u* are reconstructed both for PEMP and POc because the canonic form (CVCV[C]) of morphemes in these protolanguages requires the reconstruction of a final vowel in the morpheme that then undergoes reduplication.

PEMP **nasu-nasu* ‘*Scaevola taccada*’

POc **na[su]-nasu* ‘*Scaevola taccada*’

Adm: Pak	<i>na-nas</i>	‘ <i>Scaevola</i> sp. (Nevermann 1934)’
NNG: Kairiru	<i>na-nas</i>	‘ <i>Scaevola sericea</i> ’
MM: Lavongai	<i>(ni)nas</i>	‘ <i>Scaevola taccada</i> ’
MM: Sursurunga	<i>nas-nas</i>	‘tree sp. that grows on the beach’
MM: Patpatar	<i>(i)nas-nas</i>	‘ <i>Tournefortia argentea</i> ’
	<i>(i)nas-nas(madil-madil)</i>	‘ <i>Scaevola taccada</i> ’

PSV **na-nas* ‘tree sp., *Scaevola* sp.’ (Lynch 2001*c*)

SV: Sye	<i>na-ni-na-ni</i>	‘ <i>Scaevola</i> sp.’
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SV:	Kwamera	<i>na-nes</i>	‘tree sp.’
SV:	Anejoñ	<i>na-naθ</i>	‘ <i>Scaevola cylindrica</i> ’
PMic * <i>na-nasu</i> ‘ <i>Scaevola</i> sp.’			
Mic:	Marshallese	<i>(kə)n-nʷat</i>	‘half-flower, <i>Scaevola</i> sp.’
Mic:	Chuukese	<i>n-nət</i>	‘half-flower, <i>Scaevola</i> sp.’
Mic:	Woleaian	<i>n-nati</i>	‘half-flower, <i>Scaevola</i> sp.’ (Bender et al. 2003)
PPn * <i>ηasu</i> ‘a seaside shrub, <i>Scaevola</i> sp.’			
Pn:	Tongan	<i>ηahu</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Niuean	<i>ηahu</i>	‘ <i>Cyrtandra samoensis</i> ’
		<i>ηahu-pā</i>	‘ <i>Scaevola taccada</i> ’
Pn:	E Uvean	<i>ηahu</i>	‘ <i>Scaevola</i> sp.’
Pn:	E Futunan	<i>ηasu</i>	‘a seaside plant’
Pn:	Anutan	<i>ηau</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Pukapukan	<i>ηayu</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Samoaan	<i>ηasu</i>	‘ <i>Palaquium stehlinii</i> ’
Pn:	Tuvalu	<i>ηahu</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Tokelauan	<i>ηahu</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Rarotongan	<i>ηa-ηaʔu</i>	‘a creeping littoral plant with small leaves’

4.1.6 *Thespesia populnea* (syn. *T. macrophylla*), B *burao blong solwota* (Malvaceae)

Thespesia populnea is a tree typically 5–10 m and sometimes as much as 15 m in height with large yellow flowers which have a brown centre (Figure 5.4, right). Its strong dark-brown heartwood is used to make hourglass drums in New Ireland. The bark is used as binding material (Record 1945, Peekel 1984: 369). In Tonga it is used in handicrafts, house parts and canoes, and extract from the scraped bark is given to babies to treat mouth infections (Whistler 1991b: 86).

PMP **banaRo* ‘*Thespesia populnea*’¹⁰

POc *(*p,b*)*anaRo* ‘*Thespesia populnea*’

MM:	Sursurunga	<i>banar</i>	‘beach tree sp., with inedible fruit’
MM:	Patpatar	<i>banaro</i>	‘ <i>Thespesia populnea</i> ’
MM:	Tolai	<i>banar</i>	‘ <i>Thespesia populnea</i> ’
NCV:	Mwotlap	<i>na-pne</i>	‘ <i>Thespesia populnea</i> ’
NCV:	Mota	<i>vanau</i>	‘ <i>Thespesia populnea</i> ’
NCV:	Apma	<i>vena</i>	‘ <i>Thespesia populnea</i> ’
Mic:	Ponapean	<i>pana</i>	‘ <i>Thespesia populnea</i> ’

PEOc **milo* ‘*Thespesia populnea*’

SES: Kwara’ae *milo* ‘*Thespesia populnea*’¹¹

¹⁰ PMP **banaRo* is reconstructed on the basis of the Oceanic data here, plus Pangasinan *banaro*, Panay Bisayan *banago*, Hanunuo *banagu*, Kuyonon *banag*, Tagbanwa *banaw*, all ‘*Thespesia populnea*’ (Madulid 2001b: 204).

¹¹ Kwa’ioloa and Burt (2001:123, 132) gloss *milo* as ‘*Elaeocarpus angustifolius*’ and ‘*Trema aspera*’.

NCV:	Nguna	<i>na-miro</i>	‘ <i>Cordia subcordata</i> ’ (Gowers 1976: 57)
Pn:	Tongan	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Niuean	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	E Uvean	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	E Futunan	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	W Uvean	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Tikopia	<i>miro</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Samoan	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Tuvalu	<i>milo</i>	‘tree sp.’
Pn:	Tokelauan	<i>(tuu)milo</i>	‘tree sp.’
Pn:	Hawaiian	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Mangareva	<i>milo</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Marquesan	<i>miʻo</i>	‘rosewood’
Pn:	Tahitian	<i>miro</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Tuamotuan	<i>miro</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Rarotongan	<i>miro</i>	‘ <i>Thespesia populnea</i> ’
Pn:	Māori	<i>miro</i>	‘tree sp., <i>Podocarpus ferrugineus</i> ’

4.1.7 *Tournefortia argentea* (syn. *Messerschmidia argentea*), tree heliotrope, beach heliotrope (Boraginaceae)



Figure 5.5 *Tournefortia argentea*.

Tournefortia argentea is a small heliotropic beach tree 5–8 m tall with silvery hairy leaves and white flowers. It has a short bole covered in deeply corrugated bark. Limited to beachside environments, it is tolerant of salt water (Peekel 1984: 471–472, Manner & Elevitch 2006b). At Marovo, where it is reported often to grow in association with *Cordia subcordata* (§4.1.1), children use the sticky sap to catch butterflies (Hviding 2005: 111).

No term for ‘*Tournefortia argentea*’ is reconstructed at a higher-order level than PPn **tau-sinu* or PMic **cen*. There is no obvious reason for this, as it is a common tree in the Bismarcks. However, the data offer tiny hints that in POc *T. argentea* formed a taxon with *Scaevola taccada* (§4.1.5), i.e. POc **na[su]-nasu* ‘*Scaevola taccada*’ also denoted *T. argentea*, perhaps with a modifier added to distinguish between the two species. Thus the Patpatar (New Ireland) term for *T. argentea* is *i-nas-nas*, reflecting POc **nasu-nasu*, whilst the term for *S. taccada* is *i-nas-nas-madil-madil*. Conversely E Uvean *tauunu* ‘*S. taccada*’ reflects PPn **tau-suni* ‘*T. argentea*’. Will McClatchey (pers. comm.) tells me that a taxon consisting of

T. argentea and *S. taccada* makes sense for two reasons: ‘First, the plants live in the same environment and have the same suite of adaptations for survival. Second, in my experience working with healers and fisherpersons, they use the two for very similar purposes.’

Reconstructing the PPn form from the cognate set below is tricky. There are two competing Proto Nuclear Polynesian reconstructions, **tausinu* and **tausunu*: the latter almost certainly reflects the former with vowel assimilation. The Tongan, Niuean and Samoan forms

reflect **tausuni*, but for two reasons I prefer to reconstruct PPn **tausinu*. First, it is favoured by the distribution of the data, as it is reflected in Nuclear Polynesian Pukapukan and in several Eastern Polynesian languages, whereas **tausuni* reflects metathesis, then probable diffusion in the Tonga-Samoa area (A. Pawley, pers. comm.). Second, it is likely that the term was originally bimorphemic, and the second morpheme perhaps reflects PCP **sinu* ‘a shrub or tree, possibly *Phaleria* sp.’ (§6.1.5). Both *Tournefortia argentea* and *Phaleria cocinea* have white flowers.

PPn **tausinu* ‘*Tournefortia argentea*’ POLLEX

Pn:	Tongan	<i>touhuni</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Niuean	<i>toihuni</i>	‘ <i>Tournefortia argentea</i> ’
		<i>taihuni</i>	‘coastal growth, scrub’
Pn:	Samoaan	<i>tausuni</i>	‘ <i>Tournefortia argentea</i> ’

Proto Nuclear Polynesian **tausinu* ‘*Tournefortia argentea*’

Pn:	Pukapukan	<i>taeyinu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Rapanui	<i>tainu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Rarotongan	<i>tauhinu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Tahitian	<i>tahinu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Māori	<i>tauhinu</i>	‘shrub sp., <i>Pomaderris phyllicaeifolia</i> ’

Proto Nuclear Polynesian **tausunu* ‘*Tournefortia argentea*’

Pn:	Anutan	<i>tauunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	E Uvean	<i>tauunu</i>	‘ <i>Scaevola taccada</i> ’
Pn:	Rennellese	<i>tausunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Samoaan	<i>tausunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Tuvalu	<i>tauunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Tokelauan	<i>tauunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Sikaiana	<i>taunusu</i>	‘tree sp.’
Pn:	Luangiua	<i>kausunu</i>	‘a small tree’
Pn:	Manihiki	<i>tauunu</i>	‘a bush’
Pn:	Tongarevan	<i>tausunu</i>	‘ <i>Tournefortia argentea</i> ’
Pn:	Tuamotuan	<i>toohonu</i>	‘ <i>Tournefortia argentea</i> ’

The PMic form **cen* ‘*Tournefortia argentea*’ looks at first sight as if it also reflects PROc **sinu*. If it does, however, this is a result of borrowing, as PMic **c-* reflects POc **d* or **dr-*, not POc **s-*.

PMic **cen* ‘*Tournefortia argentea*’

Mic:	Kiribati	<i>ren</i>	‘ <i>Tournefortia argentea</i> ’
Mic:	Marshallese	<i>(ki)ren</i>	‘ <i>Tournefortia argentea</i> ’
Mic:	Chuukese	<i>çen</i>	‘ <i>Tournefortia argentea</i> ’
Mic:	Woleaian	<i>çer</i>	‘ <i>Tournefortia argentea</i> ’

4.1.8 *Vitex trifolia* (syn. *V. negundo*) (Verbenaceae)

Vitex trifolia is an erect shrub or small tree 1–5 m tall which grows on the beach and on muddy stream banks. In the older botanical literature it is sometimes confused with *V. rotundifolia*, a low-lying shrub less than a metre in height, growing inland on poor sandy soils

(W. McClatchey, pers. comm.), and the two evidently form a taxon in Wayan Fijian: *drala ni mataḍawa* ‘beach *drala*’ but *drala kaka* ‘wild *drala*’.



Figure 5.6 *Vitex trifolia*.

V. trifolia has sprays of blue-purple flowers and fruit. All parts of the plant are aromatic. On New Ireland the crushed leaves are used against headache. On Waya juice from the leaves is used as a healing agent for wounds (Peekel 1984: 481, Gardner & Pawley 2006).

The POc term for *Vitex trifolia* was **drala*. Both POc **drala* ‘*Vitex trifolia*’ and POc **rarap* ‘Indian coral tree, *Erythrina variegata*’ (§5.5) are regularly reflected as Bauan Fijian *drala*.¹² The two terms are disambiguated by the addition of *sala* ‘path, road, track’ to form the binomial *drala sala* ‘*Vitex trifolia*’.

In PPn the two forms would similarly have fallen together as **lala*, but here the form survived with the meaning ‘*V. trifolia*’, whilst PPn †**lala* ‘*Erythrina variegata*’ was lost.¹³

POc **drala* ‘shrub sp., *Vitex trifolia*’

MM:	Patpatar	<i>dala</i>	‘ <i>Vitex trifolia</i> ’
MM:	Tolai	<i>dala</i>	‘ <i>Vitex trifolia</i> ’
NCal:	Nyelâyu	<i>dāde</i>	‘ <i>Vitex trifolia</i> ’
Fij:	Bauan	<i>drala (sala)</i>	‘ <i>Vitex trifolia</i> ’
Fij:	Wayan	<i>drala</i>	‘ <i>Vitex trifolia</i> ’

PPn **lala* ‘shrub, probably *Vitex* sp.’

Pn:	Tongan	<i>lala</i>	‘taxon of shrubs inc. <i>Vitex trifolia</i> , <i>Dendrolobium umbellatum</i> and <i>Wikstroemia foetida</i> ’
		<i>lala(tahi)</i>	‘ <i>Vitex trifolia</i> ’ (Whistler 1991b: 63)
Pn:	Niuean	<i>lala</i>	‘shrub sp., <i>Grewia crenata</i> ’
		<i>lala-tea</i>	‘ <i>Vitex trifolia</i> ’
Pn:	E Uvean	<i>lala</i>	‘shrub sp.’
Pn:	E Futunan	<i>lala(a-vao)</i>	‘tree sp., <i>Myristica inutilis</i> ’
Pn:	Anuta	<i>rara</i>	‘ <i>Vitex trifolia</i> ’
Pn:	Tikopia	<i>rara</i>	‘ <i>Vitex trifolia</i> ’
Pn:	Samoaan	<i>lala</i>	‘shrub, <i>Dendrolobium umbellatum</i> ’
Pn:	Luangiua	<i>lala</i>	‘shrub with fragrant flowers’
Pn:	Rarotongan	<i>rara</i>	‘ <i>Vitex trifolia</i> ’

¹² Bauan *drala* ‘*Erythrina variegata*’ results from the application to PCP **rara*, from POc **rarap*, of eastern Fijian apical prenasalisation, a process entailing prenasalisation of the initial apical consonant of a noun following the common noun article *na* (Geraghty 1983: 74–96).

¹³ The authors of POLLEX assume that PPn **lala* ‘*Vitex trifolia*’ reflects the transfer of the term for *Erythrina variegata* to *Vitex trifolia*. As the data here show, this assumption is incorrect.

4.2 Climbers

4.2.1 *Flagellaria indica*, supplejack, *B. navula* (Flagellariaceae)

Flagellaria indica is a climbing cane-like vine whose stem, 1–1.5 cm thick, grows to a length of 3–6 m. The leaves are 20–40 cm long and have a curling tendril at the apex with which the plant secures itself to its host.

The long strong woody stem remains pliable and serves the functions of a rope. The stems are prepared for use as cordage by splitting them and drying them in the sun. They serve as a binding and plaiting material, especially to sew sago matting (Sorensen 1950, Peekel 1984: 76). They are also used as anchor cables and as rope for bindings in canoe- and house construction and in roofing (Floyd 1954, S. Foale 2001, Thieberger 2006b). In various parts of the Solomons lengths of whole *F. indica* complete with their long leaves are joined together to make scarelines (Marovo *arara*, a reduplicated form of *ara* ‘*F. indica*’). These are laid out to encircle fish on reef flats or in the lagoon and scare them into traps or into an area of shallow water with a limited exit (Henderson & Hancock 1988: 216, Hviding 2005: 101). On Lihir a potion made from *F. indica* is said to impart the ability to fight well (S. Foale 2001).

POc **waR[e]* ‘*Flagellaria indica*’ reflects PMP **huaR* ‘*Flagellaria indica*’ (ACD). The expected POc descendant of this form is **waR*, and this is reflected by Nduke *[a]r-ara* (reduplicated) and Kokota *n-ara*.¹⁴ POc was seemingly resistant to monosyllabic content words, and Mussau, Seimat and Kwara’ae reflect a form with a final vowel, which shows up as **-e* in Mussau and Kwara’ae.

The Muyuw, Sursurunga, Tangga and Mwotlap forms all reflect POc **-l-*. Muyuw *weled* also has a final *-d*, and may be a chance resemblance rather than a cognate. The other forms shown under ‘cf. also’, however, are either outcomes of borrowing or reflect a POc alternant **wale*.

PMP **huaR* ‘*Flagellaria indica*’ (ACD)

POc **waR[e]* ‘*Flagellaria indica*’

Adm: Mussau	<i>(ta)wale</i>	‘liana sp.’ (Nevermann 1934)
Adm: Seimat	<i>wah</i>	‘ <i>Flagellaria indica</i> ’ (Sorensen 1950)
MM: Varisi	<i>zara</i>	‘ <i>Flagellaria indica</i> ’ (W. McClatchey, pers. comm.)



Figure 5.7 *Flagellaria indica*: A, climbing plant; B, leaf with tendrils; C, shoot with fruit; D, flowers.

¹⁴ POc **w* is lost in NW Solomonian languages; final *-a* is a predictable echo vowel. Kokota *n-* reflects the accreted article POc **na*.

MM:	Avasö	<i>zara</i>	‘ <i>Flagellaria indica</i> ’ (W. McClatchey, pers. comm.)
MM:	Nduke	<i>[a]r-ara</i>	‘ <i>Flagellaria indica</i> ’
MM:	Marovo	<i>ara</i>	‘ <i>Flagellaria indica</i> ’
		<i>ar-ara</i>	‘long scare-lines of <i>Flagellaria indica</i> prepared for fishing’
MM:	Kokota	<i>n-ara</i>	‘a tree creeper; rope made from the eponymous plant’
MM:	Maringe	<i>ñ-ara</i>	‘ <i>Flagellaria indica</i> ’ (W. McClatchey, pers. comm.)
SES:	Kwara’ae	<i>k^wale-k^wale</i>	‘ <i>Flagellaria indica</i> ’
		<i>ware-ware</i>	‘ <i>Flagellaria indica</i> ’ (Henderson & Hancock 1988)
SES:	Ulawa	<i>wale</i>	‘ <i>Flagellaria gigantea</i> ’ (W. McClatchey, pers. comm.)
Fij:	Wayan	<i>wā-wā</i>	‘vine sp., <i>Ipomoea indica</i> ; a shrubby climbing plant, <i>Ventilago vitiensis</i> ’

cf. also:

PT:	Muyuw	<i>weled</i>	‘ <i>Flagellaria</i> sp.’
MM:	Lihir	<i>yal-yal</i>	‘ <i>Flagellaria indica</i> ’
MM:	Sursurunga	<i>wal-wal</i>	‘tree or bush type; cane type’
MM:	Tangga	<i>wāl-wāl</i>	‘vine used in catching fish’ (Bell 1946:317)
NCV:	Mwotlap	<i>(ya)wol</i>	‘ <i>Flagellaria</i> sp.’
NCV:	S Efate	<i>n-ala</i>	‘ <i>Flagellaria</i> sp.’

4.2.2 *Hoya* spp. (Asclepiadaceae)

Leafy climbers of *Hoya* species are often found on the beach and around mangroves and beach trees (Peekel 1984: 455–457).

The reconstructions of PCEMP **(d,r)a(d,r)ap* and POc **dradrap* below are based on just two etyma, Muyuw *dadav* and Ngadha (CMP) *rara* ‘*Hoya* spp.’ (Verheijen 1990: 220).

PCEMP **(d,r)a(d,r)ap* ‘*Hoya* sp.’

POc **dradrap* ‘*Hoya* sp.’

PT: Muyuw *dadav* *Hoya* sp. (Damon 2004)

5 Littoral forest

5.1 *Adenanthera pavonina* (syn. *A. gersenii*, *A. polita*, *Corallaria parvifolia*), bead tree, red sandalwood, B *bisa*, *nabisa* (Mimosaceae)

A tree which grows to 8–15 m on sandy foreshores and coral soil, *Adenanthera pavonina* is well known for its shiny scarlet, disk-shaped seeds about 6 mm in diameter which serve widely as necklace beads. It has a small, yellowish flower which grows in dense drooping rat’s-tail flower heads resembling catkins. Its flowers are white to yellowish, and the seeds grow in curved hanging pods, with a bulge opposite each seed, which curl up and turn brown (Peekel 1984: 210).

The wood is medium hard and in Vanuatu is used for houseposts (Gowers 1976: 19). French (1986: 75) reports that the leaves are eaten in some Papua New Guinea locations, but Peekel makes no mention of this.

The distribution of *A. pavonina* is odd: it is reported from Papua New Guinea and Vanuatu, but not mentioned by Solomons sources. It is also missing from Borrell's (1989) flora checklist for Kairiru. It is native to SE Asia, but Rhys Gardner and Will McClatchey (both pers. comm.) suggest that it is a (recently?) introduced plant, at least from Fiji eastwards and perhaps also in Vanuatu. If this is so, then the two data sets require an explanation other than cognacy. The first set appears to support PROc **m*^(w)*ala*, but the items glossed '*A. pavonina*' are all from languages located in Vanuatu (Emae and Ifira-Mele are Polynesian outliers in Vanuatu) and probably reflect a series of borrowings. Items denoting other species are presumably chance resemblances.

NCV:	Namakir	<i>na-mara</i>	' <i>Adenanthera pavonina</i> ' (Wheatley 1992: 133)
NCV:	S Efate	<i>na-mara</i>	' <i>Adenanthera pavonina</i> ' (Wheatley 1992: 133)
Fij:	Bauan	<i>mala</i>	' <i>Dysoxylum lenticillare</i> , tree with large yellow-green flowers'
		<i>mala-mala</i>	' <i>Dysoxylum</i> spp.' (Keppel et al. 2005)
Pn:	Tongan	<i>mala-mala(-?a-toa)</i>	'small tree sp., <i>Memecylon harveyi</i> ' (Whistler 1991b: 81)
Pn:	Niuean	<i>ma-mala</i>	'k.o. tree'
Pn:	Emae	<i>mara-marā</i>	' <i>Adenanthera pavonina</i> '
Pn:	Ifira-Mele	<i>m^wara</i>	' <i>Adenanthera pavonina</i> ' (probably borrowed from a NCV language)
Pn:	Tahitian	<i>mara</i>	'k.o. tree, <i>Nauclea forsteri</i> '
Pn:	Tuamotuan	<i>mara</i>	'k.o. tree, <i>Cordia subcordata</i> '

The data below allow the reconstruction of PSOc **bisu* 'bead tree, *Adenanthera pavonina*' but may actually reflect a Pacific Pidgin term based on English 'peas' or 'beads'.¹⁵

NCV:	NE Ambae	<i>bise</i>	' <i>Adenanthera pavonina</i> '
NCV:	Araki	<i>(vi)pisu</i>	'bead tree'
NCV:	Tangoa	<i>(vi)pisu</i>	' <i>Adenanthera pavonina</i> '
NCV:	Raga	<i>bisa</i>	' <i>Adenanthera pavonina</i> '
NCV:	Paamese	<i>vise</i>	' <i>Adenanthera pavonina</i> '
NCV:	Lewo	<i>(puru)piu</i>	' <i>Adenanthera pavonina</i> '
SV:	Sye	<i>ne-mpes</i>	'bead' (ecclesiastical use only)

5.2 *Barringtonia asiatica* (syn. *B. speciosa*, *B. littorea*), sea poison tree, fish poison tree, *P poesentri*, *B. fisposentri* (Lecythidaceae)

For naming purposes, *Barringtonia* species in NW Island Melanesia fall into two groups:

- those with edible nuts: *B. novae-hiberniae*, *B. procera* and *B. edulis* (ch.11, §2.3); and

¹⁵ I am grateful to Will McClatchey for drawing my attention to this possibility.

- those with inedible nuts, of which just one species, *B. asiatica*, has a reconstructable name and is the subject of this section.

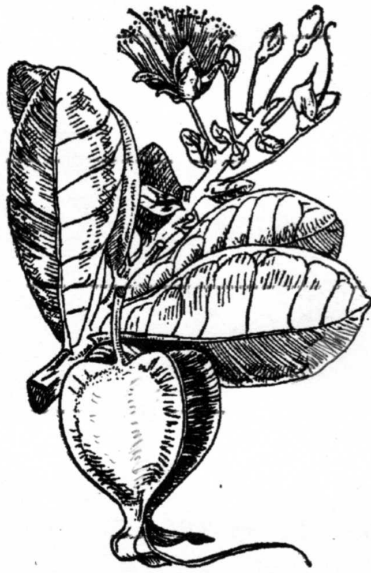


Figure 5.8 *Barringtonia asiatica*.

Two other species with inedible nuts, *B. racemosa* and *B. niedenzuana*, resemble *B. edulis* in appearance.¹⁶ The Patpatar and Tolai names for *B. racemosa* are respectively *paua-paua* and *pao-pao*, reduplicated forms of Patpatar *paua* and Tolai *pao* ‘*B. edulis*’ (Peekel 1984: 397–399), the reduplication expressing the inferiority of *B. racemosa* (ch.2, §7.2).

B. asiatica is a large beach tree, 10–20 m high, which is able to grow with its roots in salt water at times. It has large white and pink flowers which open at night and close in the morning, and ten-centimetre square fruits that float in the sea and sprout when they reach the shore. Fishermen use them as buoys or fishing floats. The seeds contain a poison. In New Ireland they are grated and thrown into the water to stun fish in pools on the reef. At Marovo they are sometimes used to kill dogs, but they also serve as medication for ringworm, scabies and other skin diseases (French-Wright 1983: 157, Peekel 1984: 397, Hviding 2005: 139)

Two terms are reconstructable, POc **putun*, which is reflected all over Oceania except in parts of Vanuatu, where it is replaced by PNCV **vuabu*,¹⁷ and in the Chuukic languages of Micronesia, where it is replaced by a reflex of POc **kuluR* ‘breadfruit, *Artocarpus altilis*’ (Ch.9, §4).

PMP **butun* ‘a shore tree, *Barringtonia*’ (Dempwolff 1938)

POc **putun* ‘*Barringtonia asiatica*’ (Biggs 1965: **putu*; French-Wright 1983)

Adm:	Seimat	<i>hut</i>	‘ <i>Barringtonia asiatica</i> ’ (Sorensen 1950)
Adm:	Drehet	<i>puk</i>	‘type of tree with poisonous seed used to kill fish’
Adm:	Loniu	<i>put</i>	‘tree sp. and its fruit, used for stunning fish’
NNG:	Malai	<i>putin</i>	‘ <i>Barringtonia asiatica</i> ’
NNG:	Sio	<i>puto</i>	‘ <i>Barringtonia asiatica</i> ’
NNG:	Malasanga	<i>put-put</i>	‘ <i>Barringtonia asiatica</i> ’
NNG:	Bing	<i>fut</i>	‘ <i>Barringtonia asiatica</i> ’
NNG:	Manam	<i>utu</i>	‘ <i>Barringtonia asiatica</i> ’
PT:	Muyuw	<i>uta-wut</i>	‘ <i>Barringtonia asiatica</i> ’ (F. Damon, pers. comm.)
PT:	Misima	<i>uta-utan</i>	‘ <i>Barringtonia asiatica</i> ’
MM:	Vitu	<i>putu</i>	‘ <i>Barringtonia asiatica</i> ’
MM:	Bola	<i>putu</i>	‘ <i>Barringtonia asiatica</i> ’
MM:	Nakanai	<i>putu</i>	‘ <i>Barringtonia asiatica</i> ’
MM:	Tigak	<i>utun</i>	‘small tree sp. that grows on the beach’

¹⁶ These similarities lead to disagreements among listings of names: an APNI entry identifies *B. racemosa* with *B. edulis*, whereas an IPNI entry identifies it with *B. speciosa* (= *asiatica*).

¹⁷ Initial **vu-* here is not related to the prefix *vu-* ‘tree counter’ which occurs in various North Vanuatu languages (ch.2, §7.1.3).

MM:	Kara (E)	<i>futun</i>	' <i>Barringtonia asiatica</i> '
MM:	Lihir	<i>hut</i>	' <i>Barringtonia asiatica</i> '
MM:	Tangga	<i>fut</i>	'fish poison from seed of <i>Barringtonia asiatica</i> '
MM:	Patpatar	<i>hutun</i>	' <i>Barringtonia asiatica</i> '
MM:	Tolai	<i>vutun</i>	' <i>Barringtonia asiatica</i> '
MM:	Haku	<i>(ha)putun</i>	' <i>Barringtonia asiatica</i> '
MM:	Teop	<i>posus</i>	' <i>Barringtonia asiatica</i> '
MM:	Mono-Alu	<i>puputu</i>	' <i>Barringtonia asiatica</i> ' (W. McClatchey, pers. comm.)
MM:	Babatana	<i>pututu</i>	' <i>Barringtonia asiatica</i> '
MM:	Nduke	<i>pututu</i>	' <i>Barringtonia asiatica</i> '
MM:	Kokota	<i>putu</i>	' <i>Barringtonia asiatica</i> '

PEOc **putu(n)* '*Barringtonia asiatica*'

SES:	Gela	<i>vutu</i>	' <i>Barringtonia asiatica</i> '
SES:	Lau	<i>fū</i>	' <i>Barringtonia asiatica</i> '
SES:	Sa'a	<i>hū</i>	' <i>Barringtonia speciosa</i> '
SES:	Arosi	<i>hū</i>	' <i>Barringtonia speciosa</i> '
NCV:	Mota	<i>vutu</i>	' <i>Barringtonia speciosa</i> '
NCV:	Vera'a	<i>vur</i>	' <i>Barringtonia asiatica</i> '
NCV:	NE Ambae	<i>(vele) vutu</i>	' <i>Barringtonia asiatica</i> ' (<i>vele</i> ' <i>Barringtonia edulis</i> ')
NCV:	Raga	<i>vutu</i>	' <i>Barringtonia asiatica</i> '
NCV:	Lewo	<i>puru(wap)</i> <i>puru(kurki)</i>	' <i>Barringtonia asiatica</i> ' 'bush nut tree (its skin is used as fish poison): <i>Barringtonia edulis</i> '
SV:	Sye	<i>no-vont</i>	' <i>Barringtonia asiatica</i> '
SV:	Kwamera	<i>nə-k"ərəŋ</i>	' <i>Barringtonia asiatica</i> '
NCal:	Pije	<i>(ce)piuk</i>	' <i>Barringtonia asiatica</i> '
NCal:	Nyelâyü	<i>piyu</i>	' <i>Barringtonia asiatica</i> '
NCal:	Nêlêmwa	<i>(haele)wot</i>	' <i>Barringtonia asiatica</i> '
Mic:	Ponapean	<i>wī</i>	' <i>Barringtonia asiatica</i> '
Mic:	Mokilese	<i>wi</i>	' <i>Barringtonia asiatica</i> '
Fij:	Bauan	<i>vutu</i>	' <i>Barringtonia</i> sp.'
Fij:	Wayan	<i>vutu</i>	' <i>Barringtonia asiatica</i> '
Pn:	Tongan	<i>futu</i>	' <i>Barringtonia asiatica</i> '
Pn:	E Futunan	<i>futu</i>	' <i>Barringtonia asiatica</i> '
Pn:	Tikopia	<i>futu</i>	' <i>Barringtonia asiatica</i> '
Pn:	Samoaan	<i>futu</i>	' <i>Barringtonia asiatica</i> '
Pn:	Marquesan	<i>hutu</i>	' <i>Barringtonia asiatica</i> '

PNCV **vuabu* '*Barringtonia asiatica*' (Clark 1996a)

NCV:	Nokuku	<i>a-up</i>	' <i>Barringtonia asiatica</i> '
NCV:	Kiai	<i>uapo</i>	' <i>Barringtonia asiatica</i> '
NCV:	Araki	<i>(vi)apu</i>	' <i>Barringtonia asiatica</i> '
NCV:	Tamambo	<i>(vu)abu</i>	' <i>Barringtonia asiatica</i> '
NCV:	Sakao	<i>n-uap</i>	' <i>Barringtonia asiatica</i> '

NCV: Uripiv	<i>n-uwab</i>	' <i>Barringtonia asiatica</i> '
NCV: Port Sandwich	<i>n-ia^mb</i>	' <i>Barringtonia asiatica</i> '
NCV: Paamese	<i>hoavu</i>	' <i>Barringtonia asiatica</i> '
NCV: Lewo	<i>(puru)wapu</i>	' <i>Barringtonia asiatica</i> '
NCV: Namakir	<i>n-oam^w</i>	' <i>Barringtonia asiatica</i> '
NCV: Nguna	<i>n-oapu</i>	' <i>Barringtonia asiatica</i> '

5.3 *Calophyllum inophyllum*, portia, Indian laurel, Alexandrian laurel, beach mahogany, TP *kalopilum*, B *tamanu*, *nabakura* (Clusiaceae)

Often with a short gnarled trunk or branches leaning out over the sea, *Calophyllum inophyllum* is a salient shore tree about 10–20 metres tall with fragrant flowers and small round fruit (Hviding 2005: 106).

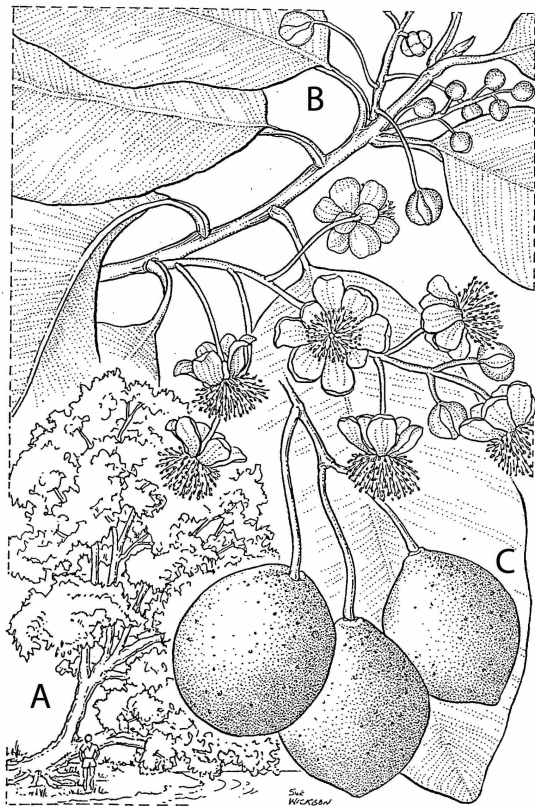


Figure 5.9 *Calophyllum inophyllum*: A, mature tree; B, flowering shoot; C, fruit cluster.

There are a number of reconstructions with *Calophyllum* species as denotata. The most widely reflected is POc **pitaquR*, inherited from PMP, and it is reasonably clear that it denoted '*Calophyllum inophyllum*'. The only evidence we have for the POc retention of PMP **-R* is found in the reflexes in New Georgia languages: Nduke *vizolo*, Roviana *vi-vizolo* and Marovo *vi-vijolo*. However, the expected form in these languages is †*vita(γ)uru*, and the actual forms must be outcomes of borrowing. The languages of the western Solomons have complex and ill understood borrowing histories (Ross forthcoming).

Other reconstructions glossed '*Calophyllum inophyllum*' are PMM **bu(y)ap* (possibly of POc antiquity) and POc **dalo* (probably inherited from PCEMP). It seems unlikely that

Its red wood is very hard and difficult to work when it is seasoned. The grain is interlocked, and so the wood does not split easily (Margetts 2005b). Its straight smaller branches are used for pig spears, for outrigger booms and for building (Sorensen 1950, Floyd 1954, Peekel 1984: 377, Gardner & Pawley 2006). In Vanuatu the sap serves for patching holes in wood. In other parts of the Pacific the gum, bark, leaves, roots, flowers and oil from the seeds are used in traditional medicine (Gowers 1976: 40, Gardner & Pawley 2006). Its macerated leaves are used to stupefy octopus in holes in the reef and its burnt fruit provide black hair dye. In the Ninigos, where Seimat is spoken, a brown dye is made from the yellowish milky sap (Record 1945, Sorensen 1950).

Other species of *Calophyllum* grow inland, hence straight, and provide even better timber than *C. inophyllum*, including canoe hulls. *C. kajewskii* (syn. *C. peekelii*) is a rain forest tree that grows up to 50 m.

POc had more than one term for *C. inophyllum* and thus it is possible that **dalo* denoted some other species. POc **tamanu* and PNGOc **sab*^w*a(r,R)i* denote unidentified *Calophyllum* species, whilst PEOc **bakuRa* probably denoted *C. kajewskii*.

PMP **bitaquR* ‘*Calophyllum inophyllum*’ (ACD)

POc **pitaquR* ‘*Calophyllum inophyllum*’ (Blust 1984): *Calophyllum* sp.

Adm:	Mussau	[ŋ]itau	‘ <i>Calophyllum</i> , coastal variety, tree from which slitgong is made’
Adm:	Lou	pito	‘ <i>Calophyllum inophyllum</i> ’
Adm:	Seimat	hita	‘ <i>Calophyllum inophyllum</i> ’
Adm:	Loniu	pitow	‘ <i>Calophyllum inophyllum</i> ’
Adm:	Nauna	piti?	‘ <i>Calophyllum inophyllum</i> ’
Adm:	Aua	pi?aw	‘ <i>Calophyllum inophyllum</i> ’
Adm:	Titan	pitow	‘tree sp.’
MM:	Meramera	vitau	‘ <i>Calophyllum</i> ’
MM:	Teop	vitawa	‘large tree, about 20 m. tall, <i>Pentaspadon minutiflora</i> (Anacardiaceae)’ (Record 1945)
MM:	Nduke	vizolo	‘ <i>Calophyllum vitiense</i> ’
MM:	Roviana	vi-vizolo	‘ <i>Calophyllum vitiense</i> ’
MM:	Marovo	vi-vijolo	‘ <i>Calophyllum vitiense</i> ’

PROc **vitaquR* ‘*Calophyllum inophyllum*’

SV:	Sye	na-vi ⁿ ru	‘ <i>Meryta neo-ebudica</i> ’
SV:	Anejoñ	na-hitau	‘tree sp.’
NCal:	Nyelâyü	p ^h ic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Pije	v ^h ic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Fwâi	v ^h ic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Nemi	fic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Jawe	p ^h ic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Nyelâyü	p ^h ic	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Nêlêmwa	fek	‘ <i>Calophyllum inophyllum</i> ’
Mic:	Kiribati	itai	‘ <i>Calophyllum inophyllum</i> ’
Mic:	Kosraean	it _λ	‘ <i>Calophyllum inophyllum</i> ’
Mic:	Mokilese	icow	‘ <i>Calophyllum inophyllum</i> ’
Mic:	Ponapean	isow	‘ <i>Calophyllum inophyllum</i> ’

PCP **vetaqu* ‘*Calophyllum inophyllum*’

Fij:	Bauan	vetau	‘tree sp., <i>Mammea odorata</i> yielding a dye and a useful timber’ (ACD)
Fij:	Wayan	vetau	‘tree sp., probably <i>Mammea odorata</i> ’
Fij:	Rotuman	hefau	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Tongan	feta?u	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Niuean	fetau	‘ <i>Calophyllum inophyllum</i> ’
Pn:	E Futunan	feta?u	‘tree sp., <i>Calophyllum</i> sp.’
Pn:	Emae	fetau	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Samoaan	fetau	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Pukapukan	wetau	‘large tree, excellent for making canoes’
Pn:	Rennellese	heta?u	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Tikopia	fetau	‘ <i>Calophyllum inophyllum</i> ’

The cognate set below supports the reconstruction of PMM **bu(y)ap* ‘*Calophyllum inophyllum*’. If the Tokelauan form is also cognate, then the form can be reconstructed to POc. Biggs & Clark (1993) attribute Tokelauan *pua* to the cognate set reflecting PPn **pua* ‘*Fagraea berteriana* or other tree with showy flowers’ (which I take to reflect POc **buRat* ‘*Fagraea berteriana*’; §5.6), but it may well be cognate with the Meso-Melanesian terms below.

PMM **bu(y)ap* ‘*Calophyllum inophyllum*’

MM:	Kara (E)	<i>vuaf</i>	‘ <i>Calophyllum inophyllum</i> ’
MM:	Tabar	<i>buau</i>	‘ <i>Calophyllum inophyllum</i> ’
MM:	Lihir	<i>boio</i>	‘ <i>Calophyllum inophyllum</i> ’
MM:	Patpatar	<i>boiah</i>	‘ <i>Calophyllum inophyllum</i> ’
MM:	Nehan	<i>beu</i>	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Tokelauan	<i>pua</i>	‘ <i>Calophyllum inophyllum</i> ’

POc **tamanu* evidently contrasted with **pitaquR* ‘*C. inophyllum*’, and probably denoted one of the tall inland species listed above, as suggested by the Mussau gloss. The Fijian and Niuean reflexes denote *Calophyllum vitiense*, one of these inland species.

POc **tamanu* ‘*Calophyllum* sp.’ (ACD: *C. inophyllum*)

Adm:	Mussau	<i>tamanu</i>	‘large-leafed <i>Calophyllum</i> sp. found in the interior (ACD)’
Fij:	Wayan	<i>damanu</i>	‘ <i>Calophyllum vitiense</i> ’
Fij:	Bauan	<i>damanu</i>	‘ <i>Calophyllum vitiense</i> , very tall and straight, excellent for canoes’
Pn:	Niuean	<i>tamanu</i>	‘an inland tree, <i>Calophyllum vitiense</i> ’
Pn:	Tongan	<i>tamanu</i>	‘ <i>Calophyllum neo-ebudicum</i> ’ (Whistler 1991b: 118–119)
Pn:	E Futunan	<i>tamanu</i>	‘tree sp., <i>Calophyllum</i> sp.’
Pn:	Samoaan	<i>tamanu</i>	‘ <i>Calophyllum neo-ebudicum</i> ’ (Whistler 2000: 201)
Pn:	Tahitian	<i>tamanu</i>	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Hawaiian	<i>kamani</i>	‘large tree, <i>Calophyllum inophyllum</i> ’
Pn:	Tuamotuan	<i>tamanu</i>	‘ <i>Calophyllum inophyllum</i> ’
Pn:	Rarotongan	<i>tamanu</i>	‘the native mahogany, <i>Calophyllum inophyllum</i> ’

cf. also:

SES:	Kwara’ae	<i>kaumanu</i>	‘ <i>Calophyllum casiferum</i> ’
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Although a number of the reflexes below are glossed *Calophyllum inophyllum*, the Gela and Sa’a reflexes point to an inland species, probably *C. kajewskii*, as the gloss of PEOc **bakuRa*.

PEOc **bakuRa* ‘*Calophyllum* sp., probably *C. kajewskii*’ (Geraghty 1990)

SES:	Gela	<i>bayula</i>	‘large forest tree sp.’
SES:	Lau	<i>baule</i>	‘ <i>Calophyllum</i> sp.’
SES:	Kwaio	<i>baʔula</i>	‘ <i>Calophyllum kajewskii</i> ’
SES:	Kwara’ae	<i>baʔula</i>	‘ <i>Calophyllum kajewskii</i> ’
SES:	Sa’a	<i>paule</i>	‘tree growing on the hills, makes good boat masts’

SES:	Arosi	<i>baʔura</i>	‘tree sp.’
NCV:	Mwotlap	<i>b[ɔ]wɔy</i>	‘ <i>Calophyllum inophyllum</i> ’
NCV:	Mota	<i>pawura</i>	‘ <i>Calophyllum inophyllum</i> ’
NCV:	NE Ambae	<i>bagure</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Araki	<i>(vi)taura</i>	‘ <i>Calophyllum inophyllum</i> ’
NCV:	Raga	<i>bayura</i>	‘tree sp.’
NCV:	Uripiv	<i>baur</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Nese	<i>na-dayro</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Paamese	<i>voule</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Lewo	<i>(puru)pala</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Baki	<i>(buru)beulo</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Namakir	<i>bakir</i>	‘ <i>Calophyllum</i> sp.’
NCV:	Nguna	<i>na-pakura</i>	‘ <i>Calophyllum</i> sp.’
NCV:	S Efate	<i>pakur</i>	‘ <i>Calophyllum</i> sp.’
SV:	Sye	<i>poyur</i>	‘ <i>Calophyllum neo-ebudicum</i> ’
SV:	Anejoñ	<i>(n)peye</i>	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Pije	<i>pio</i>	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Jawe	<i>pio</i>	‘ <i>Calophyllum inophyllum</i> ’
NCal:	Nêlêmwa	<i>fiyo</i>	‘ <i>Calophyllum caledonicum</i> ’
NCal:	Nyelâyü	<i>phio</i>	‘ <i>Calophyllum. montanum</i> ’

The forms reconstructed below also denoted a *Calophyllum* species.

PCEMP **talo* is reconstructed on the basis of the data here and Ngadha (CMP) *talo* ‘*Calophyllum inophyllum*’ (Verheijen 1990). PCP **dilo* below may well be a case of chance resemblance, as the *-i-* of the Central Pacific cognate set cannot be reconciled with the *-a-* of the cognate set supporting POc **dalo*.

PCEMP **talo* ‘*Calophyllum inophyllum*’

POc **dalo* ‘*Calophyllum inophyllum*’ (Milke 1968)

PT:	Muyuw	<i>dan</i>	‘ <i>Calophyllum streimannii</i> , <i>C. vexans</i> ’
SES:	Gela	<i>dalo</i>	‘shore tree sp.’
SES:	Sa’a	<i>dalo</i>	‘ <i>Calophyllum inophyllum</i> ’
SES:	Kwara’ae	<i>dalo</i>	‘ <i>Calophyllum inophyllum</i> ’
SES:	Lau	<i>dalo</i>	‘ <i>Calophyllum inophyllum</i> ’
Fij:	Bauan	<i>dalo(vodi)</i>	‘ <i>Hernandia olivacea</i> ’ (Keppel et al. 2005)

cf. also:

PCP **dilo* ‘*Calophyllum inophyllum*’

Fij:	Bauan	<i>dilo</i>	‘ <i>Calophyllum inophyllum</i> ’
Fij:	Wayan	<i>dilo</i>	‘ <i>Calophyllum inophyllum</i> ’
Pn:	E Futunan	<i>tilo</i>	‘ <i>Calophyllum inophyllum</i> ’ ¹⁸
Pn:	Takuu	<i>tilo</i>	‘crown of a tree’

¹⁸ Probably borrowed from Fijian (Geraghty 2004: 84).

The reconstruction below depends on the inference that *Muyuw apul* is cognate with the two NNG items. From its sound correspondences *apul* seems to be a borrowing from a Bwaidoga or Are-Taupota language; it is not directly inherited.

PNGOc **sab^wa(r,R)i* ‘*Calophyllum* sp.’

NNG: Takia	<i>sabor</i>	‘ <i>Calophyllum inophyllum</i> ’
NNG: Manam	<i>saboari</i>	‘tree sp.’
NNG: Kairiru	<i>sapar</i>	‘ <i>Calophyllum inophyllum</i> ’
PT: Muyuw	<i>apul</i>	‘ <i>Calophyllum peekelii</i> ’

5.4 *Casuarina equisetifolia*, casuarina, beach she-oak, TP *yar*, B *aeantri*, *oktri*
(Casuarinaceae)

Casuarina equisetifolia is a large coastal tree with an oddly feathery appearance caused by its needle-like leaves. Typically it grows to 20 m, but Frederick Damon (pers.comm.) reports specimens on Woodlark Island of 40–45 m, towering above the rest of the forest. It yields heavy hard dark red-brown wood. The casuarina is used for building throughout most of NW Island Melanesia. In Kwara’ae country, clubs and axe handles are also made from it (Floyd 1954, Peekel 1984: 123, Kwa’ioloa & Burt 2001: 143, Whistler & Elevitch 2006b).

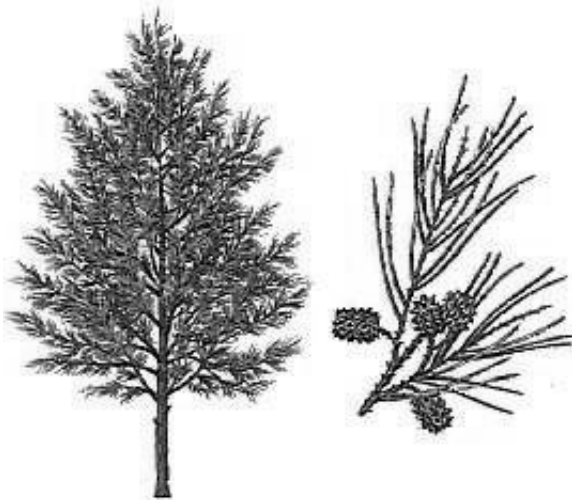


Figure 5.10 *Casuarina equisetifolia*.

The POc term for the casuarina was **aRu*, but a compound form can also be reconstructed, namely POc **aRu-tanjis*, consisting of **aRu* plus **tanjis* ‘weep’—perhaps a metaphorical reference to the feathery and sometimes hanging foliage of the casuarina. However, I have no independent evidence of Oceanic speakers who make this connection.

The term for casuarina in Polynesian languages reflects PPn **toa*, itself a reflex of POc **toRas* ‘*Intsia bijuga*’ (ch.7, §4.9). This shift in denotatum presumably reflects the fact that both the casuarina and *Intsia bijuga* yield excellent hardwood.

So many reflexes of **aRu* have an initial *y*- (or other accretion) that it is tempting to reconstruct †**yaRu*. This would be an error,

however. František Lichtenberk (1988) has shown the accretions in the SE Solomonic languages below are part of the regular reflexes of POc initial **a*-. The same is evidently true in many other Oceanic languages, as accretions occur regularly in this context, as illustrated by a number of items reconstructed in volumes 1 and 2 for which non-Oceanic evidence requires the reconstruction of POc initial **a*-.¹⁹

¹⁹ In vol. 1, **asa(q)* ‘grate, sharpen’ (ch. 9, §2.1), **asu* ‘ladle, bailer’ (ch. 7, §7.4); in vol. 2, **alito(n)* ‘firebrand’ (ch. 3, §8.2), **anin* ‘wind’ (ch. 5, §4.1), **aparat* ‘NW wind’ (ch. 5, §4.2), **api* ‘fire’ (ch. 3, §8.1), **atas* ‘top, space above’ (ch. 8, §2.2.6).

PMP *[q]aRuhu ‘a shore tree: *Casuarina equisetifolia*’ (ACD)

POc *aRu ‘a shore tree, *Casuarina equisetifolia*’ (Blust 1972b)

Adm:	Seimat	yaŋ	‘ <i>Casuarina equisetifolia</i> ’ (Sorensen 1950)
NNG:	Maenge	lalu	‘ <i>Casuarina equisetifolia</i> ’
NNG:	Bariai	eal	‘ <i>Casuarina equisetifolia</i> ’
NNG:	Gitua	yaru	‘ <i>Casuarina equisetifolia</i> ’
NNG:	Tami	yal	‘ <i>Casuarina equisetifolia</i> ’
NNG:	Sio	yari-yari	‘ <i>Casuarina equisetifolia</i> ’
NNG:	Takia	yar	‘ <i>Casuarina equisetifolia</i> ’
PT:	Muyuw	yay	‘ <i>Casuarina equisetifolia</i> ’
PT:	Tawala	(ke)yalu	‘ <i>Casuarina equisetifolia</i> ’
PT:	Suau (Saliba)	(kai)yalu	‘ <i>Casuarina equisetifolia</i> ’
PT:	Misima	(e)yalu	‘ <i>Casuarina equisetifolia</i> ’
MM:	Vitu	yeru	‘ <i>Casuarina equisetifolia</i> ’
MM:	Bulu	aru	‘ <i>Casuarina equisetifolia</i> ’
MM:	Nakanai	(le)alu	‘ <i>Casuarina equisetifolia</i> ’
MM:	Tolai	iara	‘ <i>Casuarina equisetifolia</i> ’
MM:	Nehan	ol-ol	‘ <i>Casuarina equisetifolia</i> ’
MM:	Solos	yan	‘ <i>Casuarina equisetifolia</i> ’
MM:	Taiof	(ar)ari	‘ <i>Casuarina equisetifolia</i> ’
MM:	Banoni	dzaru	‘tree with dense hard red wood used for digging stick’ (P. Lincoln, pers. comm.)
MM:	Babatana	zaru	‘ <i>Casuarina equisetifolia</i> ’
MM:	Nduke	(n)aru	‘ <i>Casuarina equisetifolia</i> ’ ²⁰
MM:	Roviana	(n)aru	‘ <i>Casuarina equisetifolia</i> ’
MM:	Marovo	aru	‘ <i>Casuarina equisetifolia</i> ’
MM:	Kia	n-aru	‘ <i>Casuarina equisetifolia</i> ’ (W. McClatchey, pers. comm.)
MM:	Maringe	ñ-aru	‘ <i>Casuarina equisetifolia</i> ’ (W. McClatchey, pers. comm.)

PEOc *yaRu ‘*Casuarina equisetifolia*’ (Geraghty 1990)

SES:	Bugotu	aru	‘ <i>Casuarina equisetifolia</i> ’ (W. McClatchey, pers. comm.)
SES:	Lau	salu	‘ <i>Casuarina equisetifolia</i> ’
SES:	Kwaio	lalu	‘ <i>Casuarina equisetifolia</i> ’
SES:	Kwara’ae	salu	‘ <i>Casuarina equisetifolia</i> ’
SES:	’Are’are	raru	‘ <i>Casuarina equisetifolia</i> ’
SES:	Sa’a	salu	‘ <i>Casuarina equisetifolia</i> ’
NCV:	Mwotlap	ey	‘ <i>Casuarina equisetifolia</i> ’
NCV:	Mota	aru	‘ <i>Casuarina equisetifolia</i> ’
NCV:	NE Ambae	aru	‘ <i>Casuarina equisetifolia</i> ’
NCV:	Araki	(vi)aru	‘ <i>Casuarina equisetifolia</i> ’

²⁰ Nduke and Roviana *naru* seems to be a borrowing from a (now lost?) language retaining the POc article *na on nouns.

NCV: Tamambo	(vu)aru	‘ <i>Casuarina equisetifolia</i> ’
NCV: Uripiv	n-ur	‘ <i>Casuarina equisetifolia</i> ’
NCV: Neve’ei	n-iar	‘ <i>Casuarina equisetifolia</i> ’
NCV: Nese	n-iar	‘ <i>Casuarina equisetifolia</i> ’
NCV: Paamese	e-ai	‘ <i>Casuarina equisetifolia</i> ’
NCV: Lewo	(puru)yalu	‘ <i>Casuarina equisetifolia</i> ’
NCV: Namakir	ne-ar	‘ <i>Casuarina equisetifolia</i> ’
NCV: Nguna	n-earu	‘ <i>Casuarina equisetifolia</i> ’
NCV: S Efate	n-ar	‘ <i>Casuarina equisetifolia</i> ’
SV: Sye	n-yar	‘ <i>Casuarina equisetifolia</i> ’
SV: Lenakel	n-iel	‘ <i>Casuarina equisetifolia</i> ’
SV: Kwamera	n-ier	‘ <i>Casuarina equisetifolia</i> ’
SV: Anejoñ	n-ya	‘ <i>Casuarina equisetifolia</i> ’
NCal: Jawe	yōk	‘ <i>Casuarina equisetifolia</i> ’
NCal: Nyelâyü	n-ayi	‘ <i>Casuarina equisetifolia</i> ’

POc *aRu-tañis ‘*Casuarina equisetifolia*’

Adm: Mussau	atañisi	‘ <i>Casuarina equisetifolia</i> ’
MM: Lavongai	añtañis	‘ <i>Casuarina equisetifolia</i> ’
MM: Kara (E)	iatañis	‘ <i>Casuarina equisetifolia</i> ’
MM: Tabar	etañis	‘ <i>Casuarina equisetifolia</i> ’

The set below was gleaned from Guppy (1896), who gives Malagasy *filau* and Fijian *velau*, both *Casuarina equisetifolia*. To these may be added Ngaju Dayak (*kayu walau* (Heyne 1950: 514). Although thin, the set allows the reconstruction of PMP/POc *pila(q)u.

PMP *pila(q)u ‘*Casuarina equisetifolia*’POc *pila(q)u ‘*Casuarina equisetifolia*’

Fij: Bauan	velau	‘ <i>Casuarina equisetifolia</i> ’
Fij: Wayan	velau	‘ <i>Casuarina equisetifolia</i> ’

5.5 *Erythrina variegata* (syn. *E. indica*), coral tree, Indian coral tree, TP *palpal*, B *narara* (Fabaceae)

Typically growing to 10–15 m, but sometimes to 20 m, *Erythrina variegata* (Figure 5.11, left) occurs in two common forms. One has the variegated or yellowed leaves that have given rise to its name, as well as thorn-covered branches. The other form has green leaves and sometimes no thorns or just a few at the base of the trunk (Will McClatchey, pers. comm.). There are distinctive orange-red flowers in a spiral at the end of each branch. The bole is usually short and the trunk branches low with numerous ascending branches.

E. variegata is typically found in sandy soil in littoral forest, but it is also often planted as an ornamental tree and as a support for the betel vine (Peekel 1984: 249, Wheatley 1992: 139–141, Whistler & Elevitch 2006c). Gowers (1976: 75)—but not Wheatley—says that in Vanuatu it is an introduced tree, but the NCV and SV reflexes of POc *rarap ‘*Erythrina*



Figure 5.11 Left *Erythrina variegata*, Indian coral tree. Right *Fagraea berteroa*.

spp.’ speak against this. Indeed, Vanuatu is one of the locations where the flowering of *E. variegata* is the marker of the yam-planting season (ch.9, §2.1).

Among the Nakanai *E. variegata* saplings are used to make pig spears and the leaves to dress wounds. It is widely used to make living fences (Floyd 1954, Arentz et al. 1989). Boiled in coconut milk the leaves make an excellent vegetable. Sorensen (1950) writes that they are eaten by immigrants to Ninigo but not by its natives.

POc appears to have had two terms denoting *E. variegata*, *[baR]baR and *rarap, both inherited from PMP. Philippine cognates, however, suggest that PMP *baRbaR²¹ denoted *E. variegata* and *dapdap one or more other species, as Madulid (2001b: 121) lists Ilokano *bakbak* and Tagalog *bagbag* as ‘*E. variegata*’ but Bagobo *dadap* and Hiligaynon Bisayan *dapdap* as ‘*E. subumbrans*’ and Tagalog *dapdap* as ‘*E. fusca*, *E. subumbrans*’. *E. fusca* is a swamp species and *E. subumbrans* differs from other species in having flowers that are greenish to pale red (Whistler & Elevitch 2006c). It is thus likely that POc *rarap denoted a taxon of *Erythrina* spp. rather than just *E. variegata*.

PMP *baRbaR ‘coral tree, *Erythrina variegata*’

POc *[baR]baR ‘coral tree, *Erythrina variegata*’

NNG: Gitua	<i>bar(am)</i>	‘ <i>Erythrina variegata</i> ’ ²²
NNG: Gedaged	<i>bal</i>	‘ <i>Erythrina variegata</i> ’
NNG: Takia	<i>bar</i>	‘ <i>Erythrina variegata</i> ’
NNG: Kairiru	<i>bar</i>	‘ <i>Erythrina variegata</i> ’
MM: Kara (E)	<i>vəl-vəl</i>	‘ <i>Erythrina variegata</i> ’
MM: Madak	<i>ban-ban</i>	‘ <i>Erythrina variegata</i> ’

²¹ PMP *baRbaR is reconstructed on the basis of the Ilokano, Tagalog and Oceanic forms listed here.

²² The final *-am* of Gitua *baram* is unexplained, but the non-Oceanic evidence indicates that it does not reflect part of the POc form.

MM:	Patpatar	<i>bal-bal</i>	‘ <i>Erythrina variegata</i> ’
MM:	Tolai	<i>bal-bal</i>	‘ <i>Erythrina variegata</i> ’
MM:	Ramoaina	<i>bal-bal</i>	‘ <i>Erythrina variegata</i> ’
Mic:	Woleaian	<i>paʒ</i>	‘ <i>Erythrina variegata</i> ’

As noted in §4.1.8, the expected reflex of POc **rarap* ‘Indian coral tree, *Erythrina variegata*’ is PPn †**lala*, but this was replaced by PPn **ɲatae*, apparently because the PPn reflex of POc **drala* ‘a shrub, *Vitex trifolia*’ was also **lala*.

PMP **dapdap* ‘coral tree, *Erythrina* spp.’ (Dempwolff 1938)

POc **rarap* ‘coral tree, *Erythrina* spp.’ (Blust 1972b **rara*)

PWOc **rap* ‘coral tree, *Erythrina* spp.’ (see text)

PT:	Bwaidoga	<i>lalava</i>	‘ <i>Erythrina variegata</i> ’
PT:	Wagawaga	<i>lalawa</i>	‘ <i>Erythrina variegata</i> ’ (Holdsworth 1975a)
PT:	Tawala	<i>lawa-lawa</i>	‘tree type, large red flowers at end of July (probably <i>Erythrina variegata</i>)’
MM:	Sursurunga	<i>rara</i>	‘tree type, fast-growing, looks like poplar’
MM:	Nehan	<i>rau-rau</i>	‘ <i>Erythrina</i> sp.’
MM:	Roviana	<i>rapo-rapo</i>	‘ <i>Erythrina</i> sp.’
MM:	Maringe	<i>grara</i>	‘ <i>Erythrina orientalis</i> ’ (W. McClatchey, pers. comm.)

PEOc **rarap* ‘Indian coral tree, *Erythrina variegata*’

SES:	Gela	<i>rara</i>	‘ <i>Erythrina</i> sp.’
SES:	Lau	<i>rara</i>	‘ <i>Erythrina fusca</i> ’
SES:	Sa’a	<i>rara</i>	‘ <i>Erythrina variegata</i> ’
SES:	Arosi	<i>rara</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Mwotlap	<i>yay</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Mota	<i>rara[v]</i>	‘ <i>Erythrina variegata</i> ’
NCV:	NE Ambae	<i>rara</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Raga	<i>rara</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Araki	<i>(vi)rara</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Tamambo	<i>(vu)rara</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Paamese	<i>a-rē</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Port Sandwich	<i>na-ⁿre</i>	‘ <i>Erythrina variegata</i> ’
NCV:	Lewo	<i>(puru)tē</i>	‘ <i>Erythrina variegata</i> ’

PSV **na-rap* ‘Indian coral tree, *Erythrina variegata*’ (Lynch 2001c)

SV:	Sye	<i>na-rap</i>	‘ <i>Erythrina variegata</i> ’
SV:	Lenakel	<i>na-iəv</i>	‘flame tree’
SV:	Anejoñ	<i>na-ra</i>	‘ <i>Erythrina variegata</i> ’
NCal:	Pije	<i>dalep</i>	‘ <i>Erythrina variegata</i> ’
NCal:	Nemi	<i>dalep</i>	‘ <i>Erythrina variegata</i> ’
NCal:	Nyelâyü	<i>dālap</i>	‘ <i>Erythrina</i> sp.’
Fij:	Bauan	<i>drala</i>	‘ <i>Erythrina variegata</i> ’
Fij:	Wayan	<i>rara</i>	‘ <i>Erythrina variegata</i> ’

The forms Tawala *lawa-lawa* and Roviana *rapo-rapo* above suggest at first sight that the full reduplication of PMP **dapdap* was exceptionally preserved in POc as †**raprap*. Blust (1977a) has shown that in reduplicated forms, as elsewhere, POc normally lost the first member of a medial consonant sequence. Hence POc **rarap*. Tawala and Roviana are both languages in which a vowel is added after a POc final consonant, and this vowel forms part of the reduplicand. The simplest interpretation is that **rarap* was reduced to PWoc **rap*, then reduplicated again to avoid the monosyllabicity which POc abhorred. The Roviana form in any case looks like a borrowing from an unknown source (the expected form is †**ra[va]rava*).

5.6 *Fagraea berteriana* (syn. *F. peekelii*) (Loganiaceae)

Of the three species of *Fagraea* that concern us here, one, *F. berteriana*,²³ grows in the Bismarcks (Peekel 1984: 437) and is the principal denotatum of the reconstructions below (Figure 5.11, right). A second, *F. racemosa* (syn. *F. ligustrina*, *F. maingayi*, *F. pauciflora*) is not reported from the Bismarcks, although it is found on the New Guinea mainland and Bougainville and in the Solomons (Henderson & Hancock 1988: 171, Conn & Damas 2006). The third, *F. gracilipes*, is reported only from the western Solomons and from Fiji (Hviding 2005: 104, Capell 1941).

F. berteriana takes several forms. Peekel describes two. In the Bismarcks it is either a foreshore shrub, 2–6 m tall, with no bole—it branches at ground level—or an epiphyte, growing on another tree, commonly *Inocarpus*, *Intsia* or *Calophyllum*, without a stem of its own and without taking nutrients from its host. The epiphyte form is also described by Kwa’ioloa & Burt (2001: 228) and mentioned by Wheatley (1992: 146) and Whistler & Elevitch (2006d). The latter two sources also describe a third form, a small tree growing to 15–20 m, with a bole that is rarely straight and often branches low. Frederick Damon (pers. comm.) reports that the bole is very durable and on Woodlark Island is sometimes used for houseposts instead of *Intsia bijuga*. In whatever form, *F. berteriana* has wonderfully scented tubular white flowers which are white for the first two days, turning yolk-yellow on days 3 and 4. Its wood is light brown and durable.

F. racemosa resembles the small-tree form of *F. berteriana*, ranging from 2 to 10 m in height, and occasionally reaching 16 m. (Henderson & Hancock 1988: 171, Conn & Damas 2006). *F. gracilipes* is a lowland forest tree that grows in swamps or mud (Hviding 2005: 104). It is effectively in complementary distribution with *F. racemosa*, which abhors such habitats.

The three species are apparently used in much the same ways. The flowers serve as personal decoration. Posts cut from *Fagraea* shrubs are used to establish living fences. *Fagraea* poles are used in canoe and house construction at a number of locations, e.g. SE Papua New Guinea (Kinch 1999) and parts of the Solomons (Waterhouse 1949, Henderson & Hancock 1988: 171), because the branches grow straight and erect and, according to Hviding (2005: 102, 104, 110), the wood never rots and is resistant to white ants. Hviding and Capell report that *F. gracilipes* is used for house posts at Marovo and in Fiji respectively, Wheatley (1992: 146, 148) that *F. berteriana* is similarly used in Vanuatu, and especially on Aneityum.

In the light of these observations the etymon below may be identical with POc **bou*, denoting the main bearers or central post of a house (vol.1, ch.3, §3.4). The Sye cognate

²³ Also sometimes spelled *berteriana* or *berterana* in the literature, but IPNI and APNI give *berteriana*. The species name is derived from the French surname *Berteron*.

apparently denotes two tree species, neither of them a *Fagraea* species, but both are used for house construction. It is also possible that **bou* may be identical with **bau* ‘hardwood taxon’ (ch. 7, §4.10), given that almost all the examples supporting the latter are from Central Pacific languages and may reflect a change of denotation in PCP.

POc **bou* ‘*Fagraea* spp.’

NNG:	Mangap	<i>bou</i>	‘tree sp. used for building’
MM:	Teop	<i>baō</i>	‘ <i>Fagraea racemosa</i> ’
MM:	Nduke	<i>bou</i>	‘a forest tree that grows in swamps in muddy places, <i>Fagraea gracilipes</i> ’
MM:	Roviana	<i>bou</i>	‘tree with hard timber useful and impervious to white ants, perhaps <i>Guettarda</i> sp.’
MM:	Marovo	<i>bou</i>	‘a swamp tree, <i>Fagraea gracilipes</i> (?), ant-resistant’
MM:	Kia	<i>bou</i>	‘ <i>Fagraea gracilipes</i> ’ (W. McClatchey, pers. comm.)
MM:	Gao	<i>bou</i>	‘ <i>Fagraea gracilipes</i> ’ (W. McClatchey, pers. comm.)
SES:	Ghari	<i>bou (kora)</i>	‘ <i>Fagraea racemosa</i> ’
SV:	Sye	<i>na-mpou</i>	‘ <i>Dysoxylum gaudichaudianum</i> , <i>Alphitonia zizyphoides</i> ’
SV:	Anejoñ	<i>no-pou</i>	‘ <i>Fagraea berteriana</i> ’

PPn **pou-muli* ‘*Flueggea flexuosa*’ was apparently a compound reflecting POc **bou* ‘*Fagraea* spp.’ as its first element and POc **muri[-]* ‘back part, rear’ (vol.2, ch.8, §2.3.7) as its second. We assume the association in meaning was that the tree(s) denoted by reflexes of POc **bou* and by PPn **pou-muli* were all used in house-building. Milner (1966) notes that in Samoa the *Flueggea* species denoted by *pou-muli* provided timber ‘used for outrigger booms, house posts etc.’.

PPn **pou-muli* ‘*Flueggea flexuosa*’

Pn:	Tongan	<i>pou(muli)</i>	‘ <i>Flueggea flexuosa</i> ’
Pn:	E Uvean	<i>pou(muli)</i>	‘ <i>Flueggea flexuosa</i> ’
Pn:	Samoan	<i>pou(muli)</i>	‘ <i>Flueggea flexuosa</i> ’

cf. also:

Pn:	E Futunan	<i>pou(tea)</i>	‘tree sp., <i>Flueggea samoana</i> ’
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POc **buRat* was apparently the specific term for *Fagraea berteriana*. Central Pacific reflexes quite often instead denote *Guettarda speciosa*, another plant with sweet-smelling flowers but a quite different appearance. Pawley & Sayaba (2003) gloss the Wayan reflex as denoting a taxon including various species that have pretty and sweet-scented flowers. If PCP **bua* had such a range of meaning, then the application of its reflexes to *Guettarda speciosa* is readily explained. However, things were apparently more complicated than this, as a reduplicated PCP form **bua-bua* is also reconstructable and it is not clear how this differed in meaning from **bua*. PCEMP **buRat* is perhaps also reconstructable in the light of a single putative cognate, Ende *bore* (Flores, CMP; Verheijen 1990: 213).

POc **buRat* ‘*Fagraea berteriana*’

MM:	Roviana	<i>bu-burata</i>	‘ <i>Fagraea berteriana</i> ’
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MM:	Marovo	<i>bu-burata</i>	‘a woody climber of the elevated barrier reef’
SES:	Kwara’ae	<i>bula</i>	‘ <i>Fagraea berteriana</i> ’ (Whitmore 1966: 138)
SES:	Lau	<i>bule</i>	‘ <i>Plumeria acutifolia</i> ’
NCal:	Jawe	<i>guc</i>	‘ <i>Fagraea schlechteri</i> ’
NCal:	Nemi	<i>guc</i>	‘ <i>Fagraea schlechteri</i> ’
NCal:	Nêlêmwa	<i>buak</i>	‘ <i>Fagraea schlechteri</i> ’
NCal:	Xârâcùù	<i>buε</i>	‘ <i>Fagraea schlechteri</i> ’
Mic:	Ponapean	<i>p^wur</i>	‘ <i>Fagraea berteriana</i> ’ (Whistler & Elevitch 2006d)
Fij:	Rotuman	<i>pua</i>	‘ <i>Plumeria acutifolia</i> ’
Fij:	Wayan	<i>bua</i>	‘taxon of trees with pretty, sweet-scented flowers: includes <i>Gardenia augusta</i> , <i>Plumeria rubra</i> and <i>Fagraea</i> spp.’
		<i>bua (ni viti)</i>	‘ <i>Fagraea</i> spp.’
		<i>bua(toka)</i>	‘ <i>Guettarda speciosa</i> ’
Fij:	Bauan	<i>bua</i>	‘ <i>Fagraea</i> spp.’
PPn * <i>pua</i> ‘taxon including <i>Fagraea berteriana</i> and <i>Guettarda speciosa</i> ’			
Pn:	Niuean	<i>pua</i>	‘bud; tree sp, <i>Fagraea berteriana</i> ’
Pn:	Tongan	<i>pua</i>	‘ <i>Fagraea berteriana</i> ’
Pn:	E Uvean	<i>pua</i>	‘ <i>Fagraea berteriana</i> ’
Pn:	E Futunan	<i>pua</i>	‘ <i>Fagraea berteriana</i> ’
Pn:	Anutan	<i>pua</i>	‘flower; plant with flowers (v.)’
Pn:	Tikopia	<i>pua</i>	‘ <i>Fagraea</i> sp.’
Pn:	Rennellese	<i>pua</i>	‘tree with fragrant flowers’
		<i>pua (?atua)</i>	‘ <i>Fagraea berteriana</i> ’
		<i>pua(bano)</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Samoan	<i>pua</i>	‘ <i>Gardenia taitensis</i> ’ (traditional usage; (Whistler 2000: 194))
Pn:	Tuvalu	<i>pua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Kapingamarangi	<i>pua</i>	‘ <i>Guettarda speciosa</i> ’
		<i>bua</i>	‘ <i>Fagraea berteriana</i> or other plant with showy flowers’
Pn:	Nukuria	<i>bua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Tongareva	<i>pua</i>	‘bloom (v.)’
Pn:	Rarotongan	<i>pua</i>	‘ <i>Fagraea berteriana</i> ’
Pn:	Tahitian	<i>pua</i>	‘ <i>Allamanda cathartica</i> ’ (R. Gardner, pers. comm.)
Pn:	Tuamotuan	<i>pua</i>	‘blossom, flower (v.)’

PCP **bua-bua* ‘*Guettarda speciosa* or *Fagraea* sp.’

Fij:	Bauan	<i>bua-bua</i>	‘tree with very hard incorruptible wood, used for making the posts of houses, <i>Fagraea gracilipes</i> ’
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PPn **pua-pua* ‘*Guettarda speciosa*’

Pn:	Tongan	<i>puopua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	W Uvean	<i>puapua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Pukapukan	<i>puapua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Samoan	<i>puapua</i>	‘ <i>Guettarda speciosa</i> ’

Pn:	Tokelauan	<i>puapua</i>	‘ <i>Guettarda speciosa</i> ’
Pn:	Māori	<i>puapua</i>	‘a white-flowered climber, <i>Clematis paniculata</i> ’

5.7 *Flueggea flexuosa* (syn. *Securinega flexuosa*), B *namemiwa*, *namamao*
(Euphorbiaceae)

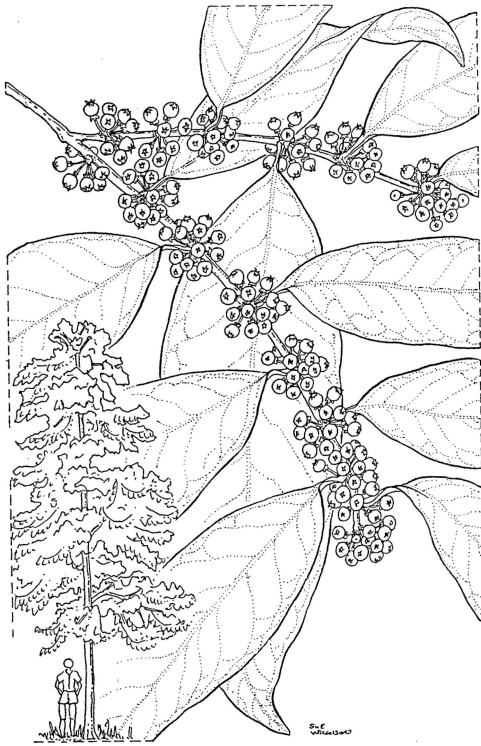


Figure 5.12 *Flueggea flexuosa*: tree and fruit-bearing shoot.

Flueggea flexuosa is a medium-sized tree of 10–15 m which grows on coral in coastal locations and also, in the Solomons, in lowland forests. Its natural range extends from the Philippines to northern Vanuatu, but it is absent from New Guinea and the Bismarcks (Thomson 2006b).

It provides moderately heavy hard straight wood which is slow to rot in contact with dry soil. It is considered to be among the best building timbers in the Solomons and so is used for posts and for house construction by the Nduke, as well as for pig fences. It is best for largescale construction, since it cracks as it dries, and for this reason is not used for carving (Kwa’ioloa & Burt 2001: 107, Hviding 2005: 129, Scales n.d.). At Marovo scrapings of the bark are an ingredient in many medicines.

Although the Madak reflex refers to *Falcataria moluccana*, a tree vastly different in size (at 60 m the tallest in the forest), Kwa’ioloa & Burt (2001: 107) perceive its leaves to be similar to the leaves of *F. flexuosa*.

The gloss of POc **mapuqan* is marked as doubtful below because *F. flexuosa* was apparently not present in the Bismarcks and thus perhaps unknown

to POc speakers. However, this is problematic, as regular reflexes denote *F. flexuosa* in NW Solomonic, SE Solomonic and North–Central Vanuatu languages, and the most recent interstage that these groups are commonly descended from is POc. (For Polynesian terms for *F. flexuosa*, see §5.6.)

POc **mapuqan* ‘*Flueggea flexuosa*’ (?)

MM:	Madak	[vap]mavu	‘ <i>Albizia falcataria</i> ’
MM:	Mono-Alu	ma-mahuana	‘ <i>Flueggea flexuosa</i> ’ (Thomson 2006b)
MM:	Nduke	mavuyana	‘ <i>Flueggea flexuosa</i> ’
MM:	Roviana	mavuana	‘ <i>Flueggea flexuosa</i> ’
MM:	Marovo	mavuana	‘ <i>Flueggea flexuosa</i> ’
MM:	Kia	mafuna	‘ <i>Flueggea flexuosa</i> ’ (W. McClatchey, pers. comm.)
SES	Bugotu	mavua	‘ <i>Flueggea flexuosa</i> ’ (Henderson & Hancock 1988)
SES	Ghari	mavua	‘ <i>Flueggea flexuosa</i> ’

SES:	Kwara'ae	<i>ma-mufua</i>	' <i>Flueggea flexuosa</i> ' (Henderson & Hancock 1988)
SES:	Kwaio	<i>ma-mafua</i>	' <i>Flueggea flexuosa</i> ' (Henderson & Hancock 1988)
NCV:	Mwotlap	<i>mo-mou</i>	' <i>Flueggea flexuosa</i> '
NCV:	Apma	<i>ma-mau</i>	' <i>Flueggea flexuosa</i> '
NCV:	Vera'a	<i>ma-mau</i>	' <i>Flueggea flexuosa</i> '
NCV:	Tamambo	<i>(vu)ma-mau</i>	' <i>Flueggea flexuosa</i> ' (Thomson 2006b)

5.8 *Guettarda speciosa* (Rubiaceae)

Guettarda speciosa is a hardwood tree with a short bole that grows to a height of 3–12 m in a variety of coastal habitats. Hviding (2005: 151) reports that at Marovo it grows on the landward margin of the mangrove swamp and is tolerant of salt water. It is included here among littoral forest trees because Peekel (1984: 533) writes that in New Ireland it is '[c]ommon on the foreshore; as abundant on the cliffs as on the sand'. Wheatley (1992: 198) reports that it is infrequent in Vanuatu.

This tree has a number of uses: in the small islands of the Calvados chain (off the southeastern tip of the New Guinea mainland) it is used in house construction (Kinch 1999). At Marovo it is used for firewood and for making barkcloth mallets (Hviding 2005: 151).

G. speciosa is sometimes labelled with the same term as the epiphyte *Fagraea berteriana*, apparently because both are sweet-smelling (§5.6), but the POc term for *G. speciosa* was *p^wano or *p^wano-p^wano.

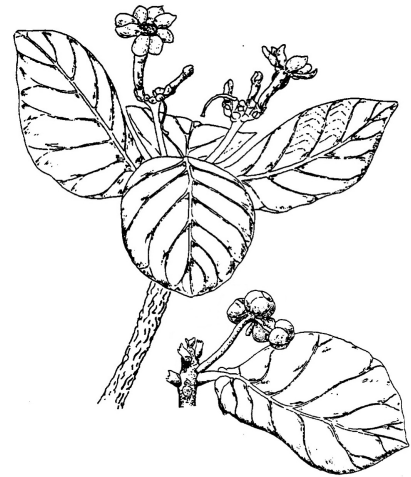


Figure 5.13 *Guettarda speciosa*.

POc *[p^wano]p^wano 'Guettarda speciosa'²⁴

PT:	Muyuw	<i>pano-pan</i>	' <i>Guettarda</i> sp.'
NCV:	Mwotlap	<i>p^won-p^won</i>	' <i>Guettarda speciosa</i> '
NCV:	S Efate	<i>n-fan</i>	' <i>Guettarda speciosa</i> '

PSV *na-(v,w)an(vu) (?) 'Guettarda speciosa'

SV:	Sye	<i>uven-uven</i>	<i>Guettarda speciosa</i>
SV:	Lenakel	<i>n-uen</i>	' <i>Guettarda speciosa</i> ' ²⁵
SV:	Anejoñ	<i>na-vanhu</i>	' <i>Guettarda speciosa</i> ' ²⁵
NCal:	Iaai	<i>qeñi</i>	' <i>Guettarda speciosa</i> '

PPn *(f,p)ano 'Guettarda speciosa'

Pn:	Niuean	<i>pano-pano</i>	' <i>Guettarda speciosa</i> '
Pn:	Marquesan	<i>hano</i>	' <i>Guettarda speciosa</i> '
Pn:	Rarotongan	<i>ano</i>	' <i>Guettarda speciosa</i> '
Pn:	Tahitian	<i>(tā)fanō</i>	' <i>Guettarda speciosa</i> '

²⁴ Tagbanwa *banayon* (Madulid 2001b: 150) appears to reflect a possible PMP **banayen*. If this is ancestral to the forms listed here, then the POc form was *(p,b)an(e)on, with possible deletion of *-e- because the sequence *-eo- was not a part of POc phonotactics.

²⁵ Recorded by Wheatley (1992: 198), but not by Lynch (2004a). Spelling may be incorrect.

5.9 *Gyrocarpus americanus*, canoe tree, B *naove*, *kenutri* (Hernandiaceae)

Wheatley (1992: 114) comments that the canoe tree, *Gyrocarpus americanus*, is a key indicator of a region with a distinct dry season. It is confined to coastal strips and low coral plateaus which lie in a rain shadow during the drier season when the SE trades are prevalent. Because of its location and because its soft wood is easily worked, it is the tree from which dugout canoes are made in north and central Vanuatu—and this is its only use. It is used for the same purpose in New Ireland (Peekel 1984: 192). On Waya Island the soft wood was used to construct simple in-shore fishing rafts, and the bark was made into a tonic and medicine for high blood pressure (Gardner & Pawley 2006).

The canoe tree grows to a height of 30–40 m. It has a smooth grey-brown trunk, which can be huge (Peekel reports a specimen 8.25 m in diameter), and a sparse crown which loses its leaves in the dry season.

According to Peekel, the leaves and the flowers both smell unpleasant, the leaves like garlic, the flowers acrid, hence its name in Patpatar, *i-bore*, and Tolai, *i-boroi*, literally ‘pig tree’.

POc **qope* appears to have been the term for *Gyrocarpus americanus*. Only one reliable reflex is outside NCV, namely Titan *ñow*. Titan *ñ-* reflects Proto Admiralty **n-q-*, where **n-* in turn reflects the POc article **na* which in Admiralties languages often combines with the initial consonant of a noun (Ross 1988: 340–341). The phonological history of Drehet is not sufficiently well known to be sure whether Drehet *nip* also reflects **qope*.

POc **qope* ‘*Gyrocarpus americanus*’

Adm: Titan	<i>ñ-ow</i>	‘tree sp. used for making canoes’
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PNCV **(q)ove* ‘*Gyrocarpus americanus*’ (Clark 1996a)

NCV: Mota	<i>ovi</i>	‘tree sp.’
NCV: Raga	<i>ove</i>	‘ <i>Gyrocarpus americanus</i> ’
NCV: Nokuku	<i>ova</i>	‘canoe’
NCV: Port Sandwich	<i>na-öv</i>	‘ <i>Gyrocarpus americanus</i> ’
NCV: Paamese	<i>uh-uh</i>	‘ <i>Gyrocarpus americanus</i> ’
NCV: Lewo	<i>(puru)iove</i>	‘ <i>Gyrocarpus americanus</i> ’

cf. also:

Adm: Drehet	<i>n-ip</i>	‘softwood tree sp. used to make canoe hulls and house frames’
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5.10 *Neisosperma oppositifolium* (syn. *Ochrosia oppositifolia*, *O. parviflora*), twin apple, B *tufrut* (Apocynaceae)

Perhaps because of a lack of relevant data, no POc term is reconstructable for *Neisosperma oppositifolium* although it occurs in the Bismarcks. A small tree restricted to the coastal edge of the littoral forest and growing to 5–8 m, it has dense clusters of white flowers a centimetre in diameter at the ends of its branches and pairs of fruit which in shape and size resemble a betelnut with a pointed and slightly turned tip. Hence its Kwara’ae name *ai-kikiru* ‘betel

tree' (*kikiru* 'betelnut palm, *Areca catechu*). Internally the fruit is betelnut-like, too: it has a thick dry husk enclosing the nut which contains two seeds.

The tree provides good straight poles for the lighter parts of house construction, as well as being good firewood. The thick latex beneath the outer bark has medicinal uses (Peekel 1984: 443–445, Wheatley 1992: 48–50, Kwa'ioloa & Burt 2001: 124, Gardner & Pawley 2006).

At present no term is reconstructable at an interstage earlier than PROc **vaRo*. Gedaged (NNG) *faʔoŋ* 'tree sp., the trunk of which is used to make canoes' looks cognate but reflects POc †**pa(r,R)oŋV*, which has an extra syllable not reflected in the Remote Oceanic cognate set.

The PSOc form **vato*, reconstructed by Lynch (2004a), seems to be an irregular reflex of PROc **vaRo*.

PROc **vaRo* '*Neisosperma oppositifolium*'

NCV: Mota	<i>varo-varo</i>	' <i>Neisosperma oppositifolium</i> '
NCV: Vera'a	<i>var-var</i>	' <i>Neisosperma oppositifolium</i> '
NCV: Araki	<i>ḡara-ḡara</i>	' <i>Neisosperma oppositifolium</i> '
NCV: Raga	<i>varo-varo</i>	' <i>Neisosperma oppositifolium</i> ' (Walsh 2004)
NCV: Uripiv	<i>(bi)var-var</i>	' <i>Neisosperma oppositifolium</i> '
Mic: Marshallese	<i>(kəc)p^uaru</i>	' <i>Neisosperma oppositifolium</i> '
Fij: Rotuman	<i>hao-hao</i>	'tree with white flowers'
Fij: Wayan	<i>vāō</i>	' <i>Neisosperma oppositifolium</i> '
Fij: Bauan	<i>vāō</i>	' <i>Neisosperma oppositifolium</i> '
Pn: Tongan	<i>fao</i>	' <i>Neisosperma oppositifolium</i> '
Pn: E Uvean	<i>fao</i>	'tree sp.'
Pn: Emae	<i>fao</i>	' <i>Neisosperma oppositifolium</i> '
Pn: Samoan	<i>fao</i>	' <i>Neisosperma oppositifolium</i> '
Pn: Tuvaluan	<i>fao</i>	' <i>Neisosperma oppositifolium</i> '
Mic: Kiribati	<i>pao</i>	' <i>Neisosperma oppositifolium</i> '

PSOc **vato* '*Neisosperma oppositifolium*' (Lynch 2004a)

NCV: S Efate	<i>(n)fato</i>	' <i>Neisosperma oppositifolium</i> '
NCV: Sye	<i>(ye)vat</i>	' <i>Neisosperma oppositifolium</i> '

5.11 *Pisonia* spp. (syn. *Ceodes* spp.), *B nambuka*, *sofsofwud* (Nyctaginaceae)

Two species of *Pisonia* occur in the Bismarcks: *P. umbellifera* (syn. *P. excelsa*, *P. brunoniana*) and *P. grandis* (Figure 5.14, left). The main difference between them is their habitat. *P. umbellifera* is common in secondary forest, whilst *P. grandis* is confined to the littoral strip, just above the high-water mark. In Vanuatu it is occasionally cultivated in coastal villages.

Both are trees growing to 10–20 m in height, with a bole which divides low into several erect branches. Both species have sweet-smelling white flowers. Their fruit are narrow (2–5 mm across) and cylindrical (3 cm long) and have a sticky exudate which attaches them to anything, including bird feathers. Their soft wood is useless, even as fuel, but the fruit were

traditionally used in bird traps. The leaves of *P. grandis* were consumed as a vegetable in Vanuatu (Wheatley 1992: 186–189).

Two forms denoting *Pisonia* species are reconstructable. POc *[a]nuliŋ may well have denoted both *Pisonia* species. PEOc *buka evidently denoted a taxon of littoral trees, including *Pisonia* species and *Gyrocarpus americanus*, expanded in PCP to include *Hernandia nymphaefolia*.²⁶

PMP *anuliŋ ‘*Pisonia umbellifera*’ (ACD)

POc *[a]ñuliŋ ‘*Pisonia* sp.’ (John Lynch, pers. comm.)

MM:	Tolai	<i>nula</i>	‘tree sp., fruit and young leaves of which are edible’
MM:	Maringe	<i>ñuli</i>	‘ <i>Pisonia grandis</i> ’ (W. McClatchey, pers. comm.)
SES:	Bugotu	<i>ñuli</i>	‘ <i>Pisonia grandis</i> ’ (W. McClatchey, pers. comm.)
SES:	Kwara’ae	<i>nuli</i>	‘ <i>Albizia salomonensis</i> ’
NCal:	Nêlêmwa	<i>ôôlî</i>	‘ <i>Pisonia grandis</i> ’

PROc *buka ‘taxon of littoral trees, including *Pisonia* spp. and *Gyrocarpus americanus*’ (Geraghty 1983 *puka ‘*Hernandia pisonia*’)

NCV:	NE Ambae	<i>boya</i>	‘ <i>Pisonia umbellifera</i> ’
NCV:	Nduindui	<i>na-mbuka</i>	‘ <i>Pisonia umbellifera</i> ’
NCV:	Raga	<i>buyo</i>	‘ <i>Pisonia umbellifera</i> ’
NCV:	Namakir	<i>bik</i>	‘ <i>Pisonia</i> or <i>Hernandia</i> sp.’
NCV:	Nguna	<i>na-puka</i>	‘ <i>Gyrocarpus americanus</i> ’
NCV:	S Efate	<i>na-puk</i>	‘ <i>Gyrocarpus americanus</i> ’
		<i>na-puk(-mokul)</i>	‘ <i>Pisonia umbellifera</i> ’
SV:	Sye	<i>na-mpyai</i>	‘ <i>Pisonia umbellifera</i> ’
NCal:	Nyelâyu	<i>vic</i>	‘ <i>Pisonia aculeata</i> ’
Mic:	Kiribati	<i>buka</i>	‘ <i>Pisonia grandis</i> ’
Mic:	Ponapean	<i>puek</i>	‘tulip tree sp.’

PCP *buka ‘taxon of littoral trees, including *Pisonia* spp., *Hernandia nymphaefolia* and *Gyrocarpus americanus*’

Fij:	Bauan	<i>buka(ni vuda)</i>	‘ <i>Guioa rhoifolia</i> ’
Fij:	Rotuman	<i>puka</i>	‘creepers of various kinds’
Pn:	Niuean	<i>puka</i>	‘ <i>Pisonia</i> sp.’
Pn:	Tongan	<i>puko</i>	‘ <i>Pisonia grandis</i> ’
		<i>puko (vili)</i>	‘ <i>Gyrocarpus americanus</i> ’ (‘spinning <i>puko</i> ’, so named because of aerodynamics of thrown fruit) (Whistler 1991b: 109)
Pn:	Samoan	<i>puʔa (vai)</i>	‘ <i>Pisonia grandis</i> ’
Pn:	E Uvean	<i>puko</i>	‘ <i>Hernandia nymphaefolia</i> ’
Pn:	E Futunan	<i>puka</i>	‘ <i>Pisonia</i> sp.’
Pn:	Pukapukan	<i>puka</i>	‘ <i>Pisonia umbellifera</i> ’
Pn:	Rennellese	<i>puka</i>	‘ <i>Pisonia grandis</i> ’
Pn:	Tikopia	<i>puka</i>	‘ <i>Hernandia nymphaefolia</i> ’

²⁶ This assumes that the terms in the cognate set are all correctly glossed.



Figure 5.14 Left *Pisonia grandis*: A, tree; B, shoot; C, flowering shoot with small leaves. Right *Premna corymbosa*: A, tree; B, flowering shoot with leaves .

Pn:	W Futunan	<i>puka</i>	'a kind of native cabbage'
Pn:	Anutan	<i>puka</i>	' <i>Pisonia grandis</i> '
Pn:	Emae	<i>puka</i>	' <i>Gyrocarpus americanus</i> '
Pn:	Ifira-Mele	<i>puka</i>	' <i>Gyrocarpus americanus</i> '
Pn:	Tuvalu	<i>puk</i>	' <i>Hernandia nymphaefolia</i> '
		<i>puka</i>	' <i>Pisonia grandis</i> '
Pn:	Tokelauan	<i>puka</i>	' <i>Hernandia nymphaefolia</i> '
		<i>puka(kakai)</i>	' <i>Pisonia grandis</i> '
Pn:	Kapingamarangi	<i>puka(ria)</i>	' <i>Morinda citrifolia</i> '
		<i>puke</i>	' <i>Pisonia grandis, Hernandia sp.</i> '
Pn:	Nukuoro	<i>buga</i>	' <i>Pisonia grandis</i> '
Pn:	Marquesan	<i>puka</i>	'tree sp.'
		<i>puka (pipiri)</i>	' <i>Pisonia umbellifera</i> '
Pn:	Rarotongan	<i>puka</i>	' <i>Hernandia nymphaefolia</i> '
Pn:	Māori	<i>puka</i>	' <i>Meryta sinclairii, Eugenia maire</i> '
Pn:	Tuamotuan	<i>puka</i>	' <i>Pisonia umbellifera</i> ?, <i>Pisonia grandis</i> ?'

PPn *puka-tea ‘*Pisonia* sp. or spp.’ (*puka ‘*Pisonia* sp.’, *tea ‘white’)

Pn:	Niuean	<i>pukatea</i>	‘ <i>Pisonia grandis</i> ’
Pn:	Manihiki	<i>pukatea</i>	‘tree sp.’
Pn:	Tahitian	<i>puatea</i>	‘ <i>Pisonia umbellifera</i> ’
Pn:	Tuamotuan	<i>pukatea</i>	‘ <i>Pisonia</i> spp.’
Pn:	Rarotongan	<i>pukatea</i>	‘large tree spp., <i>Pisonia grandis</i> , <i>P. umbellifera</i> ’
Pn:	Māori	<i>pukatea</i>	‘a large tree with white bark, <i>Laurelia novaezelandiae</i> ’

5.12 *Pongamia pinnata* (syn. *P. glabra*) (Fabaceae)

Pongamia pinnata is a beach tree, 5–10 m tall, with white flowers (Peekel 1984: 241). Its crushed roots are sometimes used as fish poison, which explains why the Marovo call it *tuva* (reflecting POc **tupa* ‘*Derris* sp.’), as *Derris* is the commonest fish poison in NW Island Melanesia. The Nakanai also used the crushed leaves for medicinal purposes (Floyd 1954, Hviding 2005: 188–149).

The only POc candidate for a name for *P. pinnata* is **pesi*. It is clear from the glosses below that it denoted a coastal forest tree (or a taxon of such trees). On the evidence of Wayan Fijian, its PCP reflex denoted a taxon of coastal forest trees, including *Pongamia pinnata* and *Intsia bijuga* (and in Polynesian languages its denotation is limited to the latter). With only one cognate (Teop) outside Central Pacific, it is difficult to know whether the denotatum of **pesi* was *P. pinnata* alone, or a taxon as in Wayan.

POLLEX2 and Geraghty (2004: 90) compare PCP **vesi* with Malay *besi* ‘iron’ and related forms, but it is unlikely that POc **pesi*/PCP **vesi* reflects PMP *besi* ‘iron’, as this would give POc †**posi*/PCP †**vosi*. Geraghty suggests that it reflects a borrowing from a Western Malayo-Polynesian language, but this seems implausible in the light of the evidence below.

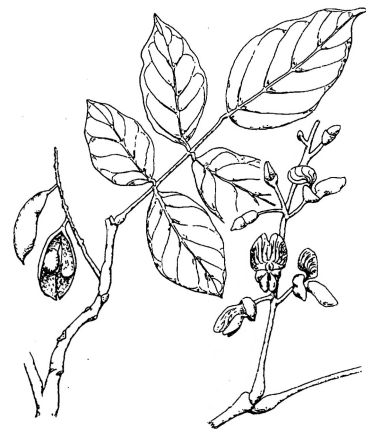


Figure 5.15 *Pongamia pinnata*.

POc **pesi* ‘a coastal forest tree, perhaps *Pongamia pinnata*’

MM:	Teop	<i>pes</i>	‘ <i>Pongamia pinnata</i> ’
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PCP **vesi* ‘a coastal forest tree taxon including *Pongamia pinnata* and *Intsia bijuga*’

Fij:	Bauan	<i>vesi</i>	‘ <i>Intsia bijuga</i> ’
Fij:	Wayan	<i>vesi (wai)</i>	‘ <i>Pongamia pinnata</i> ’
		<i>vesi, vesi (dū)</i>	‘ <i>Intsia bijuga</i> ’

PPn **fesi* ‘*Intsia bijuga*’

Pn:	Tongan	<i>fehi</i>	‘ <i>Intsia bijuga</i> ’
Pn:	E Uvean	<i>fesi</i>	‘tree from which tapa-cloth beaters made; probably <i>Intsia bijuga</i> ’

5.13 *Premna* spp. (Verbenaceae)

Two *Premna* species concern us here. *P. integrifolia* (syn. *P. divaricata*) is reported in the Bismarcks, *P. corymbosa* (syn. *P. serratifolia*) in the Solomons and Vanuatu (Figure 5.14, right).²⁷ Both are small trees, 4–8 m tall, usually growing immediately behind the beach, although *P. integrifolia* is reportedly also found in primary forest. At Marovo *P. corymbosa* grows mainly on coral islets on ocean-facing reefs, typically together with *Pemphis acidula*.

Both *Premna* species tend to branch at the base, with several erect branches, but sometimes they sprawl horizontally. They have hard yellowish wood, white flowers and blue-black to black berries 6–9 mm across, reminiscent of European elderflower and elderberries (Peekel 1984: 479, Henderson & Hancock 1988: 169–171, Wheatley 1992: 244, Kwa’ioloa & Burt 2001: 164, Hviding 2005: 107–108).

Sometimes planted as live fences, *Premna* species provide rafters and fast-burning wood for the cooking fire. They are particularly known, however, for two uses: they provide good wood for traditional fireploughs, and they are commonly used for various medicinal purposes. A common cure for headache is to insert heated leaves and shoots in the nose or to inhale the vapour from a hot infusion. The leaves and shoots are also used to treat pain by rubbing them on the afflicted body part. Arentz et al. (1989: 91) also report that the leaves are boiled and the infusion is drunk against diarrhoea.

The POc term was **arop*, with a reduplicated reflex in PCP (and Bugotu). In Proto Polynesian an alternant **walo-walo* appears alongside **alo-alo*. This may have been the result of glide epenthesis, i.e. **alo-w-alo*, followed by reanalysis of **-w-* as part of the root and its inclusion in reduplication, giving **walo-walo*.

POc **qarop* ‘*Premna* spp.’

Adm:	Mussau	<i>alo</i>	‘tree sp., used for firewood, and traditionally used to make fireploughs’
MM:	Varisi	<i>arovo</i>	‘ <i>Premna corymbosa</i> ’ (W. McClatchey, pers. comm.)
MM:	Babatana	<i>yarovo</i>	‘ <i>Premna integrifolia</i> ’
SES:	Bugotu	<i>aro-aro</i>	‘ <i>Premna corymbosa</i> ’ (Henderson & Hancock 1988)
SES:	Kahua	<i>?aro</i>	‘ <i>Premna corymbosa</i> ’ (Henderson & Hancock 1988)
NCV:	Vera’a	<i>n-ar</i>	‘ <i>Premna taitensis</i> ’ (François 2004)
NCV:	Mota	<i>aro</i>	‘ <i>Premna taitensis</i> ’
NCV:	Raga	<i>aro</i>	‘ <i>Premna</i> sp.’ (Walsh 2004)
Mic:	Marshallese	<i>(ka)ar</i>	‘ <i>Premna integrifolia</i> ’
Mic:	Puluwatense	<i>yōr</i>	‘a common tree, possibly <i>Premna integrifolia</i> ’
Mic:	Woleaian	<i>yāro</i>	‘ <i>Premna integrifolia</i> ’

PCP **aro-aro* ‘*Premna* spp.’

Fij:	Wayan	<i>ar-aro</i>	‘ <i>Premna</i> spp.’
Fij:	Bauan	<i>yaro-yaro</i>	‘ <i>Premna</i> sp.’

PPn **alo-alo* ‘*Premna* sp.’

Pn:	Niuean	<i>alo-alo</i>	‘ <i>Premna</i> sp.’
Pn:	Samoaan	<i>alo-alo</i>	‘ <i>Premna corymbosa</i> ’
		<i>alo-alo (tai)</i>	‘a beach shrub, <i>Clerodendrum inerme</i> ’

²⁷ A third species, *P. taitensis*, is apparently native to eastern Polynesia.

PPn **walo-walo Premna* spp.'

Pn:	E Uvean	<i>valo-valo</i>	' <i>Premna taitensis</i> '
Pn:	E Futunan	<i>valo-valo</i>	' <i>Premna taitensis</i> '
Pn:	Anutan	<i>varo-varo</i>	' <i>Premna integrifolia</i> '
Pn:	Rennellese	<i>bago-bago</i>	' <i>Premna gaudichaudii</i> '
Pn:	Ifira-Mele	<i>varo-varo</i>	'shrub sp.'
Pn:	Tikopia	<i>varo-varo</i>	' <i>Premna</i> spp.'
Pn:	Tuvalu	<i>valo-valo</i>	' <i>Premna taitensis</i> '
Pn:	Nukuoro	<i>valo-valo</i>	' <i>Premna integrifolia</i> '
Pn:	Luangiua	<i>valo-valo</i>	'big tree with fragrant leaves'
Pn:	Mangareva	<i>varo-varo</i>	'an odorous plant'
Pn:	Tahitian	<i>(a)varo</i>	' <i>Premna</i> sp.'

cf. also:

MM:	Roviana	<i>varo</i>	' <i>Premna integrifolia</i> ' (borrowing from a Polynesian language?)
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6 *Wild plants of the mangrove swamp*

MALCOLM ROSS

1 Introduction

Mangrove forests are located on the strip of waterlogged land between mean sea level and the highest tide levels. Mangrove plants thrive in this intertidal zone because they are salt-tolerant, but they also require a supply of fresh water. One salt-resisting mechanism is ultrafiltration, which costs the plant no energy but removes sodium and chloride ions from seawater as it is absorbed for normal physiological processes. Mangrove plants are popularly recognised by the stilt roots characteristic of trees toward the seaward margin of the swamp. The exposed roots have special lenticels (pore-like structures) which enable them to exchange carbon dioxide and oxygen, allowing them to survive in anaerobic soils, while flooding tides bring water-borne nutrients and disperse their buoyant seeds (Duke 2006). Not all mangroves have stilt roots, however.

Serious deforestation of the intertidal zone occurred on many Pacific islands after the arrival of European colonisers, thanks to a perception that mangrove areas were unproductive marginal lands (Thaman 1994: 157), but Hviding's (2005) study of plant use on Marovo Lagoon shows vividly that this perception was false: the trees and shrubs of the mangrove swamp have numerous and often important uses for Oceanic speakers. The larger trees provide strong building materials and good and abundant fuel for cooking fires, and their fruits provide food.

Mangrove forests occur on stretches of coastline sheltered from wave action, along estuaries, and occasionally on coral reefs that are protected from the surf. A mangrove swamp needs regular rainfall to wash salt out of the soil, which is inundated with sea water at high tide twice a day. Inundation on the seaward edge lasts longer and is normally deeper than on the landward side. This means that growing conditions change progressively as one moves landward. The soil is saltiest on the seaward edge and least salty on the landward side, where there is usually an abrupt transition to freshwater swamp forest.

This means that species that thrive on the seaward edge need to be the most adapted to waterlogged conditions and do not necessarily occur on the landward margin. Species on the landward margin often also grow in freshwater swamp or lowland rainforest. Biogeographic literature divides the gradient from the seaward to the landward margin into three or four bands, although these obviously shade into each other. A convenient division is (a)

the seaward edge; (b) the *Rhizophora* zone; (c) the *Bruguiera* zone; and (d) the landward margin (Lear & Turner 1977). Sources describing mangrove forests in the Bismarcks and the Solomons generally agree as to which species are common in which band.

Common species of the seaward edge are *Avicennia marina* (the white/grey mangrove), *Sonneratia caseolaris*, *S. alba* and sometimes *Ceriops tagal* (the yellow mangrove). I am unable to reconstruct labels for any of these species. The major proximate reason for this is that even sources that provide plant names aplenty often give only a generic term for mangroves. Sometimes this is because they are simply unknown to speakers because there are no mangrove swamps nearby or because these species do not grow in local swamps. But it is also likely that names for these species have often not been collected because of their relative inaccessibility to landbased fieldworkers who have no particular interest in the swamp environment.

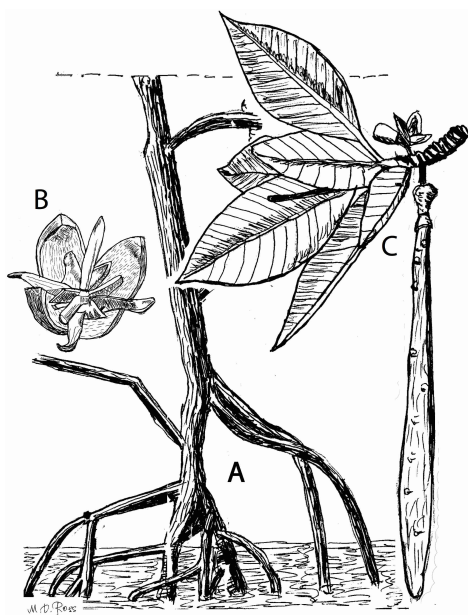


Figure 6.1 *Rhizophora apiculata*, the tall-stilted mangrove, prop-root mangrove: A, stilt roots and trunk; B, flower; C, leaves, fruit and hypocotyl (viviparous seedling).

including *Dolichandrone spathacea* (§4.2) and *Myristica hollrungii* (no reconstruction). The *Nypa fruticans* palm also grows on the landward side of estuarine swamps (§4.5) (Paijmans 1976: 31-34, Mueller-Dombois & Fosberg 1998: 50-51).

The following sections present reconstructions for plants which grow in the *Rhizophora* (§2) and *Bruguiera* (§3) zones of the mangrove forest and on the landward margin (§4).

2 The *Rhizophora* zone of the mangrove forest

2.1 *Rhizophora* spp., *P manguru*, *B natongtong* (Rhizophoraceae)

The outer zone of the mangrove forest in the Bismarcks and the Solomons is dominated by trees of the genus *Rhizophora*, in the Bismarcks usually by *R. apiculata*, known as the tall-

Behind the seaward edge the outer zone of the mangrove forest consists generally of *Rhizophora* species (§2.1).

Behind the *Rhizophora* zone the mangrove forest canopy begins to assume the stature of a land-based forest as *Bruguiera* species (§3.1) take over from *Rhizophora*. Depending on local conditions, *Ceriops tagal* sometimes occurs between *Bruguiera* and the landward margin.

On the landward margin the mangrove forest becomes more diverse, forming a canopy up to 25 m tall, which in the Bismarcks includes *Camptostemon schultzei* (no reconstruction), *Cerbera manghas* (§4.1), *Excoecaria agallocha* (§4.3), *Heritiera littoralis* (§4.4), *Inocarpus fagifer* (ch. 11, §2.2), *Intsia bijuga* (ch.7, §4.9), *Lumnitzera littorea* (no reconstruction) and *Xylocarpus granatum* (§4.6). *Intsia bijuga* and *Inocarpus fagifer* are also common low-land swamp forest and rain forest trees and the latter is also a nut tree. They are not treated here but in chapters 7 and 11 respectively. Because the landward margin of the mangrove forest is more open, it has an undergrowth of shrubs and low-stature trees

stilted mangrove or prop-root mangrove, which usually grows to between 5 and 8 m in height, but can grow as tall as 40 m. The trunk is usually not erect and branches irregularly.

R. apiculata is also found in the Solomons, Vanuatu and New Caledonia. There are two other, rather similar, Indo-Pacific *Rhizophora* species, *R. mucronata*, which does not grow east of the Bismarcks, and *R. stylosa*, the red mangrove, whose range stretches to western Polynesia.

The pale yellow flowers of *R. apiculata* grow in pairs just below the base of the leaf stalk. The mature fruit are irregular ovoids (shaped like an upsidedown pear) and grow to around 4–5 cm. All *Rhizophora* species are viviparous, i.e. the seed, hidden in the mature fruit, germinates on the tree and produces a hypocotyl, a viviparous seedling, which eventually falls into the mud below. Hypocotyls are long narrow green cylindrical structures with irregular small brown lenticels (pores). They vary in length from 15 to 80 cm but are only about 2cm in diameter at their widest point (Peekel 1984: 400–401, Duke 2006).

The Bola of New Britain use *Rhizophora* species as building timber (Powell 1976). On Waya Island, Fiji, the roots were used to make baskets and fish-traps, and the bark was boiled to give a red dye which was also used as a preservative for ropes. The crushed tips of the roots provided medicine for thrush and coughs (Gardner & Pawley 2006).

The Proto Oceanic (POc) term for *Rhizophora* species was perhaps POc **wako(t)*, repeated here from ch.4, §2.4. Since it is *Rhizophora* species that have stilt roots, it is likely that the intended meaning of ‘mangrove’ in these glosses is *Rhizophora*, and the glosses of the Tawala, Mokilese and Ponapean reflexes suggest that POc **wako(t)* may have been used metonymically for the whole tree and not just the roots.

PMP **waket* ‘mangrove root’ (ACD)

POc **wako(t)* ‘mangrove root’

PT:	Tawala	<i>wakoya</i>	‘mangrove’
Mic:	Kosraean	<i>ok-ok</i>	‘mangrove root’
Mic:	Mokilese	<i>ak</i>	‘mangrove’
Mic:	Ponapean	<i>ak</i>	‘generic for mangroves’

PWOc **baul* perhaps denoted *Rhizophora*: its Tolai reflex, *baul* ‘mangrove, *Rhizophora apiculata*’, contrasts with *toŋor*, the generic term for mangroves including both *Rhizophora* and *Bruguiera* species.

PWOc **baul* ‘mangrove, *Rhizophora* sp. (?)’ (Ross 1996c)

NNG:	Kove	<i>vale</i>	‘mangrove’
NNG:	Yabem	<i>(ka)bɔʔ</i>	‘k.o. mangrove tree’
PT:	Duau	<i>pauli</i>	‘mangrove’
PT:	Suau (Dau)	<i>pauli</i>	‘mangrove’
PT:	Suau (Saliba)	<i>pauli</i>	‘mangrove (generic)’
MM:	Patpatar	<i>baul</i>	‘mangrove’
MM:	Tolai	<i>baul</i>	‘mangrove, <i>Rhizophora apiculata</i> ’

As a generic, Saliba *pauli* includes *Ceriops tagal*, *Rhizophora* spp. and *Bruguiera* spp. (Margetts 2005b).

3 The *Bruguiera* zone of the mangrove forest

3.1 *Bruguiera* spp., P ko'a (Rhizophoraceae)



Figure 6.2 *Bruguiera gymnorrhiza*, orange mangrove: A, tree; B, shoot bearing edible fruit.

In the Bismarcks *Bruguiera gymnorrhiza*, the orange or large-leafed mangrove, dominates the inner zone of the mangrove forest. It often grows in stiff mud, as well as in tidal areas, and tolerates a wide range of salinity levels. It contrasts sharply in appearance with *Rhizophora apiculata*, as it is taller, 15–30 m tall, and has an erect trunk and regularly arranged lateral branches. Its rounded or plank-like buttresses branch over and over again as they near the ground. Sometimes there are also stilt roots. Traditionally, the fruit was rarely eaten. When it was, it was processed to remove the tannin, then cooked in coconut cream as a vegetable (Henderson & Hancock 1988: 105, 107, Allen & Duke 2006).

The wood of *B. gymnorrhiza* is hard, but it is not durable in water and is therefore used only for internal construction, e.g. rafters. It is also used to make charcoal (Streicher 1982, Peekel 1984: 400). The Nakanai also use it for axe handles and digging sticks (Floyd 1954). In areas where people depend on sago because they have little dryland agriculture, sprouted *Bruguiera* fruits are sometimes collected and subjected to lengthy processing so that they can be eaten (Barrau 1955: 25–26). The bark was used as an abortifacient in Malaita and for the treatment of burns in the western Solomons.

POc **toŋoR* was fairly clearly the generic term for mangroves. It also seems to have been the term for *Bruguiera* species. This is the denotatum of its reflexes in non-Oceanic languages and in some of the Oceanic languages listed below (and I suspect that where the gloss is simply ‘mangrove’, this is sometimes simply the result of poor glossing).

PAn **teŋeR* ‘mangrove, *Bruguiera* spp.’ (Blust 1972b)

POc **toŋoR* ‘mangrove, *Bruguiera* spp.; mangroves (generic)’ (Ross 1996c)

Adm:	Mussau	<i>toŋo</i>	‘mangrove sp. with edible fruit’
NNG:	Malai	<i>toŋor</i>	‘mangrove’
NNG:	Tami	<i>toŋ</i>	‘mangrove’
NNG:	Mindiri	<i>tuoŋ</i>	‘mangrove’
NNG:	Bilibil	<i>toŋ</i>	‘mangrove’
NNG:	Gedaged	<i>toŋ</i>	‘mangrove’
NNG:	Yabem	<i>(ka)to?</i>	‘mangrove’
NNG:	Numbami	<i>toloŋa</i>	‘mangrove, <i>Bruguiera</i> spp.’
PT:	Sudest	<i>roŋ^we</i>	‘mangrove, <i>Bruguiera</i> spp.’
PT:	Motu	<i>to-toa</i>	‘ <i>Rhizophora mucronata</i> ’ (Lane-Poole 1925)

MM:	Lavongai	<i>toŋoŋ</i>	‘mangrove’
MM:	Tiang	<i>toŋoi</i>	‘mangrove’
MM:	Minigir	<i>toŋor</i>	‘mangrove, <i>Bruguiera</i> spp.’
MM:	Patpatar	<i>toŋ</i>	‘mangrove’
MM:	Tolai	<i>toŋor</i>	‘mangrove, <i>Bruguiera</i> and <i>Rhizophora</i> spp.’
MM:	Taiof	<i>toŋon</i>	‘mangrove’
MM:	Mono-Alu	<i>tolo</i>	‘ <i>Rhizophora</i> spp.’ (W. McClatchey, pers. comm.)
PEOc * <i>toŋoR</i> ‘mangrove’			
SES:	Gela	<i>toŋo</i>	‘a mangrove’
SES:	Sa’a	<i>oŋo</i>	‘mangrove’
SES:	’Are’are	<i>ono</i>	‘mangrove’
NCV:	Araki	<i>(vi)coŋo</i>	‘ <i>Rhizophora</i> sp.’
NCV:	Raga	<i>toŋ-toŋo</i>	‘mangrove’
NCV:	Naman	<i>ne-doŋ</i>	‘mangrove’
NCV:	Avava	<i>o-doŋ</i>	‘mangrove’
NCV:	Uripiv	<i>na-roŋ</i>	‘ <i>Ceriops tagal</i> ’
NCV:	Lonwolwol	<i>toŋ</i>	‘mangrove’
NCV:	Paamese	<i>a-toŋo</i>	‘mangrove’
NCV:	Namakir	<i>toŋotoŋ</i>	‘mangrove’
PSV * <i>na-doŋa(q)</i> ‘mangrove, <i>Rhizophora</i> spp.’ (Lynch 2001c)			
SV:	Sye	<i>(ne)tuŋo</i>	‘mangrove, <i>Rhizophora</i> sp.’
SV:	Lenakel	<i>toŋo</i>	‘mangrove’
SV:	Anejoñ	<i>ne-ceŋ</i>	‘mangrove, <i>Rhizophora</i> sp.’
NCal:	Nemi	<i>jen</i>	‘mangrove’
NCal:	Nyelâyü	<i>jan</i>	‘mangrove’
NCal:	Nêlêmwa	<i>kan</i>	‘ <i>Bruguiera gymnorrhiza</i> ’
Mic:	Kiribati	<i>toŋo</i>	‘mangrove (generic); <i>Bruguiera gymnorrhiza</i> and <i>Rhizophora mucronata</i> ’
Mic:	Ponapean	<i>çoŋ</i>	‘mangrove sp., bark of which is used for dyeing’
PCP * <i>toŋo</i> ‘mangrove, probably <i>Bruguiera gymnorrhiza</i> ; mangroves (generic)’			
Fij:	Wayan	<i>toŋo</i>	‘ <i>Bruguiera gymnorrhiza</i> ; also generic for mangrove spp. including <i>Bruguiera gymnorrhiza</i> and <i>Rhizophora</i> spp.’
Pn:	Tongan	<i>toŋo</i>	‘mangrove’
Pn:	Niuean	<i>toŋo</i>	‘legendary tree, said to be the mangrove’
Pn:	Rennellese	<i>toŋo</i>	‘mangrove, <i>Bruguiera gymnorrhiza</i> ’
Pn:	Tikopia	<i>toŋo</i>	‘mangrove’
Pn:	Samoan	<i>toŋo</i>	‘taxon of mangrove species inc. <i>Bruguiera gymnorrhiza</i> and <i>Rhizophora mangle</i> ’ (Whistler 2000: 204)
Pn:	Mangarevan	<i>toŋo-toŋo</i>	‘mangrove’

4 The landward margin of the mangrove forest

The landward margin of the mangrove forest looks more like a dryland rain forest than a mangrove swamp. Indeed, apart from *Excoecaria agallocha*, the plants below are described as growing ‘behind’ mangroves, i.e. behind the various stilt-rooted species. They are trees of the foreshore or the freshwater swamp rather than specialised plants of the mangrove swamp. The landward margin is more diverse, and accommodates an understorey which includes *Dolichandrone spathacea* (§4.2). Not all prominent plants of the landward margin have reconstructable POc labels. Terms for *Lumnitzera littorea*, *Camptostemon schultzei* and *Myristica hollrungii* cannot at present be reconstructed.

4.1 *Cerbera* spp. (Apocynaceae)

Three *Cerbera* species are associated with mangrove swamps. All three grow in coastal locations and are often associated with muddy habitats. Two, *C. manghas* and *C. manghas* (syn. *C. floribunda*), are similar to each other, and some languages treat them as a single taxon. They are trees 10–20 m tall and about a metre in girth. The third, *C. odollam*, is a large shrub or small tree about 10 m in height. All three have shiny green leaves and sweet-scented white flowers with a red (*C. manghas*) or yellow (*C. odollam*) centre. The seed is surrounded by a thick fibrous husk which gives the fruit buoyancy and makes for easy dispersal on ocean currents.



Figure 6.3 *Cerbera odollam*: bottom left, longitudinal section of fruit.

The genus is named after Cerberus, the Greek mythological dog of Hades, because all its parts are highly toxic: they contain cerberin, a substance that blocks electric impulses in mammals, including the heart beat. Even smoke from burning *Cerbera* wood is toxic. In parts of the Pacific *Cerbera* sap was used to poison animals and people (Powell 1976, Tomlinson 1986). Whistler (1992) reports that the fruit was eaten by suicides in the Marquesas. On Waya Island an extract of the bark in oil was used to exorcise demons (Gardner & Pawley 2006).

Two reconstructions are presented below: PWOC *p^(w)awa(t) ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’ and PCP *rewa ‘tree, *Cerbera* sp., probably *Cerbera odollam*’. Milke (1968) also offers POc *pasa ‘*Cerbera* sp.’, based on Gedaged *safa* (metathesis), Bauan *vasa* ‘*C. odollam*’, Samoan *fasa*, ‘Uvea’¹ *faha*, both ‘variety of pandanus’. The alleged metathesis and the semantic discrepancies make cognacy too uncertain for one to accept this reconstruction without further comparisons.

tic discrepancies make cognacy too uncertain for one to accept this reconstruction without further comparisons.

¹ It is not clear whether Milke intends East Uvean or West Uvean.

The initial rounded bilabial of POC **p^(w)awa(t)* is reconstructed on the basis of Teop *p-* (the usual Teop reflex of **p* is *v-*. The final **-t* is uncertain because it is reflected in Misima, but not where it is also expected, in Teop, Nduke, Roviana and Marovo.

POC **p^(w)awa(t)* ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’

PT:	Misima	<i>pawat</i>	‘ <i>Cerbera manghas</i> ’
MM:	Lavongai	<i>bau</i>	‘ <i>Cerbera floribunda</i> ’
MM:	Kara (E)	<i>vəu(kip)</i>	‘ <i>Cerbera manghas</i> ’
MM:	Teop	<i>pau</i>	‘ <i>Cerbera manghas</i> ’ (Record 1945)
MM:	Nduke	<i>vao</i>	‘ <i>Cerbera</i> spp. inc. <i>C. floribunda</i> and <i>C. manghas</i> ’
MM:	Roviana	<i>vao</i>	‘ <i>Cerbera</i> spp. inc. <i>C. floribunda</i> and <i>C. manghas</i> ’
MM:	Marovo	<i>vao</i>	‘ <i>Cerbera</i> spp. inc. <i>C. floribunda</i> and <i>C. manghas</i> ’
SES:	Gela	<i>vao-vao</i>	‘large-leaved shrub sp. (possibly <i>C. odollam</i>)’
SES:	Arosi	<i>hao-hao</i>	‘tree sp.’
SES:	Lau	<i>fao-fao</i>	‘tree sp., <i>Bombax malabaricum</i> ’

PCP **rewa* ‘tree, *Cerbera* sp., probably *Cerbera odollam*’

Fij:	Wayan	<i>rewa</i>	‘ <i>Cerbera manghas</i> ’
Fij:	Bauan	<i>rewa</i>	‘ <i>Cerbera odollum</i> , with long, narrow leaves’
Pn:	E Uvean	<i>leva</i>	‘ <i>Cerbera lactaria</i> ’
Pn:	E Futunan	<i>leva</i>	‘ <i>Cerbera odollam</i> ’
Pn:	Rennellese	<i>geβa</i>	‘ <i>Cerbera odollam</i> ’
Pn:	Tikopia	<i>reva</i>	‘tree that grows only on the mountain’
Pn:	Emae	<i>reva</i>	‘ <i>Cerbera odollam</i> ’
Pn:	Ifira-Mele	<i>reva</i>	‘ <i>Cerbera odollam</i> ’
Pn:	Samoa	<i>leva</i>	‘ <i>Cerbera odollam</i> ’
Pn:	Rurutu	<i>(e)reva</i>	‘ <i>Cerbera manghas</i> ’
Pn:	Tahitian	<i>reva</i>	‘ <i>Barringtonia</i> sp.’
Pn:	Rarotongan	<i>reva</i>	‘ <i>Cerbera lactaria</i> ; false sea-mango, <i>Cerbera odollam</i> ’
Pn:	Māori	<i>rewa-rewa</i>	‘tree, <i>Knightia excelsa</i> , with long narrow leaves’

4.2 *Dolichandrone spathacea* (syn. *Bignonia spathacea*) (Bignoniaceae)

A tree of the understorey, 5–12 m tall, *Dolichandrone spathacea* grows behind mangroves and around the swampy mouths of streams from India to New Caledonia. Its fruit are up to 45 cm long, flattened and curved like a bean pod with dark grey squarish seeds with thick corky wings. The large white flowers open after sunset and fall in the morning.

It is used in New Ireland to make propeller-like shark fishing floats (Peekel 1984: 508). In Marovo the wood is used for various canoe parts and sometimes for carving (Hviding 2005: 148) and in parts of Melanesia is used for hourglass drums (Record 1945). The Nakanai rub the bark on dermatitis and *grille* (*Tinea imbricata*, a disfiguring fungal skin infection) (Floyd 1954).

PMP *tui? ‘*Dolichandrone spathacea*’ (Blust 1986)POc *tui ‘*Dolichandrone spathacea*’

NNG: Gedaged	<i>tui</i>	‘tree sp., Fabaceae, the stem of which is used to make canoes’
NNG: Kairiru	<i>tui</i>	‘ <i>Dolichandrone spathacea</i> ’
MM: Nakanai	<i>tiu</i>	‘ <i>Dolichandrone spathacea</i> ’
MM: Madak	(<i>va</i>) <i>ti</i>	‘ <i>Dolichandrone spathacea</i> ’
MM: Babatana	<i>tui</i>	‘ <i>Dolichandrone spathacea</i> ’ (W. McClatchey, pers. comm.)
MM: Ririo	<i>tui</i>	‘ <i>Dolichandrone spathacea</i> ’ (W. McClatchey, pers. comm.)
MM: Roviana	<i>tui</i>	‘tree with inedible bean-like fruit’
MM: Marovo	<i>tui</i>	‘ <i>Dolichandrone spathacea</i> ’
SES: Gela	<i>tui</i>	‘tree sp.’

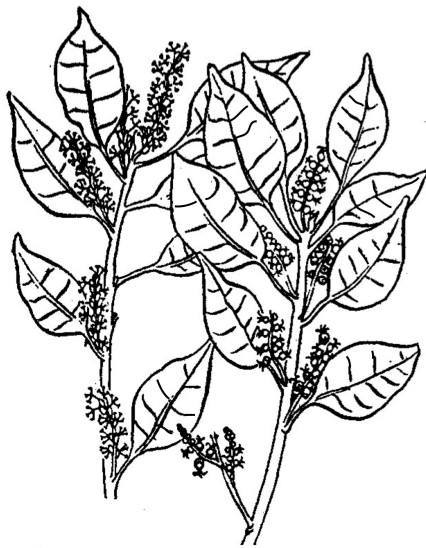
4.3 *Excoecaria agallocha*, milky mangrove (Euphorbiaceae)

Figure 6.4 *Excoecaria agallocha*, milky mangrove.

Excoecaria agallocha is a shrub or small tree with a thick trunk that mostly grows in saltwater inland of *Avicennia*, *Rhizophora* and *Bruguiera* species (Peekel 1984: 316, Hviding 2005: 135). According to Hviding the sap is harmful to people’s eyes. He also notes that its dead, dry wood is very good for slow-burning firesticks and for fuel for cooking fires. On New Britain an infusion made from the leaves is mixed with the sap of a Liliaceae species and used against fever (Arentz et al. 1989: 91).

Lynch (2004) reconstructs PSOc *(*t,d*)oto(*q*), noting, ‘Final *-o is overtly reflected in at least Lenakel and the New Caledonian languages, suggesting final *-q.’ I reconstruct POc *dotoq ‘sticky liquids including the sap of (some?) trees’; ‘a mangrove tree, probably *Excoecaria agallocha*’ with initial *d- and final *-q because it appears to be an irregular reflex (for expected POc †*ditoq) of PAN *diteq ‘sticky substance’ (ACD). There are two sets of reasons for thinking that items meaning ‘sticky sap’ and items denoting *Excoecaria agallocha* (or in some

cases *Cerbera manghas*, also a mangrove) reflect the same POc etymon.

- In the cognate set below, Marovo *ototo* ‘*E. agallocha*’ and Kwara’ae *toto*(*ŋ^wala*) ‘*C. manghas*’ are descriptive terms which allude to sticky sap. According to Hviding the Marovo name *ototo* means ‘with much sap’, an assertion supported by the fact that in closely related Nduke *oto-* means the ‘sap or gum of trees and some fruits’.² Kwa’ioloa & Burt (2001: 162) gloss *toto*(*ŋ^wala*) as ‘sticky sap; *Cerbera manghas*’.

² Marovo normally reflects POc *-q as -k-, followed by an echo vowel, but if this is the directly possessed (suffixed) noun ‘sap’, then loss of root-final *-q is regular.

- Reflexes in the cognate set below share in irregular developments which affect reflexes of POC **dotoq* ‘sticky liquids ...’. Kwara’ae *toto(ŋ^wala)* reflects PSES **soso* ‘sap’³ instead of expected PSES †**doto*. Most other reflexes share in a voicing assimilation which reflects a variant **totoq*. This idiosyncratic change affects both reflexes glossed ‘sticky sap’⁴ and reflexes glossed ‘*E. agallocha*’ (below), suggesting that they are indeed the same term.

POC **dotoq* ‘sticky liquids including the sap of (some?) trees’; ‘a mangrove tree, probably *Excoecaria agallocha*’ (Lynch (2004a): PSOc **(t,d)oto(q)*)

MM:	Bola	<i>toto</i>	‘ <i>Cerbera manghas</i> ’ (Powell 1976)
MM:	Marovo	<i>ototo</i>	‘ <i>Excoecaria agallocha</i> ’
SES:	Kwara’ae	<i>toto(ŋ^wala)</i>	‘ <i>Cerbera manghas</i> ’ (irregular: see text above)
NCV:	Mwotlap	<i>no-dot</i>	‘ <i>Excoecaria agallocha</i> ’
NCV:	Mota	<i>noto</i>	‘ <i>Excoecaria agallocha</i> ’
NCV:	Tamambo	<i>(vu)toto</i>	‘tree sp. with sticky sap, grows near water’
NCV:	Uripiv	<i>na-tot</i>	‘ <i>Excoecaria agallocha</i> ’

PSV **na-tetaq* ‘*Excoecaria agallocha*’ (Lynch 2001c)

SV:	Sye	<i>yate</i>	‘ <i>Excoecaria agallocha</i> ’
SV:	Lenakel	<i>təra</i>	‘ <i>Excoecaria agallocha</i> ’
SV:	Anejom̃	<i>ne-tet</i>	‘ <i>Excoecaria agallocha</i> ’
NCal:	Nemi	<i>dao</i>	‘ <i>Excoecaria agallocha</i> ’
NCal:	Nyelāyu	<i>jayo</i>	‘ <i>Excoecaria agallocha</i> ’
NCal:	Iaai	<i>xic</i>	‘ <i>Excoecaria agallocha</i> ’
Pn:	Tongan	<i>toto</i>	‘ <i>Cerbera odollam</i> ’

4.4 *Heritiera littoralis* (Sterculiaceae)

Heritiera littoralis typically grows in sand at the high-tide limit of estuaries and mangrove swamps in the Bismarcks, the Solomons, Vanuatu and New Caledonia. Up to 25 m tall, it has a short bole, straight trunk, planklike buttresses, and large conspicuous hard brown nuts about 7 cm long and 4 cm in diameter. Its wood is very strong when it has dried out, and is used among other things for rafters, planks and spear shafts (Peekel 1984: 374, Wheatley 1992: 223–225, Kwa’ioloa & Burt 2001: 136, Hviding 2005: 101).

The cognate set below has few members, but they are widespread enough to support a POC reconstruction which entails the POC term **qone* ‘sand, sandy beach’ or **qone-qone* ‘sandy’ (vol.2, ch.3, §7.5). If the interpretation of the Patpatar prefix *i-* offered in chapter 2, §7.1 is correct, then



Figure 6.5 *Heritiera littoralis*

³ Cf Gela *sososo* ‘sap, juice’, Arosi *toto* ‘sap’.

⁴ Cf Vitu (MM) *toto* ‘milk’, Mota (NCV) *totoa-* ‘juice of tree, thick fluid in bark’, Raga (NCV) *toto* ‘sap’, Nguna (NCV) *totoa* ‘sap, exude sap’ (NCV items from Clark 1996b), PPn **toto* ‘blood, sap’ (POLLEX).

Patpatar *i-kon* points to POc **kayu qone*, ‘tree of beach, beach tree’. Although Tolai *ka-* is not a regular prefix in tree names, it quite possibly reflects **kayu* in this instance, as the latter must have been an intrinsic part of the name. Nyelâyu *k^hon* reflects **kV-kon* at a recent interstage and has a history like that of the Tolai reflex. Proto SE Solomonic **(q)one-(q)one* reflects POc **qone-qone* ‘sandy’.

POc **kayu qone* ‘*Heritiera littoralis*’

MM:	Patpatar	<i>i-kon</i>	‘ <i>Heritiera littoralis</i> ’
MM:	Tolai	<i>ka-kono</i>	‘ <i>Heritiera littoralis</i> ’ (Record 1945)
NCal:	Nyelâyu	<i>k^hon</i>	‘ <i>Heritiera littoralis</i> ’

Proto SE Solomonic **(q)one-(q)one* ‘*Heritiera littoralis*’

SES:	Kwara’ae	<i>one-one</i>	‘ <i>Heritiera littoralis</i> ’
SES:	Lau	<i>one-one</i>	‘ <i>Heritiera littoralis</i> ’
SES:	Arosi	<i>one-one</i>	‘large tree sp. with brightly coloured foliage’

4.5 *Nypa fruticans*, nipa(h) palm (Arecaceae)

The nipa palm, *Nypa fruticans*, grows from the Bismarcks to Fiji in soft mud and slow moving tidal and river waters that bring in nutrients. It is the only palm (member of the Palmae family) that is also a mangrove, i.e. grows in soft mud. It has a horizontal trunk that grows beneath the ground; only the leaves and flower stalk grow vertically above the surface. From a distance, it looks like a clump of coconut fronds growing straight out of the water or the mud.

Its fronds are used for matting (Peekel 1984: 66) and for roofing, but it is not nearly as durable as sago thatch (Floyd 1954).

Final POc **-q* of **nipaq* is attested by the presence of paragogic *-i* in Saliba, which occurs only after a present or earlier word-final consonant.

PAn **nipaq* ‘*Nypa fruticans*’ (Wolff 1994: 532-533)

POc **nipaq* ‘*Nypa fruticans*’ (Chowning 2001: 84)

PT:	Suau (Saliba)	<i>lihai</i>	(<i>l-</i> for <i>*n-</i> unexpected)
MM:	Nduke	<i>niva</i>	‘ <i>Nypa fruticans</i> ’
MM:	Kia	<i>nifa</i>	‘ <i>Nypa fruticans</i> ’ (W. McClatchey, pers. comm.)
MM:	Kokota	<i>nifa</i>	‘palm sp.; has enormous multiple fruit’
MM:	Maringe	<i>nhiva</i>	‘ <i>Nypa fruticans</i> ’ (W. McClatchey, pers. comm.)
SES:	Gela	<i>niva</i>	‘sago palm sp. smaller than <i>sao</i> ’
SES:	Kwara’ae	<i>niva</i>	‘ <i>Nypa fruticans</i> ’ (Whitmore 1966)

4.6 *Xylocarpus* spp. (syn. *X. obovatus*, *Carapa obovata*), puzzlenut tree (Meliaceae)

Xylocarpus granatum and *X. moluccensis* are foreshore trees or shrubs, with a trunk 3–15 metres tall and up to 70 cm in diameter. The wood is reddish and the old bark peels off to reveal new, papery bark inside. Both are widespread between mangrove stands and near the beach. *X. granatum* has smaller fruit than *X. moluccensis*, which has a large red fruit with flesh surrounding a seed which is triangular-pyramidal in shape and 5–8 cm across. The fruit of *X. moluccensis* hangs heavily and is larger than the fruits of other trees, earning the tree the name ‘testicles tree’ in Kwara’ae (*faʻi lalato*; Kwa’ioloa & Burt 2001: 122) and in Uripiv (*n-ai laslas*; J. Lynch, pers. comm.).⁵ The fruit is divided into four quadrants, each containing 3–5 irregular woody seeds (Johns 1976: 206). The seeds are used by children as a puzzle, the goal of which is to put the fallen seeds together as a ball (Peekel 1984: 285). Hence the English label ‘puzzlenut’.

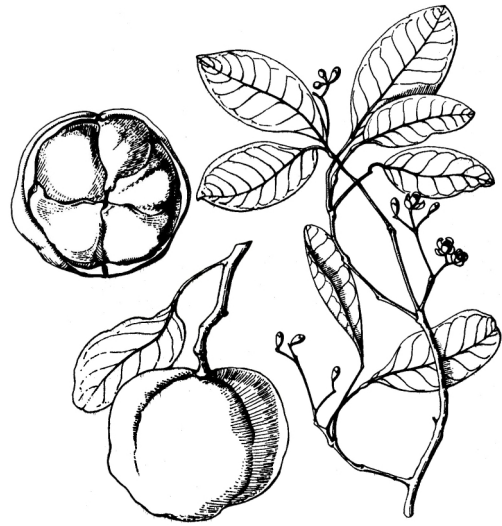


Figure 6.6 *Xylocarpus granatum*, puzzlenut tree: leaves flowers and fruit.

POc **tapi(l)* is problematic because only the Muyuw reflex has a secure gloss, and because Gela *tavili*—if it is cognate—reflects a POc final consonant and a paragogic *-i*, suggesting that it is a loan from a nearby NW Solomonic language. The only secure reconstruction is PCP **legi-legi* ‘puzzlenut tree, *Xylocarpus granatum*’.

POc **tapi(l)* ‘puzzlenut tree, *Xylocarpus granatum*’ (?)

PT:	Muyuw	<i>tavi</i>	‘ <i>Xylocarpus granatum</i> ’ (Damon 2004)
SES:	Gela	<i>tavili</i>	‘mangrove species’
NCV:	Lemerig	<i>n-?av-?av</i>	‘ <i>Rhizophora</i> sp.’

PCP **legi-legi* ‘puzzlenut tree, *Xylocarpus granatum*’ (Biggs 1965)

Fij:	Rotuman	<i>leki-leki</i>	‘ <i>Xylocarpus granatum</i> ’
Fij:	Wayan	<i>legi-legi</i>	‘ <i>Xylocarpus granatum</i> ’
Fij:	Bauan	<i>legi-legi</i>	‘ <i>Xylocarpus granatum</i> ’

PPn **leki-leki* ‘puzzlenut tree, *Xylocarpus* sp.’

Pn:	Tongan	<i>leki-leki</i>	‘ <i>Xylocarpus granatum</i> and <i>X. moluccensis</i> ’
Pn:	Samoan	<i>leʻi-leʻi</i>	‘ <i>Xylocarpus moluccensis</i> ’

⁵ These items may reflect a PEOc etymon with a form something like **kayu ni laso-laso*, but it is also possible that the Kwara’ae and Uripiv terms are independent coinages.

7 *Wild plants of primary lowland tropical rain forest*

MALCOLM ROSS

1 Introduction

This chapter focuses principally on the lowland tropical rain forests of New Britain and New Ireland, the large islands of the Bismarck Archipelago, as these are the forests whose margins—at the very least—would have been familiar to Proto Oceanic (POc) speakers. It would be appropriate also to include the rain forests of the Admiralties, but little is known about them (World Wildlife Fund 2007a). Some attention is also given to the other islands of NW Island Melanesia, namely Bougainville and the Solomons, as they were occupied by speakers of early Oceanic dialects which were perhaps barely distinct from POc.

Also included here are trees which grow in freshwater swamp forest, a habitat that is not common in the Bismarcks, though more widespread in Bougainville and parts of the Solomons (ch.2, §3.1.3). Excluded are (i) plants that mainly occur in littoral forest (see chapter 5) and (ii) plants that occur in the wild but are also tended or cultivated to some degree (see chapters 9–11 and 13).

In POc times, the Bismarcks would have been almost completely covered in rain forest, and much of their area remained so until 30 years ago, although there were of course substantial portions of secondary forest resulting from the agricultural activities of Oceanic speakers over 3000 years (ch.2, §3.2).¹

Although New Britain and New Ireland have two distinct soil types, one limestone-based, the other volcanic, there is surprisingly little difference in their species composition. Major lowland rain forest tree genera include *Pometia*, *Octomeles*, *Alstonia*, *Camptosperma*, *Canarium*, *Dracontomelon*, *Pterocymbium*, *Cryptocarya*, *Intsia*, *Ficus*, *Terminalia* and *Vitex*.

¹ Much of the primary forest with which this chapter is concerned has disappeared in the past quarter-century, logged and replaced by coconut, oil palm and timber plantations. Surveys conducted in 1993–94 indicated that the few remaining natural portions of lowland forest on New Britain's north coast were in danger, and it was predicted that without active conservation all of the lowland forest of New Ireland would be selectively logged within a few years. There is already almost no primary forest left on the St Matthias Islands (World Wildlife Fund 2007b).

Compared with mainland New Guinea the overall diversity of tree species in Bismarcks lowland forests is not impressive. Missing are the two conifers *Araucaria hunsteinii* and *A. cunninghamii* that tower above the lowland broadleaf forests in New Guinea. The dipterocarps (Dipterocarpaceae) that dominate much of peninsular and island southeast Asia are represented by only three species in New Guinea, and probably not at all in the Bismarcks (World Wildlife Fund 2007b).

Freshwater swamp forests on New Britain and New Ireland include *Camptosperma brevipetiolata* (§4.1), *Terminalia brassii*, the sago palm (*Metroxylon sagu*), and species of *Pandanus*. Limestone forests near the coast of southern New Ireland and along the coast and interior of New Britain are dominated by *Vitex cofassus* (World Wildlife Fund 2007b).

2 Rain forest layers

A rain forest typically has four or five layers (opinions differ on the division of the lower layers), and these provided the basis for the organisation of this chapter.²

The tallest trees, spaced well apart, jut out above the forest canopy with umbrella-shaped crowns at heights of over 50 m. These **emergent trees**, treated in §3, have straight, smooth trunks with few branches. They need to be able to withstand high temperatures and drying winds and tend to have small, pointed leaves. Some species lose their leaves during the brief dry season in monsoon rainforests.

The **canopy** (§4) contains a majority of the larger trees, typically 30–50 m tall, and its adjacent treetops provide a more or less continuous cover of broad-leaved evergreen foliage. The branches of the upper portion of the canopy often support a rich flora of epiphytes, including orchids, mosses, and lichens. The canopy receives plenty of sunlight, but allows only a small amount to penetrate to the layers below. The leaves are formed in such a way as to allow rain to run off. This keeps them dry and prevents mold and mildew from forming in the humid environment. Many canopy tree species have large buttresses at the base of the trunk. Formerly believed to help support the tree, it is now believed that the buttresses channel dissolved nutrients to the shallow root system.

The **understorey** has two parts: a **lower canopy** (§5) consisting of trees around 20 m in height and a **shrub layer** (§6) of small trees, shrubs, herbs and ferns able to survive on the 5% of sunlight which reaches the understorey. Understorey plants tend to have large leaves in order to catch as much as possible of the sparsely dappled sunlight: they are largely protected from winds which would damage large leaves in the canopy. Some trees have larger leaves when they are shorter but smaller leaves when they reach canopy height. Large woody vines climb the trees to capture sunlight. There is little air movement and constantly high humidity in the understorey.

The **forest floor** (§7) receives only 2% of the rainforest's sunlight, and only specially adapted plants can grow under these conditions. Away from river banks, swamps and clearings, where dense undergrowth is found, the forest floor is relatively empty of vegetation. It also contains decaying plant and animal matter, which decays rapidly in the warmth and humidity to be absorbed by the trees' shallow roots. Many forms of fungi grow here, assisting in the decay.

² This section owes much to Benders-Hyde (2000). The assignment of plants to the various layers in subsequent sections is largely due to Conn & Damas (2006).

3 Emergent trees

Emergent trees are those which regularly grow to 50 m or more. There are also a number of canopy trees that grow taller and acquire emergent status in some localities. These are noted in the various subsections of §4.

3.1 *Alstonia scholaris*, milky pine, canoe tree, TP *kanu* (Apocynaceae)

Alstonia scholaris is an emergent or tall canopy tree, growing straight to a height of 30–50 m or more, with few branches on its trunk. It grows only in the forest, often near rivers (Hviding 2005: 146). It is a salient tree in the Bismarcks and the Solomons, but it is rare in Remote Oceania, probably because its use there in constructing large canoes has put the survival of at least taller specimens under pressure (W. McClatchey, pers. comm.).

The straight trunk with its lightweight wood is used in many locations for making canoes, for beams, for shark-trap and fishing-net floats and for carving (Powell 1976, Peekel 1984: 441, Hviding 2005: 146). At Teop (north Bougainville), the tree is known simply as *sinivi* ‘canoe’ (Record 1945). Wood from buttresses was used for the tall prows of Marovo war canoes.

On New Britain the latex is said to relieve colds (Floyd 1954). At Marovo the sap or bark scrapings boiled in water is a medicine for stomach ache.

At Marovo too, the dead were commonly buried in a sitting position between the buttresses of *A. scholaris*, and so it was associated with the departure of the spirits of the dead, resulting in taboos against felling it.

A PMP form for ‘*A. scholaris*’, namely **ditah*, is reconstructable (ACD), but I have found no Oceanic reflexes of this. Despite their apparent variation, the reflexes of POC **sabakap* below are largely regular. Kara, Patpatar and Nehan reflect regular loss of **-k-* but retain the final consonant. NNG languages, Nakanai and SES languages lose the final consonant. The Choiseul languages Varisi, Avasö, Ririo, Babatana and Sisingga reflect Proto Northwest Solomonic **bayava* (for †**abayava*) in which initial **s-* is lost through lenition (a sporadic process) and the final consonant is retained with the addition of an echo vowel.

POC **sabakap* ‘*Alstonia scholaris*’ (Chowning 2001: 84)

NNG:	Longeinga	<i>samvaga</i>	‘ <i>Alstonia scholaris</i> ’ (Panoff 1972)
NNG:	Kairiru	<i>sabok</i>	‘ <i>Alstonia scholaris</i> ’
MM:	Nakanai	<i>sabaka</i>	‘ <i>Alstonia</i> sp.’
MM:	Kara (E)	<i>savəf</i>	‘ <i>Alstonia scholaris</i> ’ (<i>-f</i> unexplained)
MM:	Patpatar	<i>sabau</i>	‘ <i>Alstonia scholaris</i> ’ (<i>-u</i> unexplained)
MM:	Nehan	<i>habau</i>	‘ <i>Alstonia scholaris</i> ’ (<i>-u</i> unexplained)
MM:	Varisi	<i>bayava</i>	‘ <i>Alstonia scholaris</i> ’ (W. McClatchey, pers. comm.)
MM:	Avasö	<i>boava</i>	‘ <i>Alstonia scholaris</i> ’ (W. McClatchey, pers. comm.)
MM:	Ririo	<i>boʔo</i>	‘ <i>Alstonia scholaris</i> ’ (W. McClatchey, pers. comm.)
MM:	Babatana	<i>bua</i>	‘ <i>Alstonia scholaris</i> ’ (W. McClatchey, pers. comm.)
MM:	Sisingga	<i>bayava</i>	‘ <i>Alstonia scholaris</i> ’ (W. McClatchey, pers. comm.)
SES:	Gela	<i>habaga</i>	‘ <i>Alstonia scholaris</i> ’
SES:	Kwaio	<i>tabaʔa</i>	‘ <i>Alstonia scholaris</i> ’
SES:	Kwara’ae	<i>tabaʔa</i>	‘ <i>Alstonia scholaris</i> ’
SES:	Ulawa	<i>tabaʔa</i>	‘ <i>Alstonia scholaris</i> ’

3.2 *Falcataria moluccana* (syn. *Albizia falcataria*, *A. moluccana*, *A. falcata*,
Paraserianthes falcataria) (Mimosaceae)

F. moluccana was until recently known as *Albizia falcataria*. Because there are items in the data glossed ‘*Albizia* sp.’ which may in fact denote *F. moluccana*, the genera *Falcataria* and *Albizia* are handled together here.

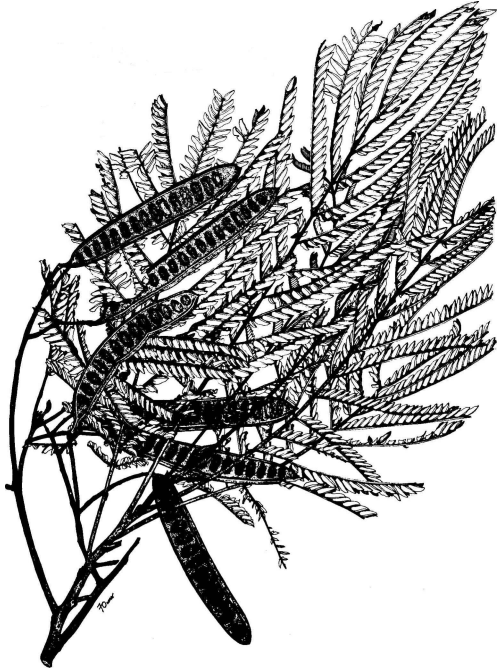


Figure 7.1 *Falcataria moluccana*.

The small-leaved crown of *Falcataria moluccana* emerges above all other trees in Bismarcks rain forests. It grows to between 30 and 60 m in height with a trunk up to 1 m in diameter (Peekel 1984: 207–208), but it is brittle and can come crashing to the ground (W. McClatchey, pers. comm.).

On New Britain and on Manus its trunk is used for canoe hulls, on New Britain also for slitgongs (Powell 1976, Arentz et al. 1989: 94, O’Collins & Lamothe 1989). However, McClatchey points out that it does not serve these purposes well, as objects made from it don’t last. It is more likely to be given to learner carvers or canoe-makers for practice.

The reconstruction of a term (or terms) for *F. moluccana* is difficult. Kwa’ioloa & Burt (2001: 107), discussing the similar *Albizia salomonensis* on Malaita, say that it only grows close to rivers and prefers sandy soils. If the same is true of *F. moluccana*, then its occurrence in Bismarcks rain forests three thousand years ago may have been rather rare, resulting in the frequent loss of in-

herited terms for the species. Alternatively, the fact that it has little use may account for the dearth of cognates (ch.14, §2).

All three reconstructions below entail uncertainties. POc **babak* has just two reflexes. With regard to POc **pail* and **kai(k)*, POc vowel sequences like **-ai-* were fairly rare, and it is possible that **q* intervened between **a* and **i*, but **-q-* is reflected in none of the modern languages nor in the CMP cognates which support the reconstruction of PCEMP **bail*³ and **ka(w)iak*.⁴ The latter is reconstructed with an uncertain medial *-w-*, reflected in E Sumba *kawia[ka]*. If *-w-* was present at an earlier stage, it is irregularly lost in Nakanai *kai*.

POc **babak* ‘*Falcataria moluccana*’

Adm:	Bipi	<i>pap</i>	‘ <i>Falcataria moluccana</i> ’
MM:	Kara (E)	<i>vavak</i>	‘ <i>Falcataria moluccana</i> ’

³ The reconstruction of PCEMP **bail* ‘*Falcataria moluccana* or *Albizia* sp.’ is supported by the Oceanic data here, by Ambai (EMP, Yapen) *bai* ‘*Falcataria moluccana*’ (Price & Merasi n.d.), and by CMP items given by Verheijen (1990: 189): Far-east Manggarai (Lengkosambi) *wail*, Far-east Manggarai (Mulu) *fail*, Rembong *faé*, Rongga, Ngadha, Ende *fai*, Sika (*ai*) *béi*, Solorese *baé*, all *Albizia chinensis*.

⁴ The reconstruction of PCEMP **ka(w)iak* ‘*Albizia* sp.’ is supported by Nakanai (MM) *kai* and by CMP items given by Verheijen (1990: 189): Kepo, Razong, Rembong *kaé*, Waerana *kaék*, E Sumba *kawia[ka]*, all *Albizia chinensis*.

PCEMP **bail* ‘*Falcataria moluccana* or *Albizia* sp.’

POc **pail* ‘*Falcataria moluccana*’

Adm:	Nyindrou	<i>bei</i>	‘ <i>Falcataria moluccana</i> ’
NNG:	Lukep (Pono)	<i>pai-pai</i>	‘tree sp. with light wood used for making canoe’s outrigger’
MM:	Tolai	<i>vail-ail</i>	‘a beach tree, <i>Pongamia pinnata</i> ’
MM:	Nehan	<i>puil</i>	‘ <i>Falcataria moluccana</i> ’ (- <i>ui-</i> for †- <i>ei-</i>)
MM:	Babatana	<i>va-vae (miga)</i>	‘ <i>Albizia saman</i> ’ (introduced from S America)
MM:	Kia	<i>fai</i>	‘ <i>Falcataria moluccana</i> ’ (W. McClatchey, pers. comm.)
SES:	Longgu	<i>pai</i>	‘tree sp. used to make canoes’
SES:	Kwara’ae	<i>fai</i>	‘ <i>Falcataria moluccana</i> ’

PCEMP **ka(w)iak* ‘*Albizia* sp.’

POc **kai(k)* ‘*Albizia* sp.’

MM:	Nakanai	<i>kai</i>	<i>Albizia</i> sp. (Floyd 1954)
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3.3 *Octomeles sumatrana*, TP *erima* (Datiscaceae)

Octomeles sumatrana is one of the tallest trees in the Bismarck Archipelago and Bougainville, at 40–80 m tall with huge buttresses, above which the trunk of soft white wood is up to 2.5 m in diameter (Peekel 1984: 391). The nectar-rich flowers attract flying foxes (Record 1945). The wood is widely used in the Bismarcks to make canoes (Floyd 1954, Peekel 1984: 391, Arentz et al. 1989: 93, Floyd 1954, Bugenhagen & Bugenhagen n.d.).

O. sumatrana is apparently of little significance in the Solomons (Whitmore 1966)⁵ and does not occur at all in Vanuatu, to judge from its absence from Gowers (1976) and Wheatley (1992).

The reconstruction below is for PWOC only, but this is not surprising in view of the tree’s limited distribution. Two versions of the reconstruction are supported, **kuRim(a,o)* and **iRim(a,o)*. They overlap geographically, and their initial syllables may simply reflect different prefixes (ch.2, §7.1.2).

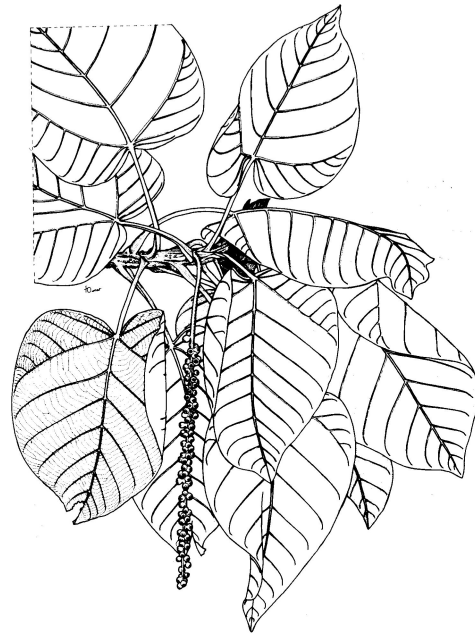


Figure 7.2 *Octomeles sumatrana*.

⁵ It is absent from Henderson & Hancock (1988), Kwa’ioloa & Burt (2001) and Hviding (2005).

PWOC **kuRim(a,o), *iRim(a,o)* ‘*Octomeles sumatrana*’ (ACD: **iRimo*)

NNG:	Mangap	<i>kurimi</i>	‘ <i>Octomeles sumatrana</i> ’
NNG:	Yabem	<i>(ka)kelim</i>	‘tree with large leaves and thick, strong trunk’ (identified as <i>Octomeles</i> sp. by Lane-Poole 1925)
PT:	Motu	<i>irimo</i>	‘tree sp. from which canoes are generally made’
PT:	Ubir	<i>irim</i>	‘tree sp., used for canoes’
PT:	Tawala	<i>ilimo</i>	‘large tree sp., used for war canoes’
MM:	Nakanai	<i>(ko)imu</i>	‘ <i>Octomeles sumatrana</i> ’ (zero for †-l- < *-R-)
MM:	Kara (E)	<i>ima</i>	‘ <i>Octomeles sumatrana</i> ’
MM:	Madak	<i>ima</i>	‘tree sp.’
MM:	Patpatar	<i>irime</i>	‘ <i>Octomeles sumatrana</i> ’
MM:	Tolai	<i>irima</i>	‘ <i>Octomeles sumatrana</i> ’
MM:	Label	<i>irimu</i>	‘ <i>Octomeles sumatrana</i> ’
MM:	Teop	<i>inimo</i>	‘ <i>Octomeles sumatrana</i> ’ (Record 1945)
MM:	Babatana	<i>vurima</i>	‘ <i>Octomeles sumatrana</i> ’ (McClatchey et al. 2005)

4 The forest canopy

As a rough rule of thumb, trees of the forest canopy are assumed to be those which grow to between 30 and 50 m. There are also several species, noted in the subsections of §5, which are usually sub-canopy trees but which grow taller in some localities and become part of the canopy itself.

Certain trees of the forest canopy are treated elsewhere in this volume. Strangler figs become part of the forest canopy by using an existing tree as host to piggyback their way into the light (ch.10, §4). *Canarium* species and *Terminalia* species, especially *T. kaernbachii*, and *Pometia pinnata*, are canopy trees in the Bismarcks, but have also long been cultivated, the first two for their nuts and *P. pinnata* for its fruit, and are thus treated in ch.11 (§§2.1, 2.4 and 3.5 respectively).

There are several canopy trees that are only reported from lowland rain forests in the Solomons but not in the Bismarcks, and for some of these no POC term can be reconstructed. This is perhaps significant, given that the POC homeland is believed to have been in the Bismarcks (vol.2, ch.2). These trees are *Gmelina moluccana*, *Pterocymbium* species, *Schizomeria serrata* and *Terminalia calamansanai* (Mueller-Dombois & Fosberg 1998: 53–54).

4.1 *Camposperma brevipetiolatum* (Anacardiaceae)

Camposperma brevipetiolatum is a large canopy tree, growing up to 50 m in height. Its straight smooth trunk has a cylindrical bole, usually up to 1.2 m in diameter and occasionally as much as 2 m (Conn & Damas 2006).

The Bola of New Britain use it for canoe hulls (Powell 1976). The Marovo consider it inferior to *Gmelina moluccana* for this purpose, but good for house planks (Hviding 2005: 134).

C. brevipetiolatum is apparently not found in Remote Oceania, and its distribution in the Bismarcks and the Solomons seems to be patchy, as it is missing from the usually very thorough Peekel (1984) and Henderson & Hancock (1988). There is just one weakly supported POC term for the species, namely **olaja*.

POc **olaŋa* *Camptosperma brevipetiolatum*

Adm: Bipi	<i>laŋ</i>	‘ <i>Camptosperma brevipetiolatum</i> ’ (O’Collins & Lamothe 1989)
Adm: Nyindrou	<i>lam</i>	‘ <i>Camptosperma brevipetiolatum</i> ’ (O’Collins & Lamothe 1989)
MM: Marovo	<i>olaŋa</i>	‘ <i>Camptosperma brevipetiolatum</i> ’

4.2 *Cinnamomum* spp., wild cinnamon (Lauraceae)

Trees of the genus *Cinnamomum* grow to 30 m. They are known for their barks, which are widely processed to make spices and to extract essential oils. Only one of the items in the cognate set supporting POc **m*^(w)*aso(q)u* ‘*Cinnamomum* sp.’ includes a species-level identification within the genus *Cinnamomum*: Lou *moso* is glossed as *C. xanthoneuron*, a ‘wild cinnamon’. This is not one of the three species that provide commercial cinnamon bark,⁶ but one of two tree species exploited by German traders on the north coast of New Guinea under German colonial rule and into the 1930s for their essential oils. The other was not a *Cinnamomum* species but *Cryptocarya aromatica* (syn. *C. massoy*, *Massoia aromatica*), and there was much confusion as to which oil came from the bark of which tree. The oils from these two species are known as lawag oil and massoia oil.⁷ It is possible that Mager’s gloss of the Bing and Gedaged reflexes as *Cryptocarya aromatica* reflects this confusion and that the intended denotatum was *Cinnamomum xanthoneuron*. At any rate, it seems likely that POc **m*^(w)*aso(q)u* did indeed denote *C. xanthoneuron*. The fragrance of *C. xanthoneuron* (and/or *Cryptocarya aromatica*) bark was known to the traditional residents of north New Guinea and the Bismarcks, as Mager (1952: 204) reports in his gloss of the Gedaged and Bing items,

The bark is used a great deal in sorcery. It is chewed and spit [sic] out into the face of the spirits, so as to drive them away. A piece of bark is carried in the net bag to keep evil spirits from harming the child.

Arentz et al. (1989: 92) also report that on New Britain the bark is consumed as a medicine against fever and stomach pain.

POc **m*^(w)*aso(q)u* has cognates in the languages of Java: Sundanese *maŋsoi*, Javanese *masoyi*, *masogi*, Madurese *masoji*, all denoting massoia oil rather than a tree species. The species label ‘*massoy*’ and the term ‘massoia’ are probably derived from the Javanese term, but, as a result of the confusion between the two oils, are applied to *Cryptocarya aromatica*, syn. *massoy*, and its essential oil, rather than to *Cinnamomum xanthoneuron*. It seems likely, incidentally, that Are *masoyi* (for †*masou*) is a borrowing, perhaps indirectly, from Javanese, rather than a directly inherited reflex of **m*^(w)*aso(q)u*.⁸

⁶ They are *C. cassia*, Cassia cinnamon, *C. zeylanicum*, Ceylon cinnamon and *C. saigoncum*, Saigon cinnamon.

⁷ The history of this confusion is recounted in the September 2000 *Newsletter* of the company Essentially Oils (http://www.essentiallyoils.com/Newsletters/2000/September_2000_Newsletter/september_2000_newsletter.html, accessed 8 November 2007), citing Meijer (1940), who clarified the origins of the two oils.

⁸ POc *-*q*- is lost in Are. I do not know how a Javanese term might have found its way into Are—perhaps the name arrived in New Guinea with traders and spread along with its valued denotatum.

The reflexes of POc **m^(w)aso(q)u* reveal a further set of complications. (Blust 1981a) glosses the Lou and Nauna terms ‘*Cananga odorata*’ (§5.2), rather than a *Cinnamomum* species, and this is also the gloss of the Meso-Melanesian reflexes. Fijian has two terms: Bauan *maḏou* ‘wild cinnamon, *Cinnamomum* sp.’ and Bauan *makosoi*/Wayan *mākosoi*, both ‘*Cananga odorata*’. The latter appear to be metathesised forms of a PCP compound **m^(w)aso-koi* ‘perfume tree, *Cananga odorata*’.⁹ This raises the possibility that POc **m^(w)aso(q)u* denoted *C. odorata* as well as cinnamon, i.e. that it denoted a taxon of perfumed trees. PCP then seems to have distinguished between **m^(w)aso* ‘cinnamon’ and **m^(w)aso-koi* ‘*C. odorata*’.

The possibility that there was such a taxon is strengthened by an observation by Will McClatchey (pers. comm.) that the quote from Mager above could also be applied to the Fijian and Western Polynesian use of *C. odorata*.

The Meso-Melanesian forms below, apparently reflecting PMM **mud(e)u* (rather than †**moso(u)*) are problematic. They may reflect a PMM borrowing or a non-cognate chance resemblance.

POc **m^(w)aso(q)u* ‘wild cinnamon, *Cinnamomum* sp., probably *C. xanthoneuron*; possibly also *Cananga odorata*’ (Milke 1968)

Adm:	Mussau	<i>mosou</i>	‘wild cinnamon, <i>Cinnamomum</i> sp.’
Adm:	Lou	<i>moso</i>	‘tree with redolent bark, the cinnamon, <i>Cinnamomum xanthoneuron</i> ’
Adm:	Baluan	<i>m^wasow</i>	‘wild cinnamon, <i>Cinnamomum</i> sp.’
Adm:	Nauna	<i>moso</i>	‘ <i>Cananga odorata</i> ’ (Blust 1981a)
NNG:	Maenge	<i>miau</i>	‘ <i>Cinnamomum</i> sp.’
NNG:	Kove	<i>modou</i>	‘aromatic plant, possibly cinnamon, used in healing’ (A. Chowning, pers. comm.)
NNG:	Yabem	<i>mosi</i>	‘wild cinnamon, <i>Cinnamomum</i> sp.’
NNG:	Bing	<i>miyou</i>	‘ <i>Cryptocarya aromatica</i> ’ (Mager 1952: 204)
NNG:	Gedaged	<i>mio</i>	‘ <i>Cryptocarya aromatica</i> ’ (Mager 1952: 204)
NNG:	Megiar	<i>muyou</i>	‘cinnamon bark’ (Kaspruś 1945)
PT:	Are	<i>masoyi</i>	‘wild cinnamon, <i>Cinnamomum</i> sp.’ (borrowed ?)
MM:	Kara (E)	<i>mədeu</i>	‘ <i>Cananga odorata</i> ’
MM:	Nehan	<i>mudu-mud</i>	‘ <i>Cananga odorata</i> ’
MM:	Varisi	<i>mudu-mudu</i>	‘ <i>Cananga odorata</i> ’ (McClatchey et al. 2005)
MM:	Ririo	<i>mud-mud</i>	‘ <i>Cananga odorata</i> ’ (W. McClatchey, pers. comm.)
MM:	Babatana	<i>mudu-mudu</i>	‘ <i>Cananga odorata</i> ’ (McClatchey et al. 2005)
MM:	Nduke	<i>mu-mudu</i>	‘ <i>Cananga odorata</i> ’
MM:	Marovo	<i>mudu</i>	‘a tree of the secondary forest, with yellow fragrant flowers that are used in coconut oil’
Fij:	Bauan	<i>maḏou</i>	‘wild cinnamon, <i>Cinnamomum</i> sp.’

PCP **m^(w)aso-koi* ‘perfume tree, *Cananga odorata*’ (Milke 1961)

Fij:	Wayan	<i>mākosoi</i>	‘ <i>Cananga odorata</i> ’ (metathesis)
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⁹ Geraghty (2004: 86–87) suggests that the Fijian form *makosoi* can be analysed as *mako* ‘a forest tree, *Cyathocalyx* sp.’ and *soi*, perhaps ‘cut’. In view of the cognate set given here it seems more likely that the Fijian form reflects metathesis, perhaps as a result of folk-etymologising. However, on this hypothesis Fijian *-s-* (for †*-ḏ-*) remains unexplained.

Fij:	Bauan	<i>makosoi</i>	‘ <i>Cananga odorata</i> ’ (metathesis)
PPn	* <i>mosokoi</i> ‘ <i>Cananga odorata</i> ’		
Pn:	Tongan	<i>mohokoi</i>	‘ <i>Cananga odorata</i> ’
Pn:	E Futunan	<i>mosokoi</i>	‘ <i>Cananga odorata</i> ’
Pn:	Tikopia	<i>mosokoi</i>	‘ <i>Cananga odorata</i> ’
Pn:	Samoan	<i>moso?oi</i>	‘ <i>Cananga odorata</i> ’
cf. also:			
SES:	Kwara’ae	<i>mudu</i>	‘ <i>Dillenia ingens</i> ’
Fij:	Rotuman	<i>moskoy</i>	‘tree with greenish-yellow flowers and clusters of fruit; timber used for canoes’ (Polynesian borrowing)

4.3 *Dillenia schlechteri* (syn. *Dillenia macrophylla*) (Dilleniaceae)

There are many *Dillenia* species in SE Asia and Oceania, some of them tall canopy trees, others smaller trees of the lower canopy.¹⁰ Only one species is reported from the Bismarcks (Peekel 1984: 375, Conn & Damas 2006), *Dillenia schlechteri*, a canopy tree 30–50 m tall with a light red trunk. However, there is linguistic evidence in the form of POc **drokol* (§5.4) that at least one sub-canopy species was known to POc speakers.

In the Admiralties *D. schlechteri* is used for house construction. The timber is said to last over 30 years if it is not exposed to the elements (O’Collins & Lamothe 1989).

The second and third vowels and the possible final consonant of POc **kulapu(R)* ‘*Dillenia schlechteri*’ are due to the reconstruction of PMP **kelabuR* ‘large *Dillenia* species’ on the basis of the data below and of Blit Manobo *klambug (daka)* ‘*D. megalantha*’ (cf §5.4), Bagobo *kalambok*, Lanao *kalambuguy*,¹¹ both ‘*D. philippensis*’ (Madulid 2001b: 100).

PMP **kelabuR* ‘large *Dillenia* species’

POc **kulapu(R)* ‘*Dillenia schlechteri*’

Adm:	Nyindrou	<i>kun</i>	‘ <i>Dillenia</i> sp.’
MM:	Patpatar	(<i>e</i>) <i>kulap</i>	‘ <i>Dillenia schlechteri</i> ’
Fij:	Bauan	<i>kuluva</i>	‘ <i>Dillenia biflora</i> ’ (Keppel et al. 2005)
Fij:	Wayan	<i>kulu-kulu</i>	‘ <i>Dillenia biflora</i> ’ ¹²

¹⁰ Two tall *Dillenia* species, *D. papuana* and *D. montana* grow respectively in the lowlands of the southeast peninsula of New Guinea and in the highlands (Conn & Damas 2006). Another, *D. salomonensis*, is reported from the Solomons (Kwa’ioloa & Burt 2001: 140, Hviding 2005: 120). The smaller *D. biflora* is found in Vanuatu and in Fiji (Wheatley 1992: 790, Keppel et al. 2005.)

¹¹ Final *-uy* is unexplained.

¹² Gardner & Pawley (2006) attribute the name to the fact that its leaves are ‘not unlike those of the breadfruit’, since it appears to be a reduplication of Wayan *kulu* ‘breadfruit’ (< POc **kuluR*, ch, 9, §4). The Fijian forms reflect metathesis of the second and third vowels and this has perhaps generated a folk etymology associating the Wayan form with ‘breadfruit’.

4.4 *Dracontomelon dao* (syn. *D. mangiferum*, *D. edule*), New Guinea walnut, Dragon plum, TP *mon*, B *nakatambol* (Anacardiaceae)



Figure 7.3 *Dracontomelon dao*, New Guinea Walnut.

The New Guinea walnut tree, *Dracontomelon dao*, is massive, usually reaching 30–35 m, and occasionally 50 m, in height. It has large buttresses and above the buttresses often has a circumference of 3–5 m. At a height of about 7–10 m the trunk divides into a pair of large branches. Each of them continues to divide upwards and sideways recursively to form a large umbrella-shaped crown. The leaves are made up of 6 to 10 leaflets with a smooth edge (Figure 7.3). The fruit are small, 2–3 cm in diameter, and have five flecks around them. The small amount of flesh around the flattened seed is edible but tart and is consumed fresh (Peekel 1984: 323, French 1986: 238). *Dracontomelon dao* occurs from SE Asia to the Solomons (Walter & Sam 2002: 158).

Bourke (in preparation, n.d.) writes that although *D. dao* was traditionally a significant fruit in the area around Madang, it is unimportant or absent elsewhere in the lowlands of New Guinea. Places where it is recorded as being eaten are the Schouten Islands off the mouth of the Sepik River, some of the small islands in the Admiralties, some islands in SE Papua, the Duke of York Islands (between New Britain and New Ireland), Nissan Island (between New Ireland and Bougainville) and Bougainville. The only report of cultivation comes from French, who says it is sometimes planted from seed.

Two terms are reconstructable: POc **raqu(p)* and PNCV **katabola*. The final bracketed **-p* of **raqu(p)* is added to take account of the final consonants of the Patpatar and Tolai reflexes. However, there are no known non-Oceanic reflexes of **-p*. The PCP **tawa-raqu* ‘*Dracontomelon vitiense*’ contains a reflex of POc **tawan* ‘*Pometia pinnata*’ (ch. 11, §3.5) as its first element, as the fruits of the two plants are similar in appearance (Geraghty 2004: 80).

PAn **daqu* ‘*Dracontomelon dao*’ (Blust 1986)

POc **raqu(p)* ‘New Guinea walnut, *Dracontomelon dao*’

Adm:	Mussau	<i>ra</i>	‘ <i>Dracontomelon dao</i> ’
Adm:	Nyindrou	<i>"rau</i>	‘ <i>Dracontomelon</i> sp.’
Adm:	Baluan	<i>you</i>	‘ <i>Dracontomelon dao</i> ’
NNG:	Lukep (Pono)	<i>rak</i>	‘ <i>Dracontomelon dao</i> ’
NNG:	Takia	<i>rau</i>	‘ <i>Dracontomelon dao</i> ’
MM:	Nakanai	<i>lahu</i>	‘a tall tree (Anacardiaceae) used for planks’
MM:	Tolai	<i>laup</i>	‘ <i>Dracontomelon dao</i> ’ (for † <i>rau</i>)
MM:	Patpatar	<i>loh</i>	‘ <i>Dracontomelon dao</i> ’ (for † <i>ro</i>)

PROc **raqu* ‘dragon plum tree, *Dracontomelon dao*’

NCV:	Mwotlap	<i>ye</i>	‘ <i>Dracontomelon dao</i> ’
NCV:	Mota	<i>rau</i>	‘a fruit tree’
NCV:	Paamese	<i>e-au</i>	‘ <i>Dracontomelon dao</i> ’

NCV:	Lewo	(puru-)lu	' <i>Dracontomelon dao</i> '
NCV:	Namakir	ra?	' <i>Dracontomelon dao</i> '
NCV:	Nguna	na-rau	' <i>Dracontomelon dao</i> '
NCV:	Nguna	na-rau	' <i>Dracontomelon dao</i> '
SV:	Sye	na-ray	' <i>Dracontomelon dao</i> '
SV:	Kwamera	nə-rai	' <i>Dracontomelon dao</i> '

PCP *(tawa)raqu 'dragon plum tree, *Dracontomelon vitiense*'

Fij:	Wayan	(tawa)rau	' <i>Dracontomelon vitiense</i> '
Pn:	Rotuman	(fav)rau	' <i>Dracontomelon vitiense</i> ' (Geraghty 2004: 80)
Pn:	Emae	(tava)rau	' <i>Dracontomelon vitiense</i> ' (Geraghty 2004: 80)
Pn:	W Futunan	(tave)rau	' <i>Dracontomelon vitiense</i> ' (Geraghty 2004: 80)

PNCV *katabola '*Dracontomelon dao*' (Clark 1996a)

NCV:	NE Ambae	gatabola	' <i>Dracontomelon dao</i> '
NCV:	Kiai	atapolo	' <i>Dracontomelon dao</i> '
NCV:	Raga	yatabola	'tree sp.' (Walsh 2004)
NCV:	Tamambo	(vu)hatabola	'tree sp.'
NCV:	Big Nambas	na-hatapul	' <i>Dracontomelon dao</i> '
NCV:	Uripiv	ni-tapol	' <i>Dracontomelon dao</i> '
NCV:	Naman	n-atabal	' <i>Dracontomelon dao</i> '
NCV:	Neve'ei	na-?ateb ^w el	' <i>Dracontomelon dao</i> '
NCV:	Avava	atibol	' <i>Dracontomelon dao</i> '
NCV:	Nese	yatabol	' <i>Dracontomelon dao</i> '

4.5 *Dysoxylum* spp., stinktree, stinkwood, B stingwud (Meliaceae)

A number of *Dysoxylum* species grow in NW Island Melanesia, ranging from the tall canopy tree *D. gaudichaudianum* (syn. *D. amooriodes*) sometimes growing to 35 m, to the sub-canopy tree *D. kaniense*. An important tree between these extremes is *D. arborescens*, also a canopy tree, but usually only 20–30 m high (Wheatley 1992: 157–160, Kwa'ioloa & Burt 2001: 181, Conn & Damas 2006).

A salient feature of all *Dysoxylum* species is their strong smell, which varies from species to species: some are unpleasant, some pleasant (W. McClatchey, pers. comm.). The unpleasant smell of certain *Dysoxylum* species has earned them the English name 'stinktree' or 'stinkwood': when the bark is stripped off and fresh wood is exposed, *D. gaudichaudianum* is said by the Kwara'ae to smell like a man who has not washed and *D. kaniense* to



Figure 7.4 *Dysoxylum arborescens*.

have a smell that induces vomiting (Kwa’ioloa & Burt 2001: 122, 181). Whistler (1991*b*: 93) comments that the leaves have ‘a disagreeable odor’. Despite the smell, the wood of *Dysoxylum* species is a useful hardwood, and the timber of the larger species is widely used for house posts (Floyd 1954, Whistler 1991*b*: 93, Wheatley 1992: 157, 162, Kwa’ioloa & Burt 2001: 122).

POc **maqota* perhaps denoted a taxon including several *Dysoxylum* species. All the species mentioned in the glosses below are tall canopy trees except *Dysoxylum kaniense* and *D. spectabile*, but this is perhaps because the larger species are more widespread and more salient.

Lynch (2001*c*: 242) attributes the SV members of the two cognate sets below to a single PSV etymon **ni-m(d,t)awan*, but they appear to reflect two etyma. PSV **nə-mtaw* reflects metathesis of a variant form **mawota*, also reflected in Bauan Fijian *mavota*. Proto Erakor-Tafea (Lynch 2001*c*: 189) **tuan* is a separate etymon.¹³

POc **maqota* ‘*Dysoxylum* spp.’

PT:	Muyuw	(a)m ^w akot	‘a 20-metre <i>Dysoxylum</i> sp.’
SES:	Kwara’ae	maoa	‘ <i>Dysoxylum kaniense</i> ’
NCV:	Mwotlap	ma-mot	‘ <i>Dysoxylum arborescens</i> ’
NCV:	Mota	ma-maota	‘tree sp.’

PSV **nə-mtaw* ‘*Dysoxylum* sp.’ (Lynch 2001*c*)

SV:	Sye	ni-mtu	‘ <i>Dysoxylum aneityense</i> ’
SV:	Anejoñ	ne-mtav	‘ <i>Dysoxylum aneityense</i> ’
Fij:	Bauan	mavota	‘ <i>Myristica grandiflora</i> ’ (for † <i>maota</i>)
Pn:	Tongan	moʔota	‘taxon of three <i>Dysoxylum</i> spp., but primarily <i>D. forsteri</i> ’ (Whistler 1991 <i>b</i> : 92–93)
Pn:	Niuean	moota	‘tree, <i>Dysoxylum richii</i> , timber used to build main hull of canoe’ (also <i>maota</i>)
Pn:	E Uvean	maʔota	‘ <i>Dysoxylum samoensis</i> ’
Pn:	E Futunan	māʔota	‘shrub sp., <i>Dysoxylum forsteri</i> ’
Pn:	Rennellese	maʔota	‘tree sp., <i>D. gaudichaudianum</i> , valuable for house timbers’
Pn:	Samoan	maota	‘ <i>Dysoxylum</i> spp.’ (Whistler 2000: 181)
Pn:	Takuu	maota	‘hard, red, wood that drifts to Takuu’
Pn:	Māori	māota	‘ <i>Dysoxylum spectabile</i> ’

Proto Erakor-Tafea **tuan* ‘*Dysoxylum* spp.’

NCV:	S Efate	ne-tue	‘ <i>Anthocarapa nitidula</i> ’ (Wheatley 1992: 157)
SV:	Lenakel	ne-tuan	‘ <i>Dysoxylum gaudichaudianum</i> ’
SV:	Kwamera	nə-tuan	‘ <i>Dysoxylum gaudichaudianum</i> ’

¹³ Proto Erakor-Tafea is the immediate putative ancestor of S Efate and Proto Southern Vanuatu.

4.6 *Elaeocarpus* spp. (Elaeocarpaceae)

Elaeocarpus species in NW Island Melanesia include the large canopy trees *E. angustifolius* (syn. *E. sphaericus*) with its distinctively cornflower-blue fruit and *E. floridanus*, more common in the Solomons than the Bismarcks, with dark blue or black fruit (syn. *E. pseudosepikanus*), both 25 or more metres tall, as well as shrub-sized trees of the understorey like *E. edulis* (syn. *Aceratium oppositifolium*), 3–6 m tall, with its 4 x 3 cm ellipsoid apple-red fruit. The fruits of all species are inedible (Peekel 1984: 352–353, Wheatley 1992: 85, Kwa’ioloa & Burt 2001: 123).

The large species provide wood for house beams at various locations (Record 1945, Arntz et al. 1989: 94), but Will McClatchey (pers. comm.) finds that it is not useful in the traditional communities which he has studied.

Although plenty of names for *Elaeocarpus* species have been collected, surprisingly few of them form cognate sets—none at all for POc or Western Oceanic, and one each for PEOc and PSV. The absence of a POc or PWOC term perhaps exemplifies the principle that the names of less useful plants are easily forgotten (§2), so that present-day names reflect new coinages at different island Melanesian localities. Alternatively, it may be that *Elaeocarpus* species were rare in the environments of early Oceanic speakers: the botanical literature suggests that large *Elaeocarpus* species are significant contributors to the canopy of lowland rain forests in Bougainville and the Solomons but not in the Bismarcks where POc was spoken (Paijmans 1976: 64–65, Mueller-Dombois & Fosberg 1998: 53–54, 60–61).

Two reconstructions are presented below. PEOc **melo* ‘*Elaeocarpus angustifolius*’ is supported by just two reflexes, but the languages are sufficiently far apart to preclude borrowing.

PEOc **melo* ‘*Elaeocarpus angustifolius*’

SES:	Kwara’ae	<i>melo</i>	‘ <i>Elaeocarpus angustifolius</i> ’
NCV:	Vera’a	<i>mel</i>	‘ <i>Elaeocarpus angustifolius</i> ’

PSV **na-(s,j)u(v,w)as* ‘*Elaeocarpus angustifolius*’ (Lynch 2004a)

SV:	Sye	<i>ne-yoh</i>	‘ <i>Elaeocarpus angustifolius</i> ’
SV:	Kwamera	<i>nə-suvas</i>	‘k.o. tree with edible seeds in a hairy pod’
SV:	Anejoñ	<i>na-woθ</i>	‘ <i>Elaeocarpus angustifolius</i> ’

4.7 *Endospermum* spp., cheesewood, milkwood, whitewood, PNG basswood, B *waetwud*, *melektri* (Euphorbiaceae)

Within island Melanesia *E. medullosum* (Figure 7.5, left) is present in the Bismarcks, the Solomons and Vanuatu; *E. moluccanum* is reported only from the Bismarcks (Peekel 1984: 313, Wheatley 1992: 91, Hviding 2005: 135). Occasionally an emergent tree, otherwise a large canopy tree up to 45 m high, *Endospermum medullosum* has a markedly fluted bole of 45–100 cm diameter, sometimes crooked, sometimes straight and up to 25 m long. It has a distinctive crown, shallow, flat-topped and umbrella-like. Its distribution is limited by the fact that it does not tolerate shade: it grows well only where there are gaps in the canopy (Thomson 2006a).

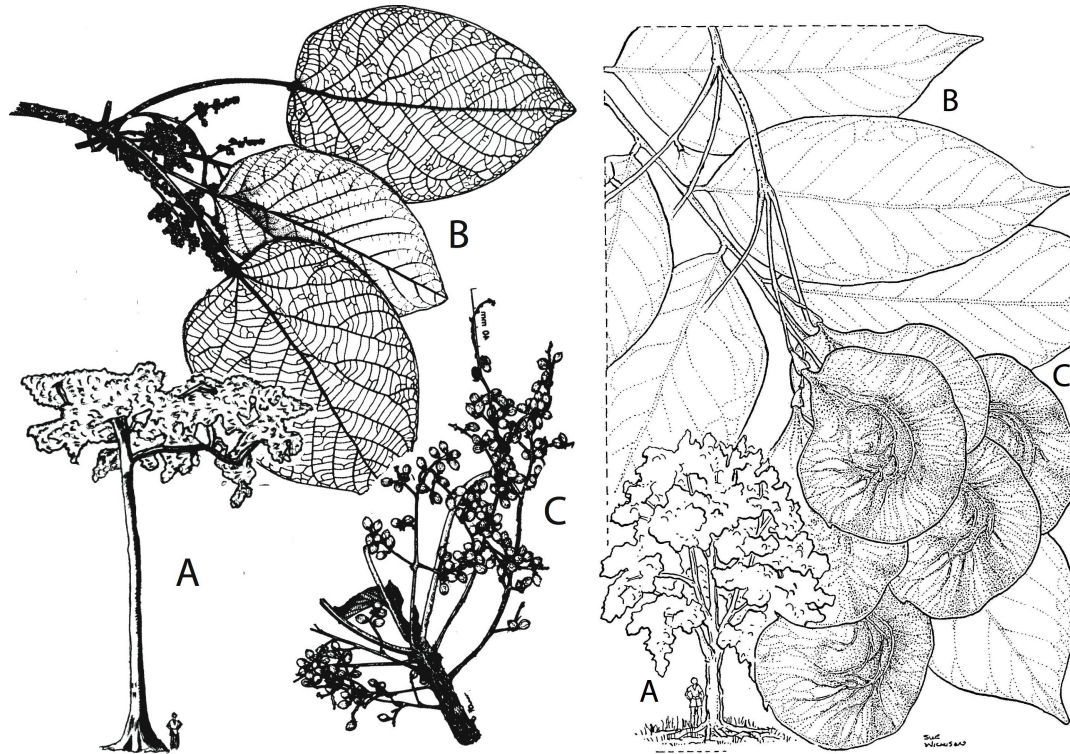


Figure 7.5 Left *Endospermum medullosum*, cheesewood,: A, tree; B, leaves and flowers; C, fruit. Right *Pterocarpus indicus*, New Guinea rosewood: A, tree; B, portion of leaf with leaflets; C, shoot with pods.

A somewhat smaller but similar member of the genus is *E. moluccanum* (syn. *E. formicarum*),¹⁴ sometimes a canopy tree up to 25 m high, sometimes a sub-canopy tree (Conn & Damas 2006).

Both species have lightweight wood that is used for fishing-net floats. Peekel (1984: 315) reports from New Ireland that the pith of the twigs of *E. moluccanum* is usually destroyed by black ants, which inhabit the resulting space. Kwa'ioloa & Burt (2001: 115) report from Kwara'ae that *E. medullosum* is not used in house construction because the wood is eaten by insects.

POc *koma(r,R)(o,u) may have referred to either or both species. Like the large *Elaeocarpus* species (§4.6), *Endospermum* species are not prominent in Bismarcks rain forests, and appear to have undergone a good deal of local re-naming.

POc *koma(r,R)(o,u) 'Endospermum sp.'

MM:	Nakanai	ko-komalu	' <i>Endospermum moluccanum</i> '
NCV:	Mwotlap	no-kom ^w a	' <i>Endospermum</i> sp.'
NCV:	Araki	(vi)kuṇaro	' <i>Endospermum medullosum</i> '
NCV:	Tangoa	(vi)kumaro	' <i>Endospermum medullosum</i> ' (Gowers 1976: 73)
NCV:	Sakao	(du)gomara	' <i>Endospermum medullosum</i> ' (Gowers 1976: 73)

¹⁴ Peekel (1984: 313) incorrectly spells it *E. formicarium*.

4.8 *Garuga floribunda* (syn. *G. abilo*), *B namalaus* (Burseraceae)

Garuga floribunda is a canopy tree which grows to a height of up to 25 m in Vanuatu and up to 35 m in Papua New Guinea (Wheatley 1992: 63, Conn & Damas 2006). It has a short bole and steeply rising branches, often with a flat crown (Johns 1976: 195). According to Paijmans (1976: 52) its occurrence is limited to the few locations where there is a marked dry season.

There is apparently a traditional perception that *G. floribunda* resembles the smaller *Spondias cytherea*, noted by Peekel (1984: 283) for New Ireland and reflected in PNCV **mala-usi* ‘*Garuga floribunda*’, reconstructed below. The perception is apparently based on the fact that both trees lose their leaves and are bare between flowering and fruiting. PNCV **mala-usi* consists of a reflex of the POc prefix **mala-* ‘resembling’ (ch.2, §7.1.4) plus PNCV **usi* ‘*Spondias cytherea*’ (ch.11, §3.6), i.e. its original meaning was evidently ‘resembling *Spondias cytherea*’. As noted below, there are also unprefixes of PNCV **usi* which denote *Garuga floribunda*.

PCP **manau* ‘*Garuga floribunda*’, also below, appears cognate with the PNCV form, but the medial consonants do not correspond, suggesting that one of the two forms is the result of borrowing. Since PNCV **mala-* regularly reflects POc **mala-*, but PCP **mana-* (instead of expected †**mala-*) does not, it is the Central Pacific forms that appear to reflect a borrowing.

PNCV **malausi* ‘*Garuga floribunda*’ (from data in Wheatley 1992)

NCV: Mota	<i>m^wa-m^walau</i>	‘ <i>Garuga floribunda</i> ’
NCV: NE Ambae	<i>malawhi</i>	‘ <i>Garuga floribunda</i> ’
NCV: Nduindui	<i>malaouk</i>	‘ <i>Garuga floribunda</i> ’
NCV: Tamambo	<i>(vu)malaus</i>	‘ <i>Garuga floribunda</i> ’
NCV: Tangoa	<i>(vi)malaus</i>	‘ <i>Garuga floribunda</i> ’
NCV: Tolomako	<i>na-malaus</i>	‘ <i>Garuga floribunda</i> ’

PCP **manau* ‘*Garuga floribunda*’

Fij: Wayan	<i>manawī</i>	‘a tree of dry forest, <i>Rhus taitensis</i> ’ ¹⁵
Pn: Tongan	<i>manau</i>	‘ <i>Garuga floribunda</i> ’
Pn: E Futunan	<i>manau</i>	‘large forest tree, <i>Myristica hypargyrea</i> ’
Pn: Samoan	<i>manau</i>	‘a large tree, <i>Garuga floribunda</i> ’ (Whistler 2000: 179)

PNCV **usi* ‘mummy apple, *Spondias cytherea*’ (from data in Wheatley 1992)

NCV: Maewo	<i>o-us</i>	‘ <i>Garuga floribunda</i> ’
NCV: Nduindui	<i>uhi</i>	‘ <i>Garuga floribunda</i> ’
NCV: Tolomako	<i>na-us</i>	‘ <i>Garuga floribunda</i> ’
NCV: Tangoa	<i>(vi)usi</i>	‘ <i>Garuga floribunda</i> ’
NCV: Urupiv	<i>na-us</i>	‘ <i>Garuga floribunda</i> ’

¹⁵ J. Parham (1972: 176) cites *manawi* as a Fijian name (dialect unspecified) for *Rhus simarubaefolia*, so the Wayan term is apparently representative of a pan-Fijian meaning shift.

4.9 *Intsia bijuga* (syn. *I. amboinensis*, *Afzelia bijuga*), ironwood, island teak, TP *kwila*, *B natora* (Cisalpiniaceae)

One of the larger trees of the forests of NW Island Melanesia, *Intsia bijuga* grows 40–45 m tall and sometimes more (Figure 7.6, left). It is common on the foreshore, but also occurs in lowland rain forests (Peekel 1984: 214–216).

I. bijuga is considered one of the strongest and most durable woods in NW Island Melanesia and Vanuatu. It seasons slowly with very little shrinkage and is durable in the ground, resistant to termites and moderately durable in salt water (Gowers 1976: 91). Its uses range from house posts and floorboards to axe handles, slitgongs and wooden bowls (Streicher 1982, Arentz et al. 1989: 94, Whistler 1991b: 125, Hviding 2005: 122, F. Damon, pers. comm.). Damon reports that on Woodlark Island it was used for the steering oars of the large canoes that plied the eastern half of the Kula ring.

Superficially, it looks as if there were two POc terms for *Intsia bijuga*: **toRas* and **qipil*. However, Blust's gloss of PMP **teRas* as 'hard, hardwood' suggests that POc **toRas* too may have denoted 'hardwood' in general or a taxon of hardwood trees, rather than *Intsia bijuga* in particular. This would explain why some of its reflexes denote other hardwood trees. In particular, its Proto Polynesian reflex, **toa*, was reapplied to *Casuarina equisetifolia*. In Muiuw the term *meik*^v is used both for *I. bijuga* and for the hard heartwood of any tree (F. Damon, pers. comm.). Thus one word for hardwood has been replaced by another in naming *I. bijuga*.

It seems that PMP **teRas*/POc **toRas* was, in one of its senses, a stative verb meaning 'hard, durable'. PMic had a stative verb **ma-toa* 'be firm, hard strong' (Bender et al. 2003: 54), and tree-denoting reflexes sometimes occur with verbal morphology. In CMP languages we find W Sumba, E Sumba *kandora*, E Sumba *mandora* '*Calophyllum inophyllum*' (Verheijen 1990: 197), reflecting the PMP stative prefixes **ka-* and **ma-* respectively (Evans & Ross 2001).

Polynesian languages, meanwhile, have reapplied the PCP reflex of POc **pesi* 'a coastal forest tree, perhaps *Pongamia pinnata*' to *Intsia bijuga* (ch.5, §5.12).

PMP **teRas* 'hard; hardwood' (Blust 1972a)

POc **toRas* 'a taxon of hardwood trees including *Intsia bijuga*' (?)

Adm:	Seimat	<i>tor</i>	' <i>Intsia bijuga</i> ' (Sorensen 1950) (-r for † -ŋ: borrowed?)
Adm:	Lou	<i>to</i>	' <i>Intsia bijuga</i> '
NNG:	Kairiru	<i>tor</i>	' <i>Intsia bijuga</i> '
MM:	Sursurunga	<i>toraha</i>	'a hardwood tree'
MM:	Nehan	<i>toraha</i>	'tree sp. with strong yellowish-white wood, used for carving slitgong drums and paddles'
MM:	Halia	<i>tolasa</i>	'same tree sp. as Nehan <i>toraha</i> '
MM:	Petats	<i>tolas</i>	' <i>Vitex monophylla</i> '
MM:	Teop	<i>tora</i>	' <i>Vitex monophylla</i> '
MM:	Maringe	<i>t^hola</i>	'type of large softwood tree; canoe with two upraised ends'

PEOc **toRa(s)* 'a hardwood tree, *Intsia bijuga*'

SES:	Lau	<i>ola</i>	'a canoe built of planks sewn together'
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SES:	Kwara'ae	<i>uʔula</i>	' <i>Intsia bijuga</i> ' (*o > u: irregular change)
SES:	Arosi	<i>ora</i>	'tree sp. from which best canoes are made; plank-built canoe'
NCV:	Mwotlap	<i>no-toy</i>	' <i>Decaspermum neo-ebudicum</i> '
NCV:	Merlav	<i>tor</i>	' <i>Casuarina equisetifolia</i> ' (François 2004)
NCV:	S Efate	<i>na-tor</i>	' <i>Intsia bijuga</i> '
NCV:	Mota	<i>tora</i>	'a timber tree'
NCV:	NE Ambae	<i>tora</i>	' <i>Intsia bijuga</i> '
NCV:	Tamambo	<i>(vu)tora</i>	' <i>Intsia bijuga</i> '
NCV:	Raga	<i>tora</i>	' <i>Intsia bijuga</i> '
NCV:	Atchin	<i>tor</i>	'tree sp., used for canoes, posts, etc.'
NCV:	Nese	<i>na-tor</i>	' <i>Intsia bijuga</i> '
NCV:	Uripiv	<i>na-tor</i>	' <i>Intsia bijuga</i> '
NCV:	Paamese	<i>a-to</i>	'tree sp. with sap which stings'
Fij:	Bauan	<i>doa</i>	'the heartwood of a tree, solid and dark'
PPn * <i>toa</i> ' <i>Casuarina equisetifolia</i> ' (POLLEX)			
Pn:	Niuean	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Tongan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	E Uvean	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	E Futunan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Rennellese	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Emae	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Tikopia	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	W Futunan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Ifira-Mele	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Samoaan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Tahitian	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Tuamotuan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Marquesan	<i>toa</i>	' <i>Casuarina equisetifolia</i> '
Pn:	Māori	<i>toa-toa</i>	' <i>Phyllocladus glaucus</i> '

The inherited meaning of POc **qipil* was apparently '*Intsia bijuga*', but the glosses of its reflexes suggest that it also denoted '*Casuarina equisetifolia*'. Note that 'ironwood' and '*kwila*' both refer to '*Intsia bijuga*'.

PMP **qipil* 'a hardwood tree, *Intsia bijuga*' (Dempwolff 1938: **ipil*; ACD)

POc **qipil* 'a taxon of hardwood trees including *Intsia bijuga* and *Casuarina equisetifolia*'

ACD: *(q)*ipil*

Adm:	Drehet	<i>?ih</i>	'ironwood'
Adm:	Likum	<i>ih</i>	' <i>Casuarina equisetifolia</i> '
Adm:	Nyindrou	<i>eih</i>	'ironwood'
MM:	Tolai	<i>ip</i>	'tree sp.'
MM:	Teop	<i>ivin</i>	'a hardwood tree, <i>kwila</i> '
MM:	Mon-Alu	<i>ihili</i>	' <i>Intsia bijuga</i> ' (W. McClatchey, pers. comm.)
MM:	Ririo	<i>kivil</i>	' <i>Intsia bijuga</i> '
MM:	Babatana	<i>kivili</i>	' <i>Casuarina equisetifolia</i> '

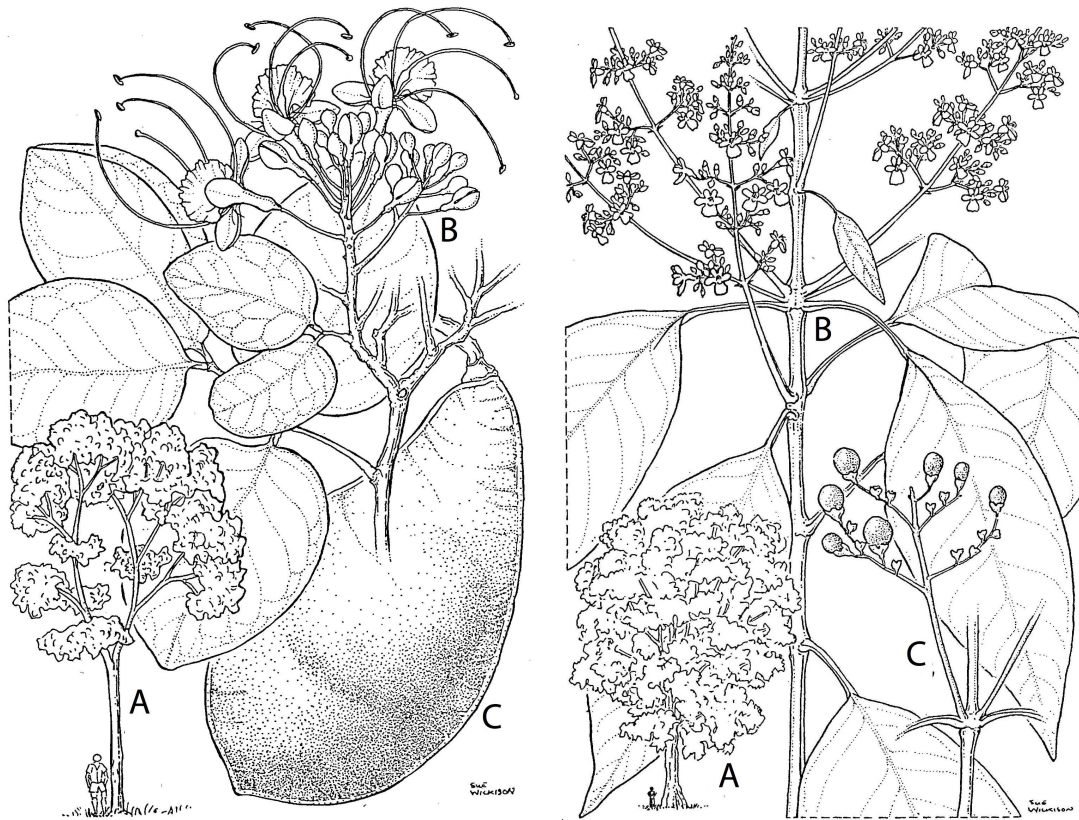


Figure 7.6 Left *Intsia bijuga*, ironwood: A: young tree; B, leaves and flowers; C, seed pod. Right *Vitex cofassus*, New Guinea teak: A, tree; B, flowering stem with leaves and portion of terminal inflorescence; C, portion of fruiting inflorescence and stem.

MM:	Marovo	<i>kivili</i>	' <i>Casuarina equisetifolia</i> '
MM:	Roviana	<i>kifli</i>	' <i>Intsia bijuga</i> ' (W. McClatchey, pers. comm.)
MM:	Kia	<i>ivili</i>	' <i>Intsia bijuga</i> '
MM:	Maringe	<i>khifli</i>	' <i>Intsia bijuga</i> ' (W. McClatchey, pers. comm.)
NCV:	Mwotlap	<i>n-ip</i>	' <i>Casuarina equisetifolia</i> '
Mic:	Kiribati	<i>ibi</i>	'tree like <i>Calophyllum inophyllum</i> , but harder and heavier'
Pn:	Samoan	<i>ifi(fatu)</i>	' <i>Intsia bijuga</i> '
		<i>ifi(lele)</i>	'a hard-grained <i>Intsia bijuga</i> '

PWOc **b^wana* '*Intsia bijuga*'

NNG:	Manam	<i>b^wana</i>	' <i>Intsia bijuga</i> '
NNG:	Yabem	<i>(ka)b^wεη</i>	'ironwood'
MM:	Bola	<i>bana</i>	'ironwood'
MM:	Nakanai	<i>bala</i>	' <i>Intsia bijuga</i> '

4.10 *Planchonella* spp., *B komtri* (Sapotaceae)

Planchonella species range in size from large canopy trees to small trees of the sub-canopy. The species division of the genus *Planchonella* remains controversial (Walter & Sam 2002: 226), partly, it seems, because there is considerable variation within and across species. This is perhaps due to past domestication, but the literature gives little indication of present-day cultivation.¹⁶ Borrell (1989: 134) identifies six species on Kairiru Island, two of which he is unable to name. There is also an overlap with the genus *Pouteria*, in the sense that species that have at one time or another been placed in the genus *Planchonella* have at others been placed in the genus *Pouteria*. Walter & Sam (2002: 226–227) include *Planchonella grayana* in their catalogue of fruit trees but say that it is little consumed (because the pulp irritates the gums) except at Tasmate (west Santo), where the mature fruit is either roasted whole or peeled, then washed to remove latex before it is eaten.

Peekel (1984: 429–431) describes *Planchonella peekelii* (syn. *Sideroxylon peekelii*), a tree about 15 m tall with small ovoid fruit, but he does not mention consumption or any other use.

Depending on location, *P. costata* (syn. *Sideroxylon costatum*) varies in the Solomons and Vanuatu between a small sub-canopy tree and a large tree of the canopy. Its bark ranges from pale grey to black-brown, and it has long narrow leaves and round fruit 3–4 cm in diameter. It has a preference for the beach or inland for moist habitats. Its wood is close-grained and can be finally worked: combs can be made from a single flat piece of wood (Gowers 1976: 113, Kwa’ioloa & Burt 2001: 140–141). Wheatley (1992) identifies *P. grayana* as a variety of *P. costata*. Gowers (1976: 115) also describes *P. linggensis*, labelled the ‘comb tree’, leading one to wonder if this also is a variety of *P. costata*.

In view of this variation we can be sure only that POc **kalaka* denoted a species of *Planchonella*, and perhaps several. Kairiru *lalak* may reflect a reduplication of suffixless **laka* after deletion of the (apparent) prefix **ka*- ‘tree’ (ch.2, §7.1.2).

POc **kalaka* ‘*Planchonella* sp.’

NNG:	Kairiru	<i>lalak</i>	‘ <i>Planchonella obovoidea</i> ’
MM:	Tolai	<i>kalakala</i>	‘tree sp.’
NCV:	Raga	<i>yaraŋa</i>	‘ <i>Planchonella</i> sp.’
NCV:	Uripiv	<i>na-klak</i>	‘ <i>Planchonella/Pouteria</i> spp.’

PCP **kalaka* ‘*Planchonella* sp.’

Fij:	Bauan	<i>galaka</i>	‘ <i>Planchonella costata</i> ’
Pn:	Niuean	<i>kalaka</i>	‘ <i>Planchonella</i> sp.’
Pn:	Tongan	<i>kalaka</i>	‘ <i>Planchonella samoensis</i> ’
Pn:	E Futunan	<i>kalaka</i>	‘tree sp.’
Pn:	Emae	<i>kalaka</i>	‘tree sp.’
Pn:	Samoan	<i>ala?a</i>	‘ <i>Planchonella garberi</i> ’
Pn:	Hawaiian	<i>?āla?a</i>	‘ <i>Planchonella sandwicensis</i> ’
Pn:	Tuamotuan	<i>karaka</i>	‘tree sp.’
Pn:	Māori	<i>karaka</i>	‘ <i>Corynocarpus laevigata</i> ’

¹⁶ French (1986: 261) mentions that the black fruits, about 4 cm in diameter, of several *Planchonella* species are sometimes eaten raw in Papua New Guinea but gives little detail. Unlike other authors, he says that the trees are planted from seed. Since most *Planchonella* species grow on mainland New Guinea and not in the Bismarcks, it is probable that his discussion relates to the mainland.

The glosses in the cognate set below imply that PCP **bau* had the meaning which it retains in Wayan Fijian: ‘Tree ... taxon: generic, includes species of *Burckella*, *Manilkara*, *Palaquium* and *Planchonella* (Sapotaceae)’ (Pawley & Sayaba 2003; see also ch.3, §3.1). They are all medium to large rain forest trees of the family Sapotaceae. I had hesitated to assume that Teop *bau* ‘*Leea tetramera*’ is cognate, as *L. tetramera* is a shrub, but Will McClatchey (pers. comm.) argues that all the plants listed below except *Guettarda speciosa* are hardwoods from which a useful club could be made and that this fact is central to the definition of the taxon. This being so, it is possible that POc **bau* is identical with POc **bou* ‘*Fagraea* spp.’ (ch.5, §5.6).

POc **bau* ‘hardwood taxon’ (see above)

MM: Teop *bau* ‘*Leea tetramera*’

PCP **bau* ‘hardwood taxon’ (see above)

Fij:	Wayan	<i>bau</i>	‘woody trees taxon including <i>Burckella richii</i> , <i>Manilkara vitiensis</i> , <i>Palaquium fijianse</i> and <i>Planchonella</i> species’
Fij:	Bauan	<i>bau</i>	‘ <i>Palaquium</i> spp. (Keppel et al. 2005)’
Fij:	Yasawa	<i>bau</i>	‘tree sp., probably Sapotaceae sp.’
Pn:	Anutan	<i>pau</i>	‘ <i>Pipturus argenteus</i> ’
Pn:	Tuvalu	<i>pau</i>	‘ <i>Guettarda speciosa</i> , <i>Mammea glauca</i> ’
Pn:	Rennellese	<i>pau</i>	‘ <i>Planchonella</i> sp.’
Pn:	Samoan	<i>pau</i>	‘tree sp. <i>Manilkara hishinoi</i> , from which clubs are made’

4.11 *Pterocarpus indicus*, New Guinea rosewood, flame wood, B *nananara*, *navilae*, *bluwota* (Fabaceae)

In the Bismarck Archipelago *Pterocarpus indicus* grows in lowland rain forests, but in the Solomons it is more salient in freshwater swamp forests (Figure 7.5, right). It grows to varying sizes depending on its immediate environment. Sometimes it is an emergent tree up to 40 m high, often it is a large canopy tree, and under some conditions a tree of the lower canopy only 10 m high. Like most canopy trees, it has a long bole (which is sometimes crooked) and buttresses which sometimes extend into flutes up the bole (Conn & Damas 2006, Henderson & Hancock 1988: 165, 320).

The flowers are small but bright yellow and fragrant. Its fruit comes in the form of disk-shaped pods. It has red sap, and one of its English names, ‘flame wood’, reflects the fact that its wood is multi-coloured: yellow, red and brown. Its alternative Bislama name *bluwota* reflects the fact that the wood and bark turn steel blue when immersed in water (Wheatley 1992: 145).

P. indicus provides excellent timber, moderately soft, moderately light and permanently sweet-smelling. In various parts of the Solomons and Vanuatu the trunks are used for dugout canoes and planks and for carving (Henderson & Hancock 1988: 167, Wheatley 1992: 145, Kwa’ioloa & Burt 2001: 119, Hviding 2005: 142). It has similar uses in the Bismarcks, where it is also used for hourglass drums (Floyd 1954, Powell 1976).

In a variety of locations from the Bismarcks to Vanuatu an infusion of the young leaves or of the bark is used against diarrhoea or against excessive menstruation (Henderson & Hancock 1988: 167, Arentz et al. 1989: 92, Bourdy & Walter 1994).

Two POC terms for *P. indicus* are reconstructable: *naRa and *Rigi.

PMP *naRa ‘*Pterocarpus indicus*’ (Blust 1980a, ACD)

POc *naRa ‘*Pterocarpus indicus*’

Adm:	Lou	<i>na</i>	‘ <i>Pterocarpus indicus</i> ’ (Holdsworth & Wamoi 1981)
Adm:	Baluan	<i>nay</i>	‘tree with red wood, probably <i>Pterocarpus indicus</i> ’
NNG:	Gitua	<i>nara</i>	‘ <i>Pterocarpus indicus</i> ’
NNG:	Tami	<i>nal</i>	‘ <i>Pterocarpus indicus</i> ’
PT:	Motu	<i>nara</i>	‘ <i>Pterocarpus indicus</i> ’
MM:	Bola	<i>nara-nara</i>	‘ <i>Pterocarpus indicus</i> ’
MM:	Kara (E)	<i>naya</i>	‘ <i>Pterocarpus indicus</i> ’
NCV:	Mota	<i>na-nara</i>	‘ <i>Pterocarpus indicus</i> ’
NCV:	Vera’a	<i>na-nar</i>	‘ <i>Pterocarpus indicus</i> ’
NCV:	Raga	<i>na-nara</i>	‘ <i>Pterocarpus indicus</i> ’

POc *Rigi ‘rosewood, *Pterocarpus indicus*’ (Geraghty 1990: PEOc *rike)

NNG:	Atui	<i>(ki)riŋ</i>	‘ <i>Pterocarpus indicus</i> ’ (Arentz 1989:92)
MM:	Nduke	<i>rigi</i>	‘ <i>Pterocarpus indicus</i> ’
MM:	Roviana	<i>rigi</i>	‘tree sp. which yields a good red timber’
MM:	Marovo	<i>rigi</i>	‘ <i>Pterocarpus indicus</i> ’
MM:	Kia	<i>grigi</i>	‘ <i>Pterocarpus indicus</i> ’ (W. McClatchey, pers. comm.)
MM:	Maringe	<i>grigi</i>	‘ <i>Pterocarpus indicus</i> ’ (Henderson & Hancock 1988)
SES:	Bugotu	<i>ligi</i>	‘ <i>Pterocarpus indicus</i> ’ (W. McClatchey, pers. comm.)
SES:	Gela	<i>ligi</i>	‘tree sp.’
SES:	Bauro	<i>riki</i>	‘ <i>Pterocarpus indicus</i> ’
SES:	Kwara’ae	<i>liki</i>	‘ <i>Pterocarpus indicus</i> ’
SES:	Lau	<i>liki</i>	‘ <i>Pterocarpus indicus</i> ’
SES:	Arosi	<i>rigi</i>	‘ <i>Pterocarpus indicus</i> ’
NCV:	Bieria	<i>(mi)like(he)</i>	‘ <i>Pterocarpus indicus</i> ’
Pn:	Rennellese	<i>li[kq]e</i>	‘tree sp.; barkcloth mallet’

4.12 *Vitex cofassus*, New Guinea teak, TP *garamut*

(Lamiaceae)

Vitex cofassus grows 20–40 m tall (Figure 7.6, right). It has a grey trunk, with a bole up to 18 m long and buttresses up to 6 m high. The wood is smooth, white and durable (Peckel 1984: 480, Conn & Damas 2006). At least, this how specimens *V. cofassus* in the Bismarcks are described. For the Solomons Henderson & Hancock (1988: 188) describe it as a ‘large, ill-formed tree’, apparently because its buttresses often extend up the bole as irregular flanges and flutings.

A virtue of the hard wood is that it is not eaten by termites (Blewett & Blewett n.d.). In the Bismarck Archipelago it is used for tool handles, and in both the Bismarcks and the Solomons as timber for wall planking, house posts, canoe paddles and canoes, drums and for carving (Powell 1976, Henderson & Hancock 1988: 190, Hviding 2005: 150, Scales n.d.).

The POc term for *V. cofassus* was **pasa(r,R)*.¹⁷ Milke (1961: 171) reconstructed an un-glossed POc **pasa* on the basis of the Arosi, Sa'a, Bauan Fijian and Samoan items below, together with Gedaged *safa* 'Cerbera manghas'. He assumes that the latter represents a metathesis, but, given the difference between the two species, this is an *ad hoc* assumption, and the Gedaged item is omitted here.

Riwo and Takia reflect Proto Bel **payaRi*. The presence of the final consonant and added *-i* points to a loan. Babatana *vadaka* is also evidently a loan from an unknown source.

POc **pasa(r,R)* 'Vitex cofassus' (Milke 1961: **pasa*)

NNG:	Manam	<i>oara</i>	' <i>Vitex cofassus</i> '
NNG:	Yalu	<i>(a)fas</i>	' <i>Vitex cofassus</i> ' (Lane-Poole 1925)
MM:	Nakanai	<i>vasa</i>	' <i>Vitex cofassus</i> '
MM:	Kara (E)	<i>fasei</i>	' <i>Vitex cofassus</i> '
MM:	Lihir	<i>pacere</i>	' <i>Vitex cofassus</i> ' (Burley 2006)
MM:	Madak	<i>pasa</i>	' <i>Vitex cofassus</i> '
MM:	Patpatar	<i>vasara</i>	' <i>Vitex cofassus</i> '
MM:	Tolai	<i>vara</i>	' <i>Vitex monophylla</i> '
MM:	Mono-Alu	<i>hasala</i>	' <i>Vitex cofassus</i> ' (Record 1945)
MM:	Nduke	<i>vasara</i>	' <i>Vitex cofassus</i> '
MM:	Marovo	<i>vasara</i>	' <i>Vitex cofassus</i> '
MM:	Kia	<i>varaha</i>	' <i>Vitex cofassus</i> ' (metathesis) (W. McClatchey, pers. comm.)
MM:	Maringe	<i>vahara</i>	' <i>Vitex cofassus</i> ' (Henderson & Hancock 1988)
SES:	Bugotu	<i>vaha</i>	' <i>Vitex cofassus</i> ' (W. McClatchey, pers. comm.)
SES:	Gela	<i>vaha</i>	' <i>Vitex cofassus</i> ' (W. McClatchey, pers. comm.)
SES:	Lengo	<i>vaða</i>	' <i>Vitex cofassus</i> ' (Henderson & Hancock 1988)
SES:	Longgu	<i>vata</i>	' <i>Vitex cofassus</i> '
SES:	Lau	<i>fata</i>	' <i>Vitex cofassus</i> '
SES:	Kwara'ae	<i>fata</i>	' <i>Vitex cofassus</i> '
SES:	Arosi	<i>hata</i>	'a large tree sp.'
SES:	Sa'a	<i>hata</i>	'hardwood tree'
Fij:	Bauan	<i>vasa</i>	' <i>Cerbera odollam</i> '
Pn:	Samoan	<i>fasa</i>	'a pandanus species, the leaves of which are used to make mats' (W. McClatchey, pers. comm.); <i>P. textorius</i> (Whistler 2000: 163)

cf. also:

NNG:	Riwo	<i>paiaʔi</i>	'tree with very hard and durable wood' (Mager 1952)
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¹⁷ Heyne (1950: 1315) lists a Ceram form *pasal* *V. cofassus* from an unnamed language, evidence that the POc form was an inheritance from PCEMP.

NNG:	Takia	<i>peari</i>	‘tree with very hard and durable wood’ (Mager 1952)
MM:	Babatana	<i>vadaka</i>	‘ <i>Vitex cofassus</i> ’ (McClatchey et al. 2005)

5 The lower canopy

Trees of the lower canopy are assumed to be those with a usual height somewhere between 15 m and 20 m. Again some species display significant height variations and, as noted in the subsections below, are canopy trees in some localities. Conversely, of course, some of the trees described in §4 as canopy trees grow less well in some places and there belong to the lower canopy.

Certain sub-canopy species are treated in other chapters. The barringtonias *Barringtonia asiatica*, *B. novae-hiberniae* and *B. procera* are handled in ch.5, §5.2 because of the strong tendency for them to grow on the coast. They are an important part of the lower canopy of the rain forest in parts of Bougainville, however. Other sub-canopy plants, especially in parts of Bougainville and the Solomons, are the betelnut palm, *Areca catechu* (ch.13, §2.2.1), tree ferns of the genus *Cyathea* (ch.10, §3.1), fruit trees of the genera *Pandanus* and *Syzygium* (ch.11, §2.5 and §3.7) (Paijmans 1976: 64–65, Mueller-Dombois & Fosberg 1998: 60–61).

No reconstruction could be made for any of the species of *Celtis*, which are lower canopy trees in the Solomons (Kwa’ioloa & Burt 2001: 157–158), nor for *Gnetum latifolium*, a large woody climber of Bougainville and the Solomons.

5.1 *Bischofia javanica*, Java cedar, B *nakoka*, *redwud* (Phyllanthaceae)

Occurring throughout the Pacific, *Bischofia javanica* (Figure 7.7, left) is often a 30–40 m canopy tree with a bole a metre in diameter in the New Guinea region, but is usually a smaller, sub-canopy tree in Vanuatu. Its wood varies from red with red sap to pink or cream with colourless sap. It has light yellowish green flowers and red or black ovoid fruit half a centimetre in diameter, each with six small seeds (Johns 1976: 223, Wheatley 1992: 55).

Its occurrence is evidently very patchy. The fact that names for *B. javanica* have been collected in NW Island Melanesia from Nakanai, Tolai, Roviana and Lau indicates that this species is also found in the locations of these languages, and this is confirmed by Conn & Damas (2006), yet Peekel (1984), Henderson & Hancock (1988), Kwa’ioloa & Burt (2001) and Hviding (2005) make no mention of it, suggesting that in some places it is far from abundant.

Will McClatchey (pers. comm.) offers an explanation of the distribution of *B. javanica*, commenting that ‘It seems to be in places where they traditionally make clothing from felted bark and not in places where the clothing is made from other sorts of materials. It is of course one of the principal dyes for felted *Broussonetia*.’

The wood is hard and moderately durable and is used in Vanuatu and Tonga for ground posts (Whistler 1991*b*: 58, Wheatley 1992: 55)

The PEOc term **koka* is reconstructable. The lack of a POC term may simply be due to its absence from a number of sources listing Western Oceanic plant names, i.e. to its odd distribution, rather than to an absence from the environment of POC speakers.

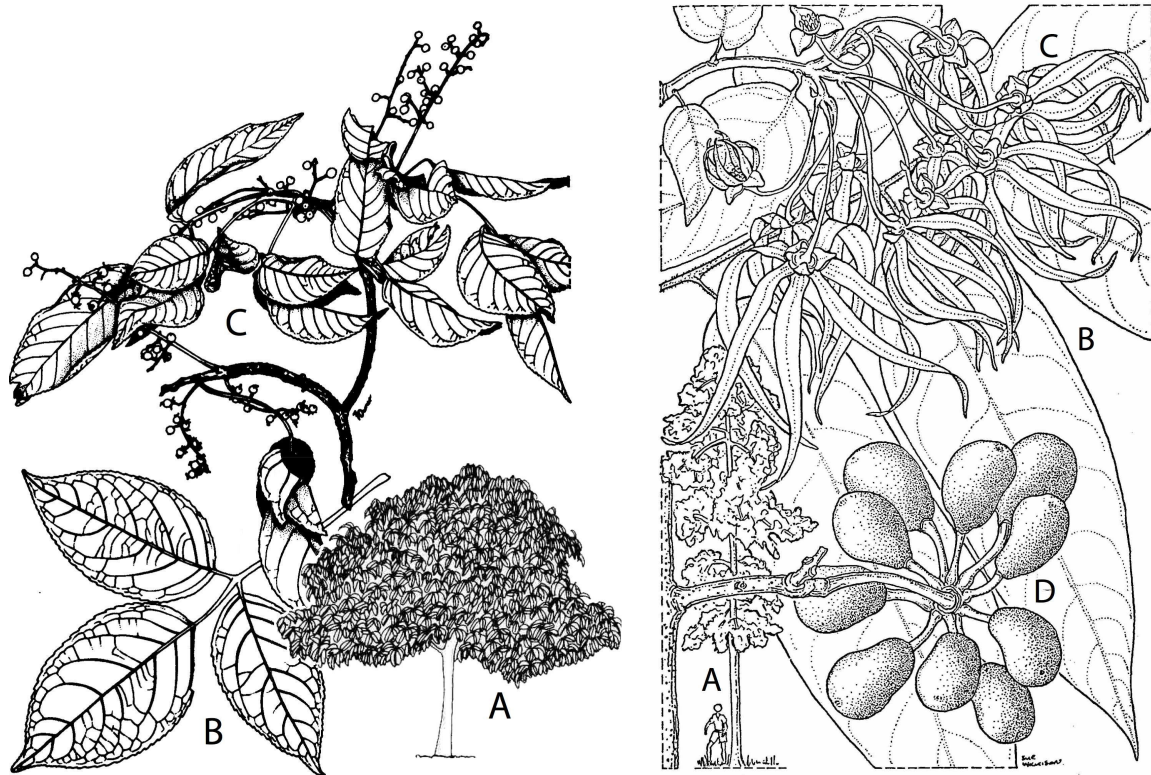


Figure 7.7 Left *Bischofia javanica*, Java cedar: A, tree; B compound leaf; C, branch bearing cluster of fruit. Right *Cananga odorata*, ylang-ylang: A, tree; B, leaves; C, flowering shoot; D, fruit cluster.

PEOc *koka 'tree sp., *Bischofia javanica*' (POLLEX)

SES:	Ulawa	ʔoʔa	' <i>Bischofia javanica</i> ' (W. McClatchey, pers. comm.)
NCV:	Tangoa	(vi)ʔauha	' <i>Bischofia javanica</i> '
NCV:	Raga	(i)ʔoya	' <i>Bischofia javanica</i> ' (Walsh 2004)
NCV:	Lewo	(puru)koa	' <i>Bischofia javanica</i> '
NCV:	Nguna	na-koka	'tree sp.'
NCV:	Namakir	na-koka	' <i>Bischofia javanica</i> '
NCV:	S Efate	n-kok	' <i>Bischofia javanica</i> '

PCP *koka 'tree sp., *Bischofia javanica*'

Fij:	Wayan	koka	' <i>Bischofia javanica</i> '
Fij:	Bauan	koka	' <i>Bischofia javanica</i> '
Pn:	Tongan	koka	' <i>Bischofia javanica</i> '
Pn:	Niuean	koka	'small tree, <i>Baccaurea seemanii</i> '
Pn:	E Futunan	koka	' <i>Bischofia javanica</i> '
Pn:	E Uvean	koka	' <i>Bischofia javanica</i> '
Pn:	Ifira-Mele	koka	' <i>Bischofia javanica</i> '
Pn:	Rarotongan	koka	' <i>Bischofia javanica</i> '
Pn:	Māori	koka	'some edible plant'

5.2 *Cananga odorata*, ylang-ylang, perfume tree, *nandingori*, *nadingro*, *nangungara* (Annonaceae)

Cananga odorata (Figure 7.7, right) is usually a lower canopy tree 10–15 metres tall, but sometimes it reaches the canopy at 30 or 35 m (Peekel 1984: 183, Conn & Damas 2006).

C. odorata is known across NW Island Melanesia (and elsewhere) for its fragrant yellow flowers, which are dried and used to scent coconut oil (Record 1945, Henderson & Hancock 1988: 244, Hviding 2005: 130).

In northern Vanuatu the trunk is hollowed out and used for making drums and the branches are used for outriggers (Gowers 1976: 43, Jauncey In progress). Kwa'ioloa & Burt (2001: 119) and Wheatley (1992: 42), on the other hand, say that the wood is too soft to be durable and is useful only for internal construction in places with a smoky atmosphere.

Use of the bark and flowers for medicinal purposes is widespread (Floyd 1954, Hviding 2005: 130).

POc **m^(w)aso(q)u* may have denoted a taxon which included *C. odorata* (§4.2). POc **p^wi(r,R)a* and PSOc **diŋori(q)* both appear to have denoted *C. odorata* alone.

POc **p^wi(r,R)a* ‘*Cananga odorata*’

MM:	Lihir	<i>pir</i>	‘ <i>Cananga odorata</i> ’
MM:	Petats	<i>bina</i>	‘ <i>Cananga odorata</i> ’
MM:	Teop	<i>bina</i>	‘ <i>Cananga odorata</i> ’
Mic:	Ponapean	<i>p^wur</i>	‘ <i>Cananga odorata</i> ’
Mic:	Mokilese	<i>p^wur</i>	‘tree species’

PSOc **diŋori(q)* ‘*Cananga odorata*’ (Clark 1996a, Lynch 2004a)

NCV:	Mwotlap	<i>(na-tweh) diŋy</i>	‘ <i>Cananga odorata</i> ’ (François 2004)
NCV:	Dorig	<i>(wa)diŋvr</i>	‘ <i>Cananga odorata</i> ’ (François 2004)
NCV:	NE Ambae	<i>diŋori</i>	‘ <i>Cananga odorata</i> ’
NCV:	Tangoa	<i>(ve)riŋori</i>	‘ <i>Cananga odorata</i> ’
NCV:	Kiai	<i>kinori</i>	‘ <i>Cananga odorata</i> ’
NCV:	Tamambo	<i>(vu)diŋori</i>	‘ <i>Cananga odorata</i> ’
NCV:	Raga	<i>diŋori</i>	‘ <i>Cananga odorata</i> ’
NCV:	Paamese	<i>a-reŋe</i>	‘ <i>Cananga odorata</i> ’
SV:	Kwamera	<i>nu-rəŋri</i>	‘tree, sp. wood used for pierced ear and septum ornaments’

5.3 *Cryptocarya* sp. (Lauraceae)

The genus *Cryptocarya* consists of laurel-like evergreen plants which range in size from lower canopy shrubs to giant emergent trees (Conn & Damas 2006).

Among the large trees are *C. aromatica*, which was exploited by German traders on the north coast of New Guinea for the essential oil in its bark: see §4.2 for discussion. It grows to a height of 45 m and its bole is as much as 1.2 m in diameter. The bark varies in colour, but is often red-brown and corky, with a strong resinous smell. It bears globular berries 10 cm in diameter (Johns 1976: 65). *C. cordata* is a similarly large tree, and Record (1945) notes that its currant-sized fruit are used in food as a relish .

The sources of the data supporting POc **nipus* ‘*Cryptocarya* sp.’, O’Collins & Lamothe (1989) and Damon (2004), do not provide enough information to allow a species identification, but O’Collins and Lamothe mention that the timber is used in house-building on Manus Island, implying that the species is not too small.¹⁸ The sources of the data supporting PWOc **kam*^(w)*apaR* tell us that the Muyuw tree is more than 10 m tall, the Patpatar tree, dubbed *Cryptocarya kamahar* by Peekel, 20–30 m tall.

Damon (In preparation) mentions that the nuts have a rich cinnamon-like smell and are important for medicinal purposes on Woodlark Island. Curiously, Muyuw people do not know the tree, as it grows away from areas they frequent, but they know its nuts because birds swallow them whole, then excrete them in their nests, complete with the endocarp, whence they are collected.



Figure 7.8 *Cryptocarya aromatica*.

POc **nipus* ‘*Cryptocarya* sp.’

Adm:	Bipi	<i>ñeu</i>	‘ <i>Cryptocarya</i> sp.’
Adm:	Nyindrou	<i>nip</i>	‘ <i>Cryptocarya</i> sp.’
PT:	Muyuw	<i>ni-niwous</i>	‘ <i>Cryptocarya</i> sp.’

PWOc **kam*^(w)*apaR* ‘*Cryptocarya* sp.’

PT:	Muyuw	<i>(ka)kam</i> ^w <i>eya</i>	‘ <i>Cryptocarya</i> sp.’
MM:	Patpatar	<i>kamahar</i>	‘ <i>Cryptocarya kamahar</i> ’

5.4 *Dillenia* sp. (Dilleniaceae)

It was noted in §4.3 that *Dillenia* species range in size from trees of the lower canopy to tall canopy trees. Although accounts of Bismarcks flora make no mention of the presence of a smaller *Dillenia* species, there is linguistic evidence that POc speakers knew such a species. Only two Oceanic reflexes have been found, both from Southern Vanuatu, both denoting *Dillenia biflora*, a tree with reddish brown bark that grows to about 15 m (Wheatley 1992: 79). POc **drokol* (and PMP **de(k,g)el*) is reconstructable on the basis of the Southern Vanuatu data and three non-Oceanic cognates, Blit Manobo (*klambug*) *daka* ‘*D. megalantha*’¹⁹ (Madulid 2001b: 100), Sundanese *səgəl* and Javanese *ḍəgəl*, both ‘*D. excelsa*’ (Heyne 1950: 1071–1072). *D. excelsa* is also 10–15 m in height.

¹⁸ In this instance Damon is describing a sample that has been brought to him: he notes that he has not seen the tree.

¹⁹ The term *klambug* is apparently a term for a taxon which includes several *Dillenia* species.

PMP **de(k,g)el* ‘small *Dillenia* species’

POc **drokol* ‘small *Dillenia* species’

PSV **ne-dyol* ‘*Dillenia biflora*’ (Lynch 2004a)

SV: Sye *ne-tyul*

SV: Anejoñ *ne-cyel*

5.5 *Diospyros* spp., ebony, blackwood, B *blakwud* (Ebenaceae)

Diospyros species are sub-canopy trees around 10 m tall with very hard black wood. *Diospyros peekelii* is used on New Britain for digging sticks, on New Ireland to make clubs for shark-catching (Floyd 1954, Peekel 1984: 432–433). In the western Solomons the wood of some species is used for carving (Hviding 2005: 142). The fruit of *Diospyros* species is the persimmon. The fruit of some species are edible and are eaten when other food is scarce (Record 1945).

Although *Diospyros* species are well known sub-canopy trees, widely mentioned in the literature, the only reconstruction that has proven possible is PSOc **numo*. Otherwise only very local cognate sets are found, raising the possibility that the more important species have been introduced since POc times.

PSOc **numo* ‘*Diospyros* spp.’ (Lynch 2004a)

NCV: Mwotlap (y[u])*nom* ‘*Diospyros ferrea*’

Proto South Melanesian **n(e,i)mo* ‘*Diospyros* spp.’ (Lynch 2004a)²⁰

SV: Sye *nimu(ŋlei)* ‘*Diospyros ferrea*’

NCal: Jawe (ce)*nemo* ‘*Diospyros austro-caledonicus*’

NCal: Fwâi (ce)*nuum* ‘*Diospyros parviflora*’

NCal: Nemi (ce)*nuum* ‘*Diospyros parviflora*’

NCal: Jawe (ce)*nuum* ‘*Diospyros parviflora*’

5.6 *Euodia* spp. (Rutaceae)

Borrell (1989: 130–131) finds 14 species of *Euodia*²¹ on Kairiru, ranging from small shrubs a metre high to the medium-sized tree, *E. elleryana* (syn. *E. tetragona*, *Melicope elleryana*), 15–20 m tall, with a soft white wood that has an unpleasantly musty smell and masses of rose-pink flowers (Peekel 1984: 270).

Peekel reports that larger trunks were used on New Ireland for small outrigger canoe hulls. The wood splits easily and is good for planks (Hviding 2005: 104).

Although POc **bala* below is supported by only two reflexes, the notes provided by Kwa’ioloa & Burt (2001: 158) are informative. Kwara’ae *bala* is a generic term for species which include *bala ni kwaru* [*bala* of rock] ‘*E. elleryana*’, *bala kwau* (lit. ‘white *Euodia*’) or *bala fufuri* (lit. ‘patchy *Euodia*’), and simply *bala*. The authors provide a scientific name only for the first of the three. Apparently excluded from the *bala* taxon is *E. hortensis*, Kwara’ae

²⁰ Proto South Melanesian is the putative ancestor of the Southern Vanuatu and New Caledonian languages (Lynch 2000a).

²¹ The name is sometimes spelt *Evodia*.

foʔoka or *foʔaka*, which has complex ritual uses both here and at other localities. It is possible that POc **bala* also denoted a taxon of *Euodia* species, the more so as Motu *ebala* denotes *E. hortensis*, the one species that Kwara'ae *bala* excludes.

POc **bala* 'taxon including various *Euodia* spp.' (?)

PT:	Motu	(<i>e</i>) <i>bala</i>	' <i>Euodia hortensis</i> ' (Lane-Poole 1925)
SES:	Kwara'ae	<i>bala</i>	' <i>Euodia</i> spp.'

A reasonable (but not the only) interpretation of the data below is that POc **bosi* denoted a forest tree with white wood, perhaps *Euodia elleryana*, as the Meso-Melanesian data suggest, and was reapplied to another tree with white wood, *Alphitonia zizyphoides*, in southern Vanuatu.

POc **bosi* 'a forest tree with white wood, probably *Euodia elleryana*'

Proto NW Solomonian **bosi* '*Euodia* spp.'

MM:	Nehan	<i>bouh</i>	' <i>Euodia hortensis</i> '
MM:	Nduke	<i>bosi</i>	' <i>Euodia elleryana</i> '
MM:	Marovo	<i>bosi</i>	'trees of lowland or secondary forest, <i>Euodia</i> spp.'
MM:	Roviana	<i>bosi</i>	' <i>Euodia elleryana</i> ' (Record 1945)

PSV **na-b^wus(Vn)* 'whitewood, *Alphitonia zizyphoides*' (Lynch 2001c)

SV:	Sye	<i>na-mpo</i>	' <i>Alphitonia zizyphoides</i> '
SV:	Kwamera	<i>na-pa</i>	' <i>Alphitonia zizyphoides</i> '
		<i>na-p^wesən</i>	' <i>Alphitonia zizyphoides</i> '
SV:	Anejoñ	<i>na-p^woθ</i>	' <i>Alphitonia zizyphoides</i> '

Despite the fact that the shrub *E. hortensis* (island musk) is often cultivated and occurs in varieties with acrid-smelling leaves of various shapes, green or yellow, which are used to keep flies away and employed for various medicinal and ritual purposes at many localities (Ivens 1927: 362, Peekel 1984: 267–268, Whistler 1991b: 133, Whistler 2000: 119, Wheatley 1992: 91, Hviding 2005: 106; ch.9, §2.1), the only term reconstructed for *E. hortensis* is PCP **usi*.

PCP **usi* '*Euodia hortensis*'

Fij:	Bauan	<i>uði</i>	' <i>Euodia hortensis</i> '
Pn:	Tongan	<i>uhi</i>	' <i>Euodia hortensis</i> '
Pn:	Samoan	<i>usi</i>	' <i>Euodia hortensis</i> ' (W. McClatchey, pers. comm.)

5.7 *Kleinhovia hospita*, puzzle tree, guest tree, B *namatal* (Sterculiaceae)

Kleinhovia hospita is a small to medium-sized tree. In New Ireland it usually grows to 6–10 m tall, but is sometimes as tall as 20–30 m in primary forest (Peekel 1984: 373). A striking feature is its short, branching bole: 'it sprouts into many trees' in the words of Kwa'ioloa & Burt (2001: 135).

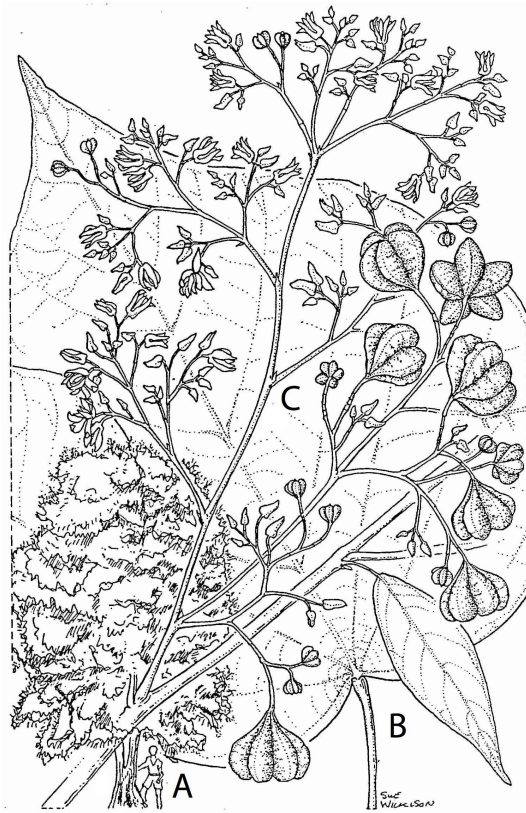


Figure 7.9 *Kleinhovia hospita*: A, tree; B, shoot with a mature and an old inflorescence; C, leaf.

There is remarkable agreement across sources about its uses, which do not vary much from the Bismarck Archipelago to Vanuatu. Its bast (fibrous inner bark) serves as temporary binding material. The soft light timber provided by young straight branches is used for rafters and internal construction. It also provides excellent firewood, and trees are sometimes ringbarked to turn them into convenient fuel sources. It is reputed to be one of the best woods for starting fires by traditional friction methods (another is the small forest tree *Callicarpa pentandra* according to Kwara'ae lore) (Powell 1976, Henderson & Hancock 1988: 158–159, Arentz et al. 1989: 94, Wheatley 1992: 225, Kwa'ioloa & Burt 2001: 135, Hviding 2005: 115–116).

Fewer sources mention medicinal uses: the Bola of New Britain use an infusion of the bark, and the leaves are used medicinally in Vanuatu (Powell 1976, Wheatley 1992: 225).

Most of the terms below are from NCV languages, and they present a minor puzzle. Lynch (2004a) divides them into two groups and makes two resemblant but seemingly irreconcilable PNCV reconstructions, **ma(t,d)aka* (Banks, Malakula, Epi) and **matala* (Banks, Santo, Malakula, Paama, Efate). There are also MM and SES reflexes, however, and here the terms reflect POC **ma(i)tagaR(a)*. Lynch's PNCV **ma(t,d)aka*, modified here to **ma(t,d)aga*, reflects this unproblematically. This leaves Lynch's PNCV **matala*, which I take to reflect an early borrowing from a language which had lost **-k-* but retained **-R-* as *-l-* (the SES languages of Malaita reflect this pattern of reflexes, but there is no good reason to suppose that a language descended from the borrowing source still exists).

POC **ma(i)tagaR(a)* '*Kleinhovia hospita*'

MM:	Bola	<i>maitaga</i>	' <i>Kleinhovia hospita</i> ' (Arentz et al. 1989: 94)
MM:	Kara (E)	<i>mətəkək</i>	' <i>Kleinhovia hospita</i> '
MM:	Patpatar	<i>matakara</i>	' <i>Kleinhovia hospita</i> '
SES:	Lengo	<i>mataga</i>	' <i>Kleinhovia hospita</i> ' (Henderson & Hancock 1988)
SES:	Santa Ana	<i>magaka</i>	' <i>Kleinhovia hospita</i> ' (metathesis of PSES <i>*mataga</i>)

PNCV **ma(t,d)aga* '*Kleinhovia hospita*'

NCV:	Mwotlap	<i>na-m^wtak</i>	' <i>Kleinhovia hospita</i> '
NCV:	Mota	<i>m^wataka</i>	'tree sp.'
NCV:	Uripiv	<i>m^wirek</i>	' <i>Kleinhovia hospita</i> '
NCV:	Naman	<i>midag</i>	' <i>Kleinhovia hospita</i> '
NCV:	Neve'ei	<i>na-mdan</i>	' <i>Kleinhovia hospita</i> '
NCV:	Tape	<i>medek</i>	' <i>Kleinhovia hospita</i> '

NCV: Avava	<i>midaj</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Larëvat	<i>medrak</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Nese	<i>no-murak</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Lewo	<i>(puru)mante</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Baki	<i>(buru)minda</i>	‘ <i>Kleinhovia hospita</i> ’

PNCV **matala* ‘*Kleinhovia hospita*’ (Lynch 2004a)

NCV: Vurës	<i>matal</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Kiai	<i>matala</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Nokuku	<i>metal</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Sakao	<i>ne-ntal</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Araki	<i>(vi)m^warala</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Tamambo	<i>(vu)matala</i>	‘tree sp.’
NCV: Raga	<i>matala</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Raga	<i>matala</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: Port Sandwich	<i>madre</i>	‘ <i>Kleinhovia hospita</i> ’ (J. Lynch, pers. comm.)
NCV: Aulua	<i>medel</i>	‘ <i>Kleinhovia hospita</i> ’ (J. Lynch, pers. comm.)
NCV: Paamese	<i>merai</i>	‘tree sp. used to make bow’
NCV: Nguna	<i>na-matal</i>	‘ <i>Kleinhovia hospita</i> ’
NCV: S Efate	<i>na-matal</i>	‘ <i>Kleinhovia hospita</i> ’

PMM **p(i,u)lakis* and POC **paqu*, both ‘*Kleinhovia hospita*’, are also reconstructable. The forms under ‘cf also’ appear to reflect a variant **paqi* which may represent a conflation of the two etyma.

PMM **p(i,u)lakis* ‘*Kleinhovia hospita*’

MM: Bola	<i>bulai</i>	‘ <i>Kleinhovia hospita</i> ’ (for † <i>pulai</i>)
MM: Nehan	<i>hule</i>	‘ <i>Kleinhovia hospita</i> ’
MM: Babatana	<i>vilaki</i>	‘ <i>Kleinhovia hospita</i> ’ (McClatchey et al. 2005)
MM: Nduke	<i>valakihi</i>	‘ <i>Kleinhovia hospita</i> ’
SES: Bugotu	<i>vare</i>	‘ <i>Kleinhovia hospita</i> ’ (for † <i>vale</i> ; perhaps borrowed from a MM language)

POC **paqu* ‘*Kleinhovia hospita*’

MM: Tolai	<i>vau</i>	‘ <i>Kleinhovia hospita</i> ’ (Record 1945)
MM: Roviana	<i>payo</i>	‘ <i>Kleinhovia hospita</i> ’ (Record 1945)
NCV: Lakon	<i>voy-voy</i>	‘ <i>Kleinhovia hospita</i> ’ François (2004)
Fij: Wayan	<i>vau</i>	‘ <i>Kleinhovia hospita</i> ’

cf. also:

MM: Mono-Alu	<i>(la)hai</i>	‘ <i>Kleinhovia hospita</i> ’
SES: Lau	<i>fai-fai</i>	‘ <i>Kleinhovia hospita</i> ’
SES: Kwara’ae	<i>fae-fae</i>	‘ <i>Kleinhovia hospita</i> ’
SES: Kwaio	<i>fae-fae</i>	‘tree sp.’

5.8 *Litsea* spp. (Lauraceae)

Numerous *Litsea* species of varying statures occur in the Bismarcks and the Solomons. If POC **lowaŋa*, reconstructed below, did indeed denote a particular species of *Litsea*, then O'Collins & Lamothe (1989) indicate that it was one large enough to make a canoe hull. Of the species listed by Peekel (1984: 191), two qualify: *L. kauloensis* and *L. dielsiana*, each 15–20 m. tall.

The reconstruction of PCEMP/POC **lowaŋa* '*Litsea* sp.' is made possible by the CMP reflexes recorded by Verheijen (1990: 224): Kepo, Rembong (both CMP) *lowaŋ* '*Litsea* sp.'. Although Nakanai *loaga* '*Gmelina* sp.' is glossed as another species, both are used for canoe hulls, and the Nakanai term is almost certainly cognate with Nyindrou *lowaŋ*. Nakanai also provides us with the final vowel for the reconstruction; that there was a final vowel can be inferred from the fact that final consonants are lost in Nyindrou and in the CMP languages from which reflexes are drawn.

PCEMP **lowaŋa* '*Litsea* sp.'

POC **lowaŋa* '*Litsea* sp.'

Adm:	Nyindrou	<i>lowaŋ</i>	' <i>Litsea</i> sp.' (O'Collins & Lamothe 1989)
MM:	Nakanai	<i>loaga</i>	' <i>Gmelina</i> sp.'

5.9 *Myristica* spp., wild nutmeg, *B nandae* (Myristicaceae)

The most famous *Myristica* species is the nutmeg, but its easternmost extent is West Papua (Warburg 1899: 57). Among the species of wild nutmeg which grow in the Bismarcks are *M. schleintzii*, a small foreshore tree 3–6 m tall, and *M. fatua*, a sub-canopy tree reaching 20 m on New Ireland (Peekel 1984: 185). *M. fatua* is a canopy tree in some areas, e.g. in Kwara'ae country. Both species prefer a damp environment and have stilt roots even in dry locations (Paijmans 1976: 37). POC **(dr,d)aRa(q,k)a* presumably denoted at least one of these two species and perhaps a taxon including a number of *Myristica* species.

The soft wood of both species makes planking for indoor use and good firewood in locations from New Britain to Vanuatu (Floyd 1954, Powell 1976, Wheatley 1992: 172–174, Kwa'ioloa & Burt 2001: 120, 167).

With regard to reconstructing a PROc term for *Myristica fatua* Lynch (2004a) writes:

The Banks and Raga forms suggest **draRaka*, other NCV languages something like **draRaqi*, while the SV forms point rather to PSOC **d(r)ani*, **d(r)aRani* or **d(r)aqani*. Ross Clark (pers. comm.) has suggested a possible connection to words meaning 'blood', from POC **draRaq*: Wheatley (1992: 172) refers to the 'dark red exudate' of the inner bark, and Codrington relates Mota *naraa* to *nara* 'blood'. The S Efate form is also homophonous with 'blood', and the SV forms almost so (PSV **n-da(q,V)*, **n-da(a)-*). The form may thus be based on the POC term for 'blood' [**draRaq*], and be something like **draRaq-(n)(i,a)*.

To Lynch's Southern Oceanic cognate set we add Western Oceanic and Kwara'ae (SES) items. Reconstructing a POC etymon from these data is tricky, as they do not lead to an unambiguous reconstruction, yet they probably all reflect a single etymon.

Lynch's discussion points to three phonological questions:

- the third consonant: was it POC **k* or **q*?

- the third vowel: was it POc **a* or **i*?
- what is the source of PSV **n*?

To these we can add a fourth not raised by Lynch's data:

- the initial consonant: was it POc **dr* or **d*?

I address the last question first. All reflexes except Muiuw, Lihir and Kwara'ae point to either **dr-* or **d-*. Muiuw *a-yayak* and Lihir *lala*, however, reflect initial POc **r-* or **R-*. These probably reflect assimilation to the medial reflex of **-R-*, so they do not help us to disambiguate the initial. Distinguishing reflexes of **d* from those of **dr* is difficult, because **d* was a very low-frequency POc consonant: for some languages we have no reflex of **d*, and in some others it merges with **dr*. The one language that helps us with this disambiguation is Kwara'ae, where *ka-kala?a* at first sight seems to reflect POc **g-*. However, a small number of SE Solomonian lexical items reflect POc **d* (but apparently not **dr*) as if it were **g*, and this is evidently one of them. This suggests that the initial consonant was **d-* and that resemblances to the word for 'blood' are accidental, but perhaps amplified by folk-etymologising, since the blood-like colour of *Myristica* sap is widely recognised.²²

The second question to be addressed concerns the third consonant: was it POc **k* or **q*? As Lynch notes, the Banks and Raga reflexes (the first six NCV reflexes below) point to **k*. So does Muiuw *a-yayak*. Other reflexes point to **q*. If changes in form took place as a result of folk-etymologising, then reflexes of **q* may be due to reflexes of POc **draRa*q 'blood', leaving **k* as the more likely proto-consonant.

The other two questions—was the third vowel **a* or **i*? what is the source of PSV **n*?—may be taken together. Four items below, Kwara'ae *ka-kala?a*, Vera'a *daraya*, Mota *na-raya* and Raga *a-oaya* suggest that the vowel was **a*, i.e. they point to POc **(dr,d)aRaka*. On the other hand NE Ambae *dadai* and Uripiv *drari* reflect a final **-i* in **(dr,d)aRa*q(a)-*i*, and PSV **na-(dr,d)ani* reflects a final **-ni* in **(dr,d)aRa*q(a)-*ni* (these are languages in which both **R* and **q* are lost). The alternation between final **-i* and **-ni* is suggestive, as both are reflected in variants of the so-called associative (non-specific possessor) construction. Thus 'blood of tree' would have been expressed in POc as **(dr,d)aRa*q *i kayu* or **(dr,d)aRa*q *ni kayu*, depending on whether **(dr,d)aRa*q was directly or indirectly possessed; either **i* or **ni* has been generalised to both in various daughter-languages (Ross 1998). The suggestion is that **-i* and **-ni* are accretions brought about by the truncation of something like 'blood of tree', itself an outcome of folk etymology, and that they are therefore not part of the POc reconstruction.

The reconstruction that emerges from the discussion above is POc **daRaka*, but there is enough speculation above to commend prudence, and so I offer POc **(dr,d)aRa(q,k)a* below.

POc **(dr,d)aRa(q,k)a* 'wild nutmeg, *Myristica* sp.'

PT:	Muiuw	<i>(a)yayak</i>	' <i>Myristica schleintzii</i> '
MM:	Kara (E)	<i>de</i>	' <i>Myristica fatua</i> '
MM:	Lihir	<i>lala</i>	' <i>Myristica</i> sp.' (Burley 2006)
SES:	Kwara'ae	<i>ka-kala?a</i>	' <i>Myristica fatua</i> '

²² Such etymologising evidently did not occur in Western Oceanic or SE Solomonian languages: cf Kara (E) *ria*, Lihir *dala* and Kwara'ae *?abuan* 'blood'. However, Marovo *juka-juka* '*Myristica* sp.' (from *juka* 'blood', Hviding 2005: 118) also shows that the resemblance of *Myristica* sap to blood is widely recognised.

PNCV *(*dr,d*)aRa(*q,k*)(*a,i*) ‘wild nutmeg, *Myristica* sp.’

NCV: Mota	<i>na-ɾaya</i>	‘nutmeg’
NCV: Mwotlap	<i>na-d[a]yay</i>	‘ <i>Myristica fatua</i> ’ (François 2004)
NCV: Vera’a	<i>daraya</i>	‘ <i>Myristica fatua</i> ’ (François 2004)
NCV: Vurës	<i>daray</i>	‘ <i>Myristica fatua</i> ’ (François 2004)
NCV: Mwesen	(<i>wo</i>) <i>na-ray</i>	‘ <i>Myristica fatua</i> ’ (François 2004)
NCV: Raga	(<i>a</i>) <i>oaya</i>	‘ <i>Myristica fatua</i> ’
NCV: NE Ambae	<i>dadai</i>	‘ <i>Myristica fatua</i> ’
NCV: Uripiv	<i>drari</i>	‘ <i>Myristica fatua</i> ’
NCV: S Efate	<i>n-ra</i>	‘ <i>Myristica fatua</i> ’

PSV **na-(dr,d)ani* ‘wild nutmeg, *Myristica fatua*’ (Lynch 2004a)

SV: Sye	<i>na-nre</i>	‘ <i>Myristica fatua</i> ’
SV: Lenakel	<i>ne-tan</i>	‘ <i>Myristica fatua</i> ’
SV: Kwamera	<i>n-tan</i>	‘ <i>Myristica fatua</i> ’
SV: Anejoñ	<i>na-jeñ</i>	‘ <i>Myristica fatua</i> ’

5.10 *Parinari* spp., putty nut (Chrysobalanaceae)

Finding one’s way through the maze of synonymous scientific names for Bismarcks species of the genus *Parinari* is difficult, but it appears that in NW Island Melanesia there are two similar species which were perhaps treated as a single POC taxon, *(*q,k*)atita:²³

- *Parinari laurina* (syn. *Cyclandrophora laurina*, *Atuna racemosa*) and
- *Parinari glaberrima* (syn. *Maranthes corymbosa*, *Parinari corymbosa*, *Parinari griffithiana*) (Figure 7.10, left)²⁴

P. laurina seems to be more common in the Bismarcks, *P. glaberrima* in the Solomons. Both are small to medium-sized sub-canopy trees, 10–20 m tall. Their large nuts have a hard shell. After it has been broken, the tough kernel of the fruit is rubbed over a rough surface to produce small crumbs of putty-like mash, and the resulting sticky putty is used to caulk plank canoes, to seal and repair cracks in dugouts, and to fasten shell inlays to wood carvings. After drying, this coating forms a firm, watertight and breakable-resistant layer (Holdsworth & Wamoi 1981, Peekel 1984: 202–203, Henderson & Hancock 1988: 230–232, Ohnemus 1998, Kwa’ioloa & Burt 2001: 165, Hviding 2005: 147).

In the Carolines a decoction of the pericarp of the *P. laurinum* fruit is used for painting canoes red (Christian 1899: 328). In Fiji its long straight branches are used for canoe paddles and as houses rafters. Its leaves are used to fill in the outer walls of houses (Capell 1941). In the Solomons the bark provides a medicine taken against diarrhoea or dysentery (Henderson & Hancock 1988: 232).

Reconstructing the POC term for the putty nut is a little tricky, as Chowning (2001: 76) mentions in a footnote, because Oceanic languages appear to reflect three related forms: **qatita*, **katita* and **tita*. The Admiralties forms below may reflect either POC **katita* or

²³ A further complication is that most terms of the genus *Parinari* also have synonyms in which the genus is *Parinarium* and the species modifier has the Latin neuter gender. Hence, *Parinari laurina* = *Parinarium laurinum*. These synonyms are ignored here.

²⁴ Some recent sources prefer the term *Maranthes corymbosa*.



Figure 7.10 Left *Parinari glaberrima*: A, tree; B, shoot bearing one mature and one old inflorescence; C and D, nut. Right *Caryota rumphiana*: A, tree; B, leaflet; C, portion of inflorescence; D, fruiting inflorescence; E, fruit; F, larvae of *Rhynocaphorus* beetle in a rotting trunk.

POc **qatita*. Of the Western Oceanic forms, Wogeo *kātita* and Kara *katita* reflect **katita*, whilst the rest may reflect either **katita* or **qatita*. On the simplest interpretation of the data I reconstruct PWOC **katita*. The Eastern Oceanic forms, on the other hand, reflect **qatita*. POc **(q,k)atita* below reflects this ambiguity.

POc **(q,k)atita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’ (ACD: **qatita*)

Adm: Likum	<i>ketik</i>	‘putty nut, <i>Parinari laurina</i> ’
Adm: Drehet	<i>ketik</i>	‘putty nut, <i>Parinari laurina</i> ’
Adm: Lou	<i>kerit</i>	‘putty nut, <i>Parinari laurina</i> ’

PWOC **katita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’

NNG: Kove	<i>atita</i>	‘putty nut, <i>Parinari laurina</i> ’
NNG: Wogeo	<i>kātita</i>	‘putty nut, <i>Parinari laurina</i> ’
NNG: Kilenge	<i>atita</i>	‘putty nut, <i>Parinari laurina</i> ’
MM: Kara (E)	<i>katita</i>	‘putty nut, <i>Parinari laurina</i> ’
MM: Tolai	<i>katita</i>	‘putty nut, <i>Parinari laurina</i> ’
MM: Tinputz	<i>acic</i>	‘putty nut, <i>Parinari laurina</i> ’
MM: Teop	<i>asita</i>	‘putty nut’

PEOC **qatita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’

SES: Baegu	<i>saia</i>	‘putty nut’
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SES:	Kwara'ae	<i>saia</i>	'putty nut, <i>Parinari glaberrima</i> '
SES:	Sa'a	<i>saie</i>	'putty nut'
SES:	Lau	<i>saia</i>	'putty nut, <i>Parinari glaberrima</i> '
SES:	Kwaio	<i>laia</i>	'putty nut'
SES:	'Are'are	<i>raia</i>	'putty nut'
Mic:	Carolinian	<i>ais</i>	'putty nut, <i>Parinari laurina</i> '
Mic:	Chuukese	<i>ayis</i>	' <i>Parinari</i> tree'
Mic:	Woleaian	<i>yaise</i>	'tree sp. with fragrant fruit'
Mic:	Ponapean	<i>ays</i>	' <i>Parinari</i> tree'

Blust (ACD) reconstructs doublets **qatita* and **qarita* for this item. Supporting data for medial **-r-*, however, are drawn entirely from Admiralties languages and Mussau, a distribution which does not justify a POc reconstruction on the criteria set out in ch. 1, §3.2.3. Instead, it seems likely that the forms listed below which appear to reflect **qarita* are the result of borrowing(s) from a language or languages that reflects (or reflected) POc **-t-* as *-r-*. There are a number of these in the Admiralties: Lou, Penchal, Baluan, Lenkau, Pak, Koro, Nali, Lele and Ponam (Ross 1988: 322) (among the data above only Lou has *-r-* in a directly inherited reflex of **qatita*).

Among directly inherited Admiralties reflexes of **qatita*, those in Likum, Drehet and Lou have initial *k-*. The reflexes below, however, agree not only in appearing to reflect **-r-* but also in loss of the initial consonant. This suggests that they may all reflect a single early borrowing of a form **arita*.

Adm:	Mussau	<i>arita</i>	'putty nut'
Adm:	Lindrou	<i>alik</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Nauna	<i>alit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Penchal	<i>alit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Pak	<i>ehir</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Nali	<i>n-alit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Ere	<i>arit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Titan	<i>alit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Sori-Harengan	<i>ahi?</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Leipon	<i>yerit</i>	'putty nut, <i>Parinari laurina</i> '
Adm:	Loniu	<i>eit, a?at</i>	'putty nut, <i>Parinari laurina</i> '

A number of Meso-Melanesian reflexes lack the initial syllable, reflecting a possible PMM alternant **tita*.²⁵ For clarity's sake these are listed separately below. There are also two SE Solomonic reflexes of **tita*, in Gela and Bugotu, but both languages are prone to borrow from NW Solomonic (and thus Meso-Melanesian) neighbours.

Attempting to account for **tita* Blust (ACD) suggests that the initial syllable has been irregularly lost. He puts forward two possible reasons for such a loss. First, POc roots were predominantly disyllabic, and this is true of many daughter-languages: this might favour foreshortening. Second, the POc common article was **a* or **na*. If initial **k-* or **q-* was lost from a reflex, then the resulting initial **a-* could be reanalysed as part of the article. A third

²⁵ Both *katita* and *tita* are recorded for Tolai.

possible reason is offered here, namely that **ka-* was reanalysed as the ‘tree’ prefix **ka-*, leaving **tita* as the name of the tree (ch.2, §7.1.2).

PMM **tita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’ (Chowning 1963)

MM:	Nakanai	<i>tita</i>	‘ <i>Parinari glaberrima</i> ’
MM:	Tolai	<i>tita</i>	‘ <i>Parinari laurina</i> ’
MM:	Nehan	<i>tita</i>	‘ <i>Parinari laurina</i> ’
MM:	Petats	<i>tic</i>	‘ <i>Parinari glaberrima</i> ’
MM:	Teop	<i>tita</i>	‘ <i>Parinari glaberrima</i> ’
MM:	Varisi	<i>sita</i>	‘putty nut, <i>Parinari glaberrima</i> ’ (W. McClatchey, pers. comm.)
MM:	Simbo	<i>tita</i>	‘ <i>Parinari laurina</i> ; gum, glue’
MM:	Nduke	<i>tita</i>	‘ <i>Parinari glaberrima</i> ’
MM:	Marovo	<i>tita</i>	‘ <i>Parinari glaberrima</i> ’
MM:	Roviana	<i>tita</i>	‘ <i>Parinari glaberrima</i> ’ (Henderson & Hancock 1988)
SES:	Bugotu	<i>tita</i>	‘putty nut’
SES:	Gela	<i>tita</i>	‘ <i>Parinari</i> sp.’

cf. also:

MM:	Babatana	<i>lita</i>	‘ <i>Parinari glaberrima</i> ’
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The cognate set below appears at first sight to be related to Baegu, Kwara’ae, Sa’a and Lau *saia* above, but *saia* is the regular reflex of POc **qatita*, since **q-* and **-t-* are both deleted, and *s-* is a regular accretion before the resulting initial *a-*, corresponding with Kwaio *l-* in *laia* and ’Are’are *r-* in *raia* (František Lichtenberk 1988). These changes are quite different from those regularly reflected in PCP.

PCP **sea* ‘tree, *Parinari insularum*’ (Milke (1961): POc)

Fij:	Rotuman	<i>sea</i>	‘tree sp.’
Fij:	Bauan	<i>sea</i>	‘ <i>Parinari insularum</i> ’
Pn:	Tongan	<i>hea</i>	‘ <i>Parinari insularum</i> ’
Pn:	E Futunan	<i>sea</i>	‘ <i>Parinari insularum</i> ’
Pn:	E Uvean	<i>hea</i>	‘ <i>Parinari insularum</i> ’
Pn:	Samoaan	<i>sea</i>	‘ <i>Parinari insularum</i> ’

It is not clear what connection (if any) the form below has with those above.

POc **maRakita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’

MM:	Mono-Alu	<i>malakita</i>	‘putty nut, <i>Parinari glaberrima</i> ’ (W. McClatchey, pers. comm.)
Fij:	Wayan	<i>mākita</i>	‘forest tree with large seeds used to caulk canoes, <i>Parinari laurina</i> ’
Fij:	Bauan	<i>makita</i>	‘putty nut, <i>Parinari laurina</i> ’

5.11 Palms

5.11.1 *Caryota rumphiana*, black palm, fishtail palm,
TP *waillimum* (Arecaceae)

Caryota rumphiana is the only palm in NW Island Melanesia with bipinnate fronds, i.e. the leaflets on either side of the midrib themselves have a central rib and are leaf-like (Figure 7.10, right). *C. rumphiana* stands 10–20 m high and has fruit the size of a cherry which hang in bunches from the top of its blackish trunk (Peekel (1984), Kwa’ioloa & Burt 2001: 187).

Throughout NW Island Melanesia, the trunks are split to make floorboards (Floyd 1954, Henderson & Hancock 1988: 150, Arentz et al. 1989: 93, Scales n.d. McEldowney 1995, Margetts 2005a). The wood is also used on New Britain for axe handles, clubs, bows and spears (Floyd 1954, Powell 1976). The pith from the young trunk is sometimes eaten on New Britain, and fed to pigs in the Solomons.

Henderson & Hancock (1988: 150) describe how inland dwellers in the Solomons use a felled *Caryota rumphiana* trunk to farm larvae of a large beetle of the genus *Rhynocaphorus* by cutting notches at 2 m intervals along it, harvesting the larvae and pupae 3–4 months later. For some households the larvae are a major source of protein, although others find the accompanying taste of the rotting palm core rather offensive.

The Oceanic data below were assembled by Blust (ACD). The reconstruction of PCEMP **bual(a)* ‘*Caryota* sp.’ is based on these data and on W Sumba ?*wuola*, E Sumba (both CMP) ?*wuala* ‘*C. mitis*’ (Verheijen 1990: 199).

PCEMP **bual(a)* ‘*Caryota* sp.’

POc *[*bual*]*bual* ‘species of palm used for making spears and bows; palm-wood spear or bow, probably *Caryota* sp.’ (ACD)

Adm:	Lou	(<i>si</i>) <i>pua</i>	‘black palm’
PT:	Tawala	<i>bua-bua</i>	‘small tree fern, used for spears’
PT:	Suau (Saliba)	<i>bua-bua</i>	‘k tree, used for spears and sticks’
MM:	Lihir	<i>buer</i>	‘fern sp.’
MM:	Roviana	<i>buala</i>	‘large kind of bow’
MM:	Simbo	<i>buala</i>	‘war bow’
SES:	Sa’a	<i>pue-pue</i>	‘a palm used for making bows, combs, heavy spears’
		<i>pue-pue</i>	‘heavy palm-wood spear’
SES:	Ulawa	<i>pua-pua</i>	‘a palm used for making bows, combs, heavy spears’
Pn:	Hawaiian	<i>pua</i>	‘arrow, dart, sometimes made from flower stalks of sugarcane’

PMP **katipa(l,n)* below is reconstructed on the basis of the Oceanic data below and of Hanunuo, Mangyan (WMP) *katipan* ‘*C. cumingii*’ (Madulid 2001a: 364) and Wandamen (EMP) *kasira* ‘black palm sp.’ (Smits & Voorhoeve 1992: 222).

PMP **katipa(l,n)* ‘a palm with black wood, *Caryota* sp.’

POc **kati(p)al* ‘a palm with black wood, *Caryota* sp.’

PT:	Tawala	<i>kahiala</i>	‘ <i>Caryota</i> sp.’
PT:	Dobu	<i>kasiala</i>	‘ <i>Caryota</i> sp.’

MM:	Tinuputz	<i>kacan</i>	‘ <i>Caryota</i> sp.’
MM:	Marovo	<i>kacuele</i>	‘palm, <i>Drymophloeus</i> sp., black wood used for bows and spear tips’

Tiny though the cognate set below is, the membership of its two members in different primary subgroups of Oceanic justifies a POc reconstruction.

POc **j(o,u)abo* ‘*Caryota* sp.’

Adm:	Baluan	<i>soap</i>	‘ <i>Caryota rumphiana</i> ’
MM:	Bali	<i>tuabo</i>	‘ <i>Caryota</i> sp.’ (Hide 1985)

5.11.2 *Licuala* spp., fan palm (Arecaceae)

The leaves of the small palm *Licuala ramsayi* (syn. *L. muelleri*, *L. peekelii*), growing to about 5–10 m, serve for roofing in parts of the Bismarcks (Powell 1976, Peekel 1984: 58). The Nakanai use them to wrap megapode eggs (A. Chowning, pers. comm.). The palm also serves decorative purposes: in the Ninigo Islands it is planted as an ornamental shrub (Sorensen 1950), and various writers note that its leaves are used for personal decoration.

POc **piRu* denoted one or more *Licuala* species, a fan palm. As French-Wright (1983: 208–209) and Chowning (2001: 84) note, in Fijian and the Polynesian languages its reflexes denote the fan palm *Pritchardia pacifica*, found only in Fiji and Polynesia.²⁶ This is an instance of an established name being given to a new-found species as Oceanic speakers moved eastward.

On the basis of the non-Oceanic data supporting Blust’s reconstruction of PMP **biRu?* (ACD), we would expect the POc form **piRu*, and this is reflected everywhere except in northern Vanuatu, where a local form **piloqi* is reflected. NCV forms sporadically retain a POc final consonant with an added **-i*, regularly lost in Volow, Mota and Merlav, and so the final *-y* of these items may reflect POc **-q*, a possibility recognised in the reconstruction of POc **piRu(q)*.

PMP **biRu?* ‘fan palm, *Licuala rumphii*’ (ACD)

POc **piRu(q)* ‘fan palm, *Licuala* sp.’ (ACD, Chowning 2001)

NNG:	Kove	<i>pilu</i>	‘ <i>Licuala</i> sp.’
MM:	Nakanai	<i>vilu-vilu</i>	‘ <i>Licuala</i> sp.’
MM:	Kara (E)	<i>fi</i>	‘ <i>Licuala lauterbachii</i> ’
MM:	Halia	<i>hil</i>	‘ <i>Licuala</i> sp.’
MM:	Solos	<i>hin</i>	‘ <i>Licuala</i> sp.’
MM:	Mono-Alu	<i>hiuru</i>	‘ <i>Licuala lauterbachii</i> ’ (W. McClatchey, pers. comm.)

PEOc **piRu(q)* ‘fan palm, umbrella palm’ (Geraghty 1990)

SES:	Gela	<i>vilu</i>	‘species of palm with umbrella-like leaves’
SES:	Lau	<i>filu</i>	‘umbrella palm’
SES:	Kwaio	<i>filu</i>	‘wild palm species used to make bows’
SES:	Kwara’ae	<i>filu</i>	‘ <i>Pritchardia pacifica</i> ’

²⁶ Polynesian terms reflect PPn **piu* where †**fiu* is expected.

		<i>filu tali</i>	‘ <i>Licuala lauterbachii</i> ’
SES:	Sa’a	<i>hilu</i>	‘a ridge covering of sago-palm leaves, laid on flat’
SES:	’Are’are	<i>hiru</i>	‘a palm tree with digital leaves, used for making bows’
SES:	Arosi	<i>hiru</i>	‘a palm sp. used in making a war-bow’
NCV:	Volow	<i>(n-ye)ploy</i>	‘ <i>Licuala</i> sp., <i>Pritchardia pacifica</i> ’ (François 2004)
NCV:	Mota	<i>viloy</i>	‘an umbrella palm; a frond of that palm used as an umbrella’
NCV:	Dorig	<i>(dã)vlo</i>	‘ <i>Licuala</i> sp., <i>Pritchardia pacifica</i> ’ (François 2004)
NCV:	Merlav	<i>(do)vloy</i>	‘ <i>Licuala</i> sp., <i>Pritchardia pacifica</i> ’ (François 2004)
SV:	Sye	<i>(lu)vor</i>	‘ <i>Pritchardia pacifica</i> ’
NCal:	Xârâcùù	<i>pii</i>	‘a kind of palm tree’
PCP * <i>viu</i> ‘fan palm, umbrella palm, <i>Pritchardia pacifica</i> ’			
Fij:	Bauan	<i>viu</i>	‘ <i>Pritchardia pacifica</i> ’
Pn:	Tongan	<i>piu</i>	‘ <i>Pritchardia pacifica</i> ’
Pn:	Niuean	<i>piu</i>	‘ <i>Pritchardia pacifica</i> ’
Pn:	E Uvean	<i>piu</i>	‘ <i>Pritchardia pacifica</i> ’
Pn:	E Futunan	<i>piu</i>	‘fan palm’
Pn:	Samoaan	<i>piu</i>	‘ <i>Pritchardia pacifica</i> ’
Pn:	Tokelauan	<i>piu</i>	‘ <i>Pritchardia pacifica</i> ’

6 The shrub layer

The shrub layer is usually patchy because of lack of sunlight. A few small trees, up to a height of around 15 m, grow here, as well as *Calamus* (§6.3.1), bamboos (ch.13, §3.1) and gingers (Henderson & Hancock 1988: 320).

6.1 Woody shrubs

6.1.1 *Abroma augusta* (Sterculiaceae)

Abroma augusta is a small shrub 1–2 m tall, more common in the highlands of New Guinea than in lowland forests (French 1986, Peekel 1984: 373). On Malaita its white bark is used to make hanging baskets (Kwa’ioloa & Burt 2001: 160). In parts of New Britain its bast provides rope for pig nets and for lashing house components and material used in making clothing, and bags (Powell 1976, Lentfer 2003).

Reflexes of POc **wasi-wasi* ‘*Abroma augusta*’ are found with this meaning only in Near Oceania. In Remote Oceania the name denotes a large forest tree, *Sterculia vitiensis* (ch. 11, §2.6), which does not occur in NW Island Melanesia. Will McClatchey (pers. comm.) suggests that the change in denotation was mediated by the fact that *S. vitiensis* is also a source of fibre.

POc **wasi-wasi* ‘*Abroma augusta*’

MM:	Kara (E)	<i>(ka)us-vas</i>	‘ <i>Abroma augusta</i> ’
MM:	Patpatar	<i>was-was</i>	‘ <i>Abroma augusta</i> ’
MM:	Nehan	<i>ase-is</i>	‘ <i>Abroma augusta</i> ’

SES:	Kwara'ae	<i>k^wasi-k^wasi</i>	' <i>Abroma augusta</i> '
PROc	* <i>wasi-wasi</i> ' <i>Sterculia vitiensis</i> ' (from data in Wheatley 1992, Lynch 2004a)		
NCV:	NE Ambae	<i>wah-wah</i>	' <i>Sterculia vitiensis</i> '
NCV:	Tangoa	(<i>vitu</i>) <i>vaha</i>	' <i>Sterculia vitiensis</i> '
NCV:	Raga	<i>wahi-wahi</i>	' <i>Sterculia vitiensis</i> '
NCV:	Apma	<i>wah-wah</i>	' <i>Sterculia vitiensis</i> '
NCV:	Tape	(<i>vən</i>) <i>woso-wos</i>	'whitewood'
SV:	Sye	<i>wo-wo</i>	' <i>Sterculia vitiensis</i> '
SV:	Lenakel	<i>nə-vha-vha</i>	' <i>Sterculia vitiensis</i> ' ²⁷
SV:	Anejoñ	<i>n-woθ-waθ</i>	' <i>Sterculia vitiensis</i> '
Fij:	Buca Bay	<i>waði-waði</i>	' <i>Sterculia vitiensis</i> ' (J. Parham 1972) (Buca Bay is in Vanua Levu)

6.1.2 *Angiopteris evecta* (syn. *A. erecta*), mule's foot fern (Marattiaceae)

The plant with the largest fronds (1.5m long) on New Ireland, *Angiopteris evecta* is a large fern common in shady inland forest. The fronds rise from a massive rootstock, fleshy and moist, but fragrant when dry (Peekel 1984: 30). Because of their moisture, the Kwara'ae lay them out around garden boundaries to soften the soil in the belief that this will improve the quality of the taro (Kwa'ioloa & Burt 2001: 211).

PCP **nas(e,i)* 'edible roots of certain plants?' POLLEX2

Fij:	Bauan	<i>naði</i>	'the greater roots of the yaqona plant'
PPn	* <i>nas(e,i)</i> 'giant fern, <i>Angiopteris evecta</i> , with edible root'		
Pn:	Samoan	<i>nase</i>	'the giant ferns <i>A. evecta</i> and <i>Marattia fraxinea</i> '
Pn:	Marquesan	<i>nahe, nahi</i>	'root eaten in times of scarcity'
Pn:	Rarotongan	<i>na?e</i>	' <i>Angiopteris evecta</i> '
Pn:	Tahitian	<i>nahe</i>	' <i>Angiopteris evecta</i> '

6.1.3 *Donax cannaeformis* (syn. *Clinogyne grandis*, *Maranta grandis*, *Thalia cannaeformis*, *Actoplantes cannaeformis*, *Donax arundastrum*) (Marantaceae)

A leafy shrub, *Donax cannaeformis* has a rhizome from which rise erect smooth stems 1.5–3 m tall with spreading branches about 85 cm long. It has elliptical leaves often with yellowish-white patches and white flowers and fruits, and grows in damp locations (Peekel 1984: 111). Its range is from SE Asia to the Solomons.

As the glosses below indicate, its stems are used in thatching, basket-making and as arm-lets.

²⁷ The spelling *nə-vha-vha* represents an attempt to interpret Wheatley's (1992) *nawhawha* and is not necessarily accurate.

PMP **niniq* ‘plant sp., *Donax cannaeformis*, used as material for making baskets’ (Blust 1989, ACD)

POc **nini(q)* ‘shrub, *Donax cannaeformis*’

MM:	Bola	(<i>natala</i>) <i>nini</i>	‘ <i>Donax cannaeformis</i> ’
MM:	Marovo	<i>nina</i>	‘ <i>Donax cannaeformis</i> ’
MM:	Ririo	<i>nina</i>	‘ <i>Donax cannaeformis</i> ’ (W. McClatchey, pers. comm.)
MM:	Babatana	<i>nine</i>	‘ <i>Donax cannaeformis</i> ’ (W. McClatchey, pers. comm.)
SES:	Gela	<i>nini</i>	‘sp. of bush used in wristlets’
SES:	Lau	<i>nini</i>	‘sp. of shrub; stems used in thatching’

6.1.4 *Garcinia* spp. (Clusiaceae)

Garcinia species grow in all sizes from small shrubs to tall canopy trees. The best known species is *G. mangostana*, the mangosteen, which grows up to 25 m high, but this is not indigenous to Oceania. The only indigenous species reported by Peekel (1984: 376–377) in the Bismarcks is *G. novo-guineensis* (syn. *G. warburgiana*), a tree just 5–10 m tall with small white flowers. It contains, especially in the roots, yellow latex which is used on New Ireland for painting ancestor pictures. This yellow is greenish and lighter than that from *Curcuma* (ch.13, §5.1).

Another species found in NW Island Melanesia is *G. pseudoguttifera* (syn. *G. pancheri*), a tree up to 25 m high (Wheatley 1992: 112). It is not found in the Bismarcks but occurs from Bougainville to Tonga. It has edible fruit and displays the considerable variation that reflects former cultivation (Walter & Sam 2002). Taller *Garcinia* species appear to play a greater role in the rain forests of Bougainville than of the Bismarcks (Mueller-Dombois & Fosberg 1998: 61).

Wood from an unnamed *Garcinia* species is used for axe handles on New Britain and for rafters both there and in the Admiralties (Floyd 1954, Arentz et al. 1989, O’Collins & Lamothe 1989).

Very little information is available to help us determine the denotata of the species below, but it is a reasonable inference that POc **bulu* denoted the small *Garcinia novo-guineensis*, as this is present in the Bismarcks (and is the gloss of the Motu reflex).

POc **bulu* ‘*Garcinia* sp., perhaps *G. novo-guineensis*’

PT:	Motu	<i>bio-bio</i>	‘ <i>Garcinia novo-guineensis</i> ’ (Lane-Poole 1925) ²⁸
SES:	Kwara’ae	(<i>?ai</i>) <i>bulu</i>	‘ <i>Diospyros maritima</i> ’
SES:	Lau	(<i>?ai</i>) <i>bulu</i>	‘ <i>Diospyros maritima</i> ’
NCV:	Vera’a	<i>wu-wul</i>	‘ <i>Garcinia pancheri</i> ’ (François 2004)
NCV:	Lakon	<i>vu-vul</i>	‘ <i>Garcinia pancheri</i> ’ (François 2004)
Fij:	Bauan	<i>bulu</i>	‘ <i>Garcinia</i> spp.’ (Keppel et al. 2005)

²⁸ In Motu POc *-l- > -i- before *i. Hence **bulu* > **buiu* > **biu*, then (irregularly) > *bio*.

The denotatum of PWOC **tabun* was probably a large canopy tree. Muyuw *tob* is a large canopy tree with stilt roots, an apt description of *G. latissima* (Conn & Damas 2006). Tolai *tabu-tabun* is glossed *G. scaphopetala*, which grows to 30 m.²⁹

PWOC **tabun* ‘*Garcinia* sp.’

- PT: Muyuw *tob* ‘large (25 m) *Garcinia* sp. with aerial roots’
 MM: Tolai *tabu-tabun* ‘*Garcinia scaphopetala*’ (Record 1945)

The tree designated by PSV **n-mob^wol* was evidently also a large species, as *G. sessilis* and *G. platyphylla* are both canopy trees.

PSOC **mab^wola* ‘*Garcinia* sp.’ (Lynch 2004a)

- NCV: Mota *maploa* ‘a tree, with smooth scented leaves and bark’

PSV **n-mob^wol* ‘*Garcinia* sp.’ (Lynch 2004a)

- SV: Sye *mopol* ‘*Garcinia sessilis*’
 SV: Anejoñ *n-mop^wol(hat)* ‘*Garcinia platyphylla*’

6.1.5 *Phaleria* spp. (Thymelaeaceae)

Peekel (1984: 393) describes *Phaleria coccinea* as a climbing shrub, 2–4 m high, with white flowers and red berries. No term is reconstructable earlier than PEOC **sinu*, glossed ‘shore tree with scented white flowers’ by Geraghty (1983). The Bauan gloss points to a taxon of shrubs whose sap causes irritation, including species of *Phaleria*, an inference supported by the Tongan and Samoan glosses.

If the NW Solomonian items under ‘cf. also’, all glossed *Cominsia gigantea* (Marantaceae) (a leafy shrub), are cognate, then POC **jinu* is reconstructable but with uncertain denotation.

PEOC **sinu* ‘taxon of shrubs whose sap causes irritation, including species of *Phaleria*’ (Geraghty 1983: 139)

- SES: Gela *sinu* ‘k.o. shore tree’
 Fij: Wayan *sinu* ‘small coastal tree, *Excoecaria agallocha*, with acrid milky sap, capable of blinding’
 Fij: Bauan *sinu* ‘generic name for several trees whose sap is irritating, including *Phaleria* spp.’
 Fij: Rotuman *huni* ‘flowering bush, *Phaleria disperma*’ (metathesis: Pn borrowing)

PPn **sinu* ‘*Phaleria* sp.’

- Pn: Tongan *huni* ‘flowering bush, *Phaleria disperma*’ (metathesis)
 Pn: Niuean *huni* ‘various kinds of plants with clustered flowers’ (metathesis)
 Pn: E Futunan *sinu* ‘a flowering shrub, *Hoya bicarinata*’
 Pn: W Futunan *sinu* ‘a tree whose sap is said to cause blindness’

²⁹ However, I am inclined to doubt the accuracy of the gloss, since (i) Peekel does not list this species and (ii) herbarium specimens are all from Bougainville.

Pn:	Ifira-Mele	<i>sinu</i>	‘a tree with irritating sap’
Pn:	Emae	<i>sinu</i>	‘a tree sp.’
Pn:	Samoaan	<i>sunu</i>	‘ <i>Phaleria disperma</i> ; taxon of flowering shrubs, inc. <i>Phaleria</i> spp., introduced <i>Ixora</i> spp. and <i>Hoya australis</i> ’ (Whistler 2000: 198–199) (metathesis)

cf. also:

MM:	Babatana	<i>zi-zinu (mesara)</i>	‘ <i>Cominsia gigantea</i> ’ (McClatchey et al. 2005)
MM:	Nduke	<i>zinu</i>	‘ <i>Cominsia gigantea</i> ’
MM:	Roviana	<i>zinu</i>	‘ <i>Cominsia gigantea</i> ’
MM:	Marovo	<i>sinu</i>	‘ <i>Cominsia gigantea</i> ’

6.1.6 *Semecarpus forstenii*, poisonwood, B *naolasi*, *posentri*, *posenwud* (Anacardiaceae)

Semecarpus forstenii is a shrub or small tree 3–10 m tall, with a corrosive black sap which destroys skin and inflicts painful wounds. Peekel calls it ‘[t]he most feared tree in the Bismarck Archipelago’ (Peekel 1984: 328, Kwa’ioloa & Burt 2001: 121–122).

S. vitiensis (syn. *S. laxiflora*) is a medium-sized tree up to 25 m in height, but it has a black sap with similar effects to that of *S. forstenii* (Wheatley 1992: 38).

The distribution of the two species seems to be complementary: *S. forstenii* in the Bismarcks and the Solomons and the larger *S. vitiensis* in Vanuatu and Fiji.³⁰ For this reason I infer that POC **walasi* denoted *S. forstenii*. POC **lasi* is listed by Tryon (1994) as ‘*Antiaris toxicaria*’, a gloss maintained by Lynch (2002a), but this seems incorrect in view of the reflexes listed here.³¹

The presence of *-i-* in Kwaio and Kwara’ae *k^wailasi* and Lau *koilasi* probably reflects a folk etymology which interprets the first syllable as *k^wai* ‘river, water’ (< POC **waiR*), but there is no other evidence to suggest that this is the origin of POC initial **wa-*. Indeed, it is possible that this folk etymologising accounts for the loss of **wa-* in a number of reflexes.

PMP **laji* ‘tree sp. with poisonous sap, *Antiaris toxicaria* (?)’ (Blust 1986, ACD)³²

POC **walasi* ‘tree sp. with poisonous sap, *Semecarpus forstenii*’

Adm:	Loniu	<i>walas</i>	‘a long seagrass which grows on sandy area near shore’
NNG:	Takia	<i>walas</i>	‘tree sp.’
PT:	Molima	<i>wenasi</i>	‘ <i>Semecarpus</i> sp.’
MM:	Patpatar	<i>(i)walas</i>	‘ <i>Semecarpus forstenii</i> ’
MM:	Tolai	<i>ola</i>	‘ <i>Semecarpus forstenii</i> ’
MM:	Gao	<i>na-ulahi</i>	‘ <i>Semecarpus forstenii</i> ’ (W. McClatchey, pers. comm.)

³⁰ But Hviding (2005: 107) does not give sufficient information to identify the species at Marovo.

³¹ See also the discussion of some of the items in this cognate set in Chowning (2001).

³² Wolff (1994) argues that this term should not be reconstructed for PMP as the non-Oceanic items have denotata unconnected with *S. forstenii*. However, the ACD includes Belau *ias* ‘*Excoecaria agallocha*’, a tree that also has toxic sap, thus supporting the PMP form.

MM:	Maringe	<i>n-olahi</i>	‘ <i>Semecarpus forstenii</i> ’ (W. McClatchey, pers. comm.)
SES:	Kwaio	<i>k^wailasi</i>	‘ <i>Semecarpus</i> sp.’
SES:	Lau	<i>koilasi</i>	‘ <i>Semecarpus</i> sp.’
SES:	Kwara’ae	<i>k^wailasi</i>	‘ <i>Semecarpus forstenii</i> ’
SES:	Arosi	<i>warasi</i>	‘sp. of tree with edible yellow fruit’
SES:	Sa’a	<i>lasi</i>	‘tree sp. with juice causing sores’
PSOc * <i>walasi</i> ‘ <i>Semecarpus vitiensis</i> ’			
NCV:	Mwotlap	<i>leh</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Mota	<i>las</i>	‘tree sp.’
NCV:	NE Ambae	<i>walahi</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Nokuku	<i>aulasi</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Kiai	<i>olasi</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Araki	<i>(vi)olas</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Tamambo	<i>(vu)alasi</i>	‘tree sp.’
NCV:	Sakao	<i>elai</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Raga	<i>walahi</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	Labo	<i>na-walas</i>	‘ <i>Semecarpus vitiensis</i> ’
NCV:	S Efate	<i>n-las</i>	‘ <i>Semecarpus vitiensis</i> ’
PSV * <i>na-yilas</i> ‘ <i>Semecarpus vitiensis</i> ’ (Lynch 2001c)			
SV:	Sye	<i>no-ule</i>	‘ <i>Semecarpus vitiensis</i> ’
SV:	Lenakel	<i>ni-lha</i>	‘ <i>Semecarpus vitiensis</i> ’
SV:	Anejoñ	<i>ne-ylaθ</i>	‘ <i>Semecarpus vitiensis</i> ’
NCal:	Pije	<i>wānit</i>	‘ <i>Semecarpus vitiensis</i> ’
NCal:	Iaai	<i>(i-o)unic</i>	‘ <i>Semecarpus vitiensis</i> ’
NCal:	Nêlêmwa	<i>wââric</i>	‘ <i>Semecarpus vitiensis</i> ’

6.2 Leafy shrubs

The only wild leafy shrub for which a reconstruction has been made is *Hornstedtia lycostoma*. The genera *Alpinia* and *Heliconia* also belong here, but no reconstruction of a name for an *Alpinia* species is supported by the data. Heliconias are also cultivated, and are treated in ch.13, §6.5.

6.2.1 *Hornstedtia lycostoma* (syn. *H. scottiana*) (Zingiberaceae)

Hornstedtia lycostoma is a leafy shrub, 3–6 m tall, a tall wild ginger with long leaves and red flowers that issue directly from the stem (Figure 7.11, left). The edible seeds are sweet and are gathered especially by children who sometimes eat so many that they become constipated (Powell 1976, Peekel 1984: 105–106, Kwa’ioloa & Burt 2001: 195 Hviding 2005: 110).

POc **dali-dali* ‘*Hornstedtia lycostoma*’

MM:	Patpatar	<i>dal-dal</i>	‘ <i>Hornstedtia lycostoma</i> ’
MM:	Tolai	<i>(ta)dal-dal</i>	‘ <i>Hornstedtia lycostoma</i> ’
MM:	Ramoaina	<i>dal-dal</i>	‘a plant’

MM:	Maringe	<i>da-dali</i>	' <i>Hornstedtia lycostoma</i> ' (Henderson & Hancock 1988)
SES:	Kwara'ae	<i>ka-kali</i>	' <i>Hornstedtia lycostoma</i> ' (Henderson & Hancock 1988)
Fij:	Wayan	<i>dali-dali</i>	' <i>Polyscias</i> sp.'

6.3 Climbers and epiphytes

6.3.1 *Calamus* spp., rattan, lawyer cane, TP *kanda*, P *loeaken* (Arecaceae)

There is a sense in which rattan could be assigned to the canopy, as it uses canopy trees as hosts and sometimes climbs as high as 50 m. At the same time, it is not a tree and it is convenient to treat it alongside other non-treelike plants.

Peekel (1984: 61) describes two very similar species of rattan, *Calamus holhrungii* (Figure 7.11, right) and *C. ralumensis*. They are spiny climbing palms from the vines of which curved thorns protrude to attach it to the host. *C. holhrungii* is recorded throughout NW Island Melanesia, whereas *C. ralumensis* is reported only by Peekel and only on the Gazelle Peninsula of New Britain. This raises the possibility that it is identical with *C. stipitatus*, which occurs throughout the Solomons and is described as similar to *C. holhrungii* but having longer, narrower leaflets and a somewhat thinner vine (Henderson & Hancock 1988: 208–211, Hviding 2005: 134, 147). Rattan appears not to have been present in Remote Oceania until recently.

Reports from the north coast of New Britain say that pieces of rattan are used for arrowheads, for the binding on arrows, for adzes, for bowstrings and bow bracers, in boats for lashings, bindings and braces and for the anchor cable, in houses for tying and plaiting, and for personal adornment as armbands and armlets, belts, necklaces and headbands (Floyd 1954, Powell 1976). A similar range of uses of the cane is reported elsewhere. Hviding reports that split lengths of *C. stipitatus* are used for sewing roofs and sewing sago-leaf panels in house construction. Unsplit lengths make ropes for heavy tasks like pulling a dugout canoe from its construction site down to the beach. *C. holhrungii* has similar uses, according to Kwa'ioloa & Burt (2001: 205). Hviding mentions that it is used to make tongs to pull items from the hot stone oven. Other parts of the plant are also used. The Bola make wall insulation from the leaves, sometimes eat the young shoots, and use the sap for various medicinal purposes. At Kwara'ae the thorns are used as tattooing needles.

POc **qu(w)e*³³ presumably denoted all of the two or three species mentioned above.

PAn **quay* 'rattan, *Calamus* sp.' (ACD)

POc **qu(w)e* 'rattan, *Calamus* spp.' (Grace 1969)

PT:	Gapapaiwa	<i>kuvei</i>	'rattan'
PT:	Wedau	<i>uwe</i>	'rattan'
PT:	Bwaidoga	<i>uwe</i>	'rattan'
PT:	Dobu	<i>?uwe</i>	'rattan'
PT:	Minaveha	<i>ue</i>	'rattan'
PT:	Tawala	<i>kuwe</i>	'rattan'

³³ It is not clear whether POc **-w-* was phonemic in this environment.

PT:	Suau (Saliba)	<i>kuwe</i>	‘vine type, used for tying sago leaves to roof of bushmaterial houses’
MM:	Bola	<i>hue</i>	‘ <i>Calamus hollrungii</i> ’
MM:	Nakanai	<i>hue</i>	‘a thorny rattan, <i>Calamus</i> sp.’
MM:	Lavongai	<i>ue</i>	‘rattan’
SES:	Bugotu	<i>yue</i>	‘ <i>Calamus hollrungii</i> , <i>C. stipitatis</i> and <i>C. vestitus</i> ’ (W. McClatchey, pers. comm.)
SES:	Gela	<i>yue</i>	‘rattan’
SES:	’Are’are	<i>uwe</i>	‘a liana’
SES:	Arosi	<i>?ue</i>	‘rattan’
SES:	Sa’a	<i>ue</i>	‘rattan cane’ (ACD)

6.3.2 *Dendrocnide* and *Laportea* spp., nettle trees, TP *salat*, *filas*, B *nanggalat* (Urticaceae)

Dendrocnide and *Laportea* species are nettles, i.e. plants with stinging hairs, often grouped together in the literature as ‘nettles’ or ‘nettle trees’. The hairs remain in the skin, enabling the toxin in them to spread. Those mentioned below range from the 40-metre canopy tree *D. excelsa* to the small stinging herb *L. interrupta*. They are included here as shrubs simply because this is where a majority of their tokens belong.

Until 1965 the members of both genera were considered to belong to the genus *Laportea*, but, as a footnote by the translator, E.E. Henty in Peekel (1984: 151) explains, the genus *Laportea* was revised by Chew (1965), removing woody species from it and placing them in a new genus *Dendrocnide*. At the same time the genus *Fleurya* was abandoned and its species transferred to *Laportea*. *Laportea* are monoecious herbs whilst *Dendrocnide* are dioecious shrubs or trees.³⁴ In both genera the fruit is dry and has a single seed.

Species of *Laportea* and *Dendrocnide* are often not distinguished by the glosses in the cognate sets below, but this at least in part reflects the usage of the terms. Wheatley (1992: 240) reports that in Vanuatu languages generally there is a single term for all *Dendrocnide* species, despite the fact that in Vanuatu they vary in size from the shrubby *D. latifolia*, which occasionally grows to 10 m but is usually smaller, to the 25 m canopy tree *D. moroides*.

Dendrocnide species are much better described in the literature than *Laportea* species, presumably because the latter are simply regarded as nuisance weeds. Species mentioned in the glosses below are, roughly from largest to smallest:

- *D. excelsa* (syn. *L. gigas*), the giant stinging tree, is a tree of the forest canopy, up to 40 m tall, with dull green heart-shaped or round leaves covered with stinging hairs.³⁵
- *D. harveyi* (syn. *D. milnei*, *L. harveyi*, *L. milnei*), a tree up to 20 m tall, apparently found only in Fiji and western Polynesia.
- *D. latifolia*, a small shrubby tree, occasionally with a straight bole and reaching 10 m, but usually smaller. It is common in secondary forest. It has a serious sting, the pain of which lasts for days (Wheatley 1992: 238, Kwa’ioloa & Burt 2001: 154, Scales n.d.).

³⁴ Dioecious: a single plant is male or female. Monoecious: a single plant has reproductive units of both sexes.

³⁵ <http://www.brisrain.webcentral.com.au/>, accessed 10 November 2007 (Brisbane Rainforest Action and Information Network).

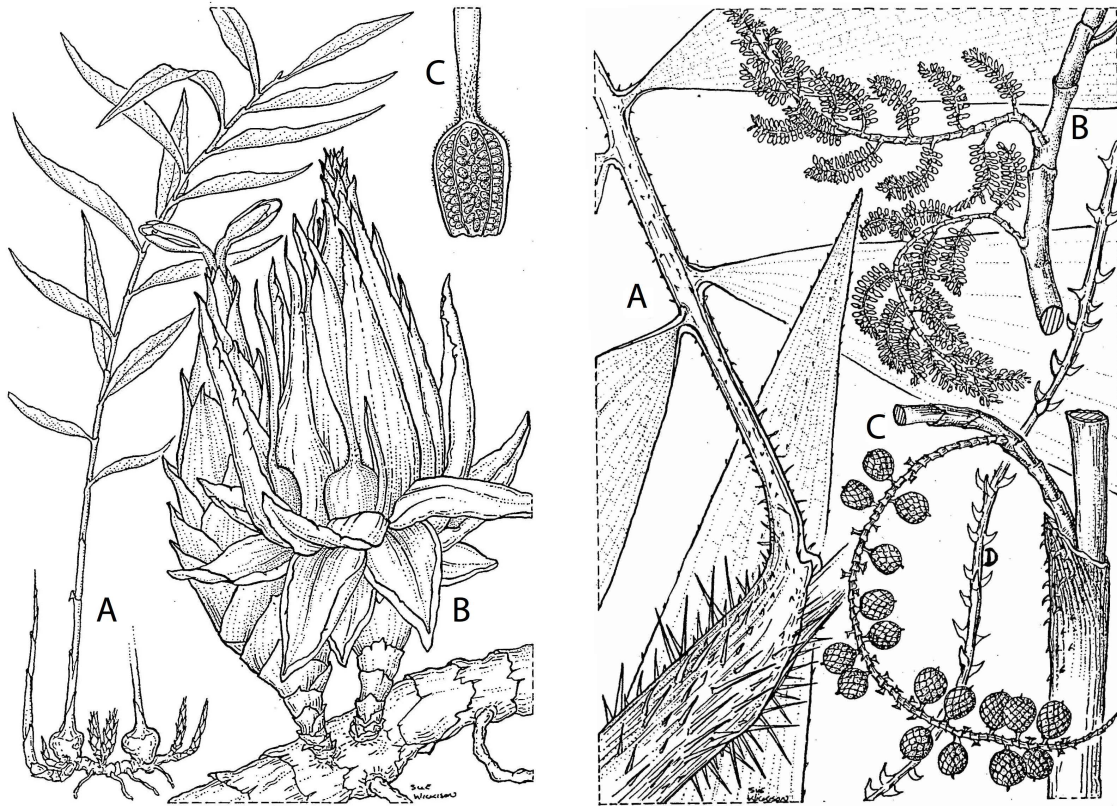


Figure 7.11 Left *Hornstedtia lycostoma*: A, plant, about 3 m high, with suckers and inflorescences; B, inflorescences; C, longitudinal section of large fruit. Right *Calamus hollrungii*, rattan: A, leaf base and spikes; B, inflorescence; C, fruit; D, portion of leaf tip with barbs.

- *D. sessiflora* (syn. *L. sessiflora*), a shrub or small tree 3–10 m high with a mild sting (Peekel 1984: 153).
- *L. interrupta* (syn. *Fleurya interrupta*, *Urtica interrupta*) resembles a small European stinging nettle with a serious sting, and is cultivated and eaten by the Tolai of the Gazelle Peninsula of New Britain (Peekel 1984: 157).

Apparently none of the trees is used for timber, but Ann Chowning (pers. comm.) reports that on New Britain Nakanai and Meramera speakers dry *Laportea* bark over a fire and use it for roofs and walls. Wheatley (1992: 240) comments that *D. moroides* (syn. *L. moroides*), a canopy tree of 25 m found in central Vanuatu, is considered useless because the wood is very soft and rots quickly. The leaves and bark of a number of species have medicinal uses. The leaves of a *Dendrocnide* species were used medicinally on Manam Island. They were boiled in water or with grated coconut to cure constipation or general seediness (Wedgwood 1934: 286–287). Peekel (1984: 151) notes that the finely chopped leaves of *D. longifolia* (a shrub or small tree, 3–5 m high) were mixed in to dogs' food to make them hunt more keenly. *D. latifolia* was used in much the same way on Mwothlap, except that here the recipients were warriors: they were given a soup made from the leaves to render them quicker tempered and stronger in battle (Wheatley 1992: 238).

Several forms below reflect PAn **lateŋ* with a prefixed syllable: POc **ja-latoŋ*, PAdm **la-latoŋ*, **ña-latoŋ*, PNCV **ga-latoŋ*. The existence of the various prefixed forms indicates

that unprefixes **latoŋ* was also inherited into POc, and this is borne out by a single unprefixes reflex below: Kove *lato*. POc **jalatoŋ*, the most widely reflected form, must also have been inherited, as non-Oceanic reflexes occur. Apart from a few languages in the extreme north of Vanuatu—Vurës, Mwesen, Dorig, Merlav—which reflect the prefix **ja-* regularly (François 2004), most known reflexes in Vanuatu, listed separately below, reflect **ga-* ‘tree’.

PAn **lateŋ* ‘stinging nettle tree, *Laportea harveyi*’ (Blust 1972*b*)

PMP **zalateŋ* ‘*Laportea* and *Dendrocnide* spp.’ (Dempwolff 1938)

POc **[ja]latoŋ* ‘*Laportea* and *Dendrocnide* spp.’ (Milke 1961: **salatoŋ*; Ross 1989)

PAdm **lalato*, **ñalato* ‘*Laportea* and *Dendrocnide* spp.’ (Blust 1996*b*)

Adm: Lou	<i>lalat</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Wuvulu	<i>lalaʔo</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Kele	<i>lulat</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Lenkau	<i>lalatr</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Seimat	<i>nalat</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Bipi	<i>ñalak</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Loni	<i>ñalat</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Leipon	<i>ñilet</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)
Adm: Ndrehet	<i> nolok</i>	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’ (Blust 1996 <i>b</i>)

PWOc **[ja]latoŋ* ‘nettle tree, *Dendrocnide* sp., perhaps *D. warburgii*’

NNG: Kove	<i>lato</i>	‘ <i>Dendrocnide excelsa</i> ’ (Chowning 2001: 83)
NNG: Takia	<i>dalat</i>	‘nettle tree’
NNG: Manam	<i>zalato</i>	‘tree sp. which causes itching, cooked and eaten after maternity, used as a medicine’
NNG: Sissano	<i>talat</i>	‘nettle plant; poison oak tree’
MM: Nduke	<i>zilatono</i>	‘ <i>Laportea interrupta</i> and <i>L. ruderalis</i> ’
MM: Marovo	<i>zilatono</i>	‘ <i>Laportea interrupta</i> and <i>L. ruderalis</i> ’
MM: Roviana	<i>jilatono</i>	‘k.o. nettle’

PEOc **[ja]lato* ‘nettle tree, *Dendrocnide* sp.’

SES: Gela	<i>(haŋa)lato</i>	‘ <i>Dendrocnide</i> sp. (W. McClatchey, pers. comm.)’
SES: Sa’a	<i>(nunu)lao</i>	‘nettle tree’
SES: Ulawa	<i>(dū)lao</i>	‘nettle tree’
SES: Arosi	<i>darao</i>	‘k.o. nettle’
NCV: Vurës	<i>silat</i>	‘ <i>Dendrocnide</i> sp. (François 2004)’
NCV: Mwesen	<i>salat</i>	‘ <i>Dendrocnide</i> sp.’ (François 2004)
NCV: Dorig	<i>(o)slat</i>	‘ <i>Dendrocnide</i> sp.’ (François 2004)
NCV: Merlav	<i>ne-silat</i>	‘ <i>Dendrocnide</i> sp.’ (François 2004)
SV: Sye	<i>n-elyat</i>	‘ <i>Dendrocnide</i> sp.’
Fij: Wayan	<i>salato</i>	‘ <i>Dendrocnide harveyi</i> ’ (Geraghty 2004: 83)
Fij: Bauan	<i>salato</i>	‘ <i>Dendrocnide harveyi</i> ’ (Geraghty 2004: 83)
Pn: Samoan	<i>salato</i>	‘ <i>Dendrocnide harveyi</i> ’ (Whistler 2000: 196)

PNCV **ga-lato* ‘nettle tree’ (Clark 1996*a*)

NCV: Mwotlap	<i>na-hlat</i>	‘ <i>Dendrocnide</i> spp.’
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NCV: Mota	<i>kalato</i>	‘nettle tree’
NCV: NE Ambae	<i>kalato</i>	‘ <i>Dendrocnide latifolia</i> ’
NCV: Nokuku	<i>elat</i>	‘nettle tree’
NCV: Araki	<i>kalaro</i>	‘ <i>Dendrocnide</i> sp.’
NCV: Tamambo	<i>(vu)kalato</i>	‘nettle tree’
NCV: Raga	<i>galato</i>	‘ <i>Dendrocnide latifolia</i> ’
NCV: Uripiv	<i>gelat</i>	‘nettle tree’
NCV: Labo	<i>na-ŋgalate</i>	‘stinging nettle’
NCV: Lonwolwol	<i>gela[r,t]</i>	‘stinging leaf bush’

Clark (1996a) plausibly suggests that PNCV **kara* reflects POc **kaRat* ‘bite’, and the final *-t* of Big Nambas *n-harət* appears to support this etymology.

POc **kara(t)* ‘a small stinging plant, perhaps *Laportea interrupta*’ (Chowning 2001: 83)

NNG: Kove	<i>gala</i>	‘a stinging plant related to <i>lato</i> (<i>D. excelsa</i>)?’
MM: Tolai	<i>kara</i>	‘stinging nettle spp., <i>D. sessiflora</i> , <i>L. interrupta</i> ’
NCV: Tape	<i>nə-xārət</i>	‘stinging nettle’
NCV: Big Nambas	<i>n-harət</i>	‘stinging nettle’
NCV: Port Sandwich	<i>na-xer</i>	‘stinging nettle’
NCV: Paamese	<i>a-ai</i>	‘devil nettle (<i>Dendrocnide</i> sp.)’
NCV: Lewo	<i>ke</i>	‘nettle’
NCV: Namakir	<i>kar</i>	‘nettle tree’
NCV: Nguna	<i>na-kara</i>	‘nettle tree’

6.3.3 *Lygodium* spp. (Lygodiaceae)

Ferns of the genus *Lygodium* are climbing vines which wind around tree trunks. Peekel (1984: 27, 30) writes that *L. circinnatum* (syn. *L. dichotomum*, *L. flexuosum*) grows 3–6 m long, *L. trifurcatum*, more delicate than *L. circinnatum*, grows 3–5 m high, and *L. scandens* (syn. *L. microphyllum*) 1–3 m long.

All are apparently used as binding material. The thicker *L. circinnatum* and, among the Roviana, *L. trifurcatum* are used for binding outrigger booms. The more delicate *L. scandens* is used in weaving, for tying bundles and as circlets for the arm or leg (Waterhouse 1949, Arentz et al. 1989: 93).

PMP **qaRsam* ‘fern sp.’ (ACD)

POc **qasam* ‘fern used for tying and binding, *Lygodium circinnatum*’ (ACD, Chowning 2001: 83)

MM: Nakanai	<i>hara</i>	‘ <i>Lygodium circinnatum</i> ’
MM: Kara (E)	<i>kasom</i>	‘ <i>Lygodium circinnatum</i> ’
MM: Patpatar	<i>sam</i>	‘ <i>Lygodium circinnatum</i> ’
MM: Patpatar	<i>sam-sam</i>	‘ <i>Lygodium scandens</i> ’
MM: Tolai	<i>em</i>	‘ <i>Lygodium circinnatum</i> ’
MM: Tolai	<i>em-ien</i>	‘ <i>Lygodium scandens</i> ’
MM: Tangga	<i>āsem</i>	‘the <i>Lygodium</i> creeper’
MM: Nehan	<i>heham</i>	‘ <i>Lygodium circinnatum</i> ’

MM:	Petats	<i>aisam</i>	‘ <i>Lygodium circinnatum</i> ’
MM:	Tinputz	<i>asam</i>	‘ <i>Lygodium circinnatum</i> ’ (Blackwood 1935)
MM:	Mono-Alu	<i>asama</i>	‘a creeper species’ (Record 1945)
MM:	Marovo	<i>amasa</i>	‘creeping coastal fern, <i>Lygodium</i> sp. (metathesis)’
MM:	Roviana	<i>asama</i>	‘a trailing fern, <i>Lygodium trifurcatum</i> ’
SES:	Gela	<i>aha</i>	‘species of creeper used for stringe’
SES:	Tolo	<i>asa</i>	‘vine sp. used to bind canoes and weave baskets’
SES:	Kwara’ae	<i>sata</i>	‘ <i>Lygodium scandens</i> ’ (Whitmore 1966)

6.3.4 *Merremia* spp. (Convolvulaceae)

Merremia peltata (syn. *Operculina peltata*, *Convolvulus peltatus*, *Ipomoea peltata*) is a woody liana found throughout the rain forest, but it is particularly abundant in disturbed forest areas. The vine has the thickness of a human arm and grows 15–50 m high, with white-yellowish funnel-shaped flowers that resemble Morning Glory (Peekel 1984: 467, Pawley & Sayaba 2003, W. McClatchey, pers. comm.).

According to Peekel *M. peltata* vines are used as binding material in circumstances where the fastening does not need to be durable. Hviding (2005: 124) reports from Marovo that older thicker vines contain a milky sap that is good for stopping blood flow in an emergency.

The Meso-Melanesian forms below other than Tolai *valearu* reflect POc **paliaRa*, but reflexes of **paliaRua* are found in New Ireland, southern Vanuatu and Fiji, and I take this to have been the POc form.

POc **paliaRua* ‘a vine, *Merremia peltata*’

MM:	Nakanai	<i>valiala</i>	‘a vine, <i>Ipomoea</i> sp.’ (Floyd 1954)
MM:	Kara (E)	<i>viliai</i>	‘ <i>Merremia peltata</i> ’
MM:	Madak	<i>leale</i>	‘ <i>Merremia peltata</i> ’
MM:	Patpatar	<i>haliara</i>	‘ <i>Merremia peltata</i> ’
MM:	Tolai	<i>valear[a,u]</i>	‘ <i>Merremia peltata</i> ’
MM:	Ramoaina	<i>waliara</i>	‘a creeping plant’
SV:	Sye	<i>(nos-i)vilyau</i>	‘ <i>Merremia peltata</i> ’
Fij:	Wayan	<i>veliawa</i>	‘ <i>Merremia peltata</i> ’ ³⁶

6.3.5 *Asplenium nidus*, bird’s nest fern (Aspleniaceae)

The bird’s nest fern, *Asplenium nidus*, usually grows as an epiphyte on the trunks or branches of trees in the rain forest or mangrove swamp. It has large simple fronds visually similar to banana leaves, growing to 50–150 cm long and 10–20 cm broad. The fronds are light green, often crinkled, with a black midrib. The fronds grow in clusters and roll back as they turn brown, creating a massive leaf nest where they are attached to the tree. It is an ideal understorey plant, as it thrives in warm, humid habitats in partial or full shade (Peekel 1984: 17, Hviding 2005: 124).

The POc term was **p^wete*.

³⁶ J. Parham (1972) gives Fijian *veliyawa* ‘*M. pacifica*’ and *viliviwa* ‘*M. peltata*’ but does not name dialects.

POc **p^wete* ‘bird’s nest fern, *Asplenium nidus*’

MM:	Patpatar	<i>pate</i>	‘ <i>Asplenium nidus</i> ’
MM:	Tolai	<i>pete</i>	‘ <i>Asplenium nidus</i> ’
NCV:	Mota	<i>puyet</i>	‘ <i>Asplenium nidus</i> ’
NCV:	Dorig	<i>bit</i>	‘ <i>Asplenium nidus</i> ’ (François 2004)
NCV:	Lakon	<i>puit</i>	‘ <i>Asplenium nidus</i> ’ (François 2004)

7 The forest floor

Because it receives little light, the forest floor is often almost bare of plants that depend for their existence on photosynthesis. The lower parts of trees and the debris of fallen trunks and branches, however, provide a home for fungi of various kinds.

The generic term for mushrooms and fleshy fungi was POc **taliŋa* (Ch 3, §4.7), formally identical to **taliŋa* ‘ear’ and presumably reflecting a perception that some fungi resemble the human ear. Blust (2000) points out that more detailed descriptions specify the referent of **taliŋa* reflexes as jelly fungus, which do not have the umbrella-like shape of a mushroom but ‘sprout directly from the trunks of dead trees as a collection of folded tissues which may appear cup-like or ear-like’. Their names include reference to ‘ear’ in a number of cultures around the world. In Austronesian languages, including some in Oceania, the name also specifies the ear’s owner. Since they grow on tree bark, they are sometimes named ‘tree ear’. Whether one should therefore reconstruct POc **taliŋa qi kayu* ‘tree fungus’ (lit. ‘ear of tree’) is a little debatable. This may well have been a POc locution, as Blust also notes its occurrence in non-Oceanic Austronesian languages, but it may also have been coined more than once in the history of Austronesian languages. Most of the terms below are from Blust (2000).

Adm:	Mondropolon	<i>can-n-i kei</i>	(<i>cane-n</i> ‘her/his ear’)
SV:	Anejoñ	<i>in-ticŋa-nyai</i>	‘mushroom (arboreal)’ (cf. <i>in-yai</i> ‘tree’)
Pn:	Māori	<i>tariŋa rākau</i>	

Some jelly fungi are named ‘rat ear’, apparently because of their shape:

NCV:	Paamese	<i>raliŋe-n asu</i>	‘kind of fungus which grows on dry wood’
Mic:	Marshallese	<i>lɔcilŋi-n kicɾik</i>	‘toadstool, <i>Auricularia ampla</i> , and other ear-like Basidiomycetes (fungi)’
Pn:	Rarotongan	<i>tariŋa kiore</i>	‘fungus sp. which grows on decaying trees’
Pn:	Tuamotuan	<i>tariŋa kiōre</i>	
Pn:	Māori	<i>taliŋa ?imoa</i>	

A number of Oceanic terms translate as ‘ghost ear’. Blust suggests that this reflects their spiritual significance, associated with the hallucinogenic properties of some fungi and with their sudden appearance after a thunder storm—which also accounts for the ‘thunder ear’ terms below. The distribution of ‘ghost ear’ terms perhaps justifies the reconstruction of POc **taliŋa qi qanitu*, literally ‘ear of spirit of dead’, but the term for ‘spirit of dead’ varies across languages.

Adm:	Seimat	<i>taxiŋ i paxi</i>	(lit. ‘ear of ancestral spirit’)
Mic:	Ponapean	<i>saleŋ en eni</i>	
Mic:	Mortlockese	<i>sæliŋa-n anu</i>	‘mushroom’ (lit. ‘ear of ghost’)
Mic:	Puluwatese	<i>hæliŋæ-n hoomæ</i>	‘tree fungus, mushroom’ (<i>hoomæ</i> ‘bad ghost of dead’)
Mic:	Chuukese	<i>seniŋe-r soomæ</i>	
Fij:	Rotuman	<i>faliaŋ ne ?atua</i>	‘toadstool or fungus’
Fij:	Bauan	<i>daliŋa ni kalou</i>	
Pn:	Tikopia	<i>tariŋa ŋa atua</i>	

The data below support a PMic reconstruction.

PMic **taliŋa ni para* ‘fungus growing on tree trunks’ (lit. ‘ear of thunder’)

Mic:	Kiribati	<i>taniŋa ni pa</i>	‘mushroom-like fungus growing on tree trunks, <i>Myxomycetes</i> : slime fungus’ (<i>ba</i> ‘thunder’)
Mic:	Woleaian	<i>taliŋe-ri-paç</i>	‘mushroom’ (<i>paç</i> ‘thunder’)
Mic:	Satawalese	<i>saliŋa-ni-paç</i>	‘kind of toadstool’

In our data sources terms for different kinds of fungus tend to be very few, and only one reconstruction is offered, based on work by French-Wright (1983).

PWOC **kokoi* ‘mushroom sp.’ (French-Wright 1983)

NNG:	Kove	<i>koko</i>	‘edible mushroom sp.’ (A. Chowning, pers. comm.)
PT:	Bwaidoga	<i>kokoio</i>	‘mushroom or toadstool sp.’
MM:	Petats	<i>koko</i>	‘mushroom or toadstool’

8 *Wild plants of secondary lowland rain forest and grassland*

MALCOLM ROSS

1 Introduction

The plants treated in this chapter grow in secondary lowland rain forest or in grasslands, i.e., in the forest which regrows on old fallow areas and on the grasslands that appear when regrowth doesn't occur. The dominant characteristics of secondary forest plants are that they do not grow large enough to become canopy trees and they are intolerant of shade—they need sunlight (Henderson & Hancock 1988: 323). As long as secondary regrowth remains low enough in stature, they survive, but when they lose their dominance to taller trees typical of the primary rain forest canopy, they cease to reproduce at that location (see ch.2, §3.2.2).

If, as seems to be the case, there was little or no agriculture in the Bismarck Archipelago before the arrival of the ancestors of Proto Oceanic (POc) speakers (see ch.2, §4), then one might infer that there was no secondary regrowth and no grassland in the region in POc times. However, regrowth would certainly have occurred in New Britain in the wake of volcanic eruptions which must on occasion have wiped out tracts of primary forest.¹ Because grasslands occur primarily in drier areas, there is still very little grassland in the Bismarcks.

If, then, there was relatively little secondary forest in the Bismarcks—and what there was would ultimately have returned to primary forest—where were today's secondary forest trees located? They would have grown in locations with sufficient gaps in the canopy to let in sunlight. The more salt-tolerant grew on the coastal edge of the littoral forest, and others grew along river and stream banks. The immediate pre-Oceanic inhabitants of the Bismarcks appear to have led fairly sedentary lives and probably sometimes replanted useful trees closer to their dwellings (see discussion in ch. 2, §4). Very little is known about their lifestyle except by inference, but they presumably lived in clearings, perhaps especially on low hilltops, and these would also have provided environments for some of today's secondary forest trees.

¹ Further south, in the Solomons and especially in Vanuatu, tracts of primary forest are frequently damaged or destroyed by cyclonic storms, providing an environment for secondary regrowth, but the weather closer to the equator is considerably calmer in this regard (see vol.2, ch.5).

One thing is clear: most of the species treated in this chapter were known to POC speakers and must have been accessible to them, otherwise POC terms would not be reconstructable in the quantity that they are.

2 Trees and shrubs

2.1 *Acalypha* spp., copper leaf, B *redlif* (Euphorbiaceae)

Peekel (1984: 308–309) distinguishes three shrubs of the genus *Acalypha*, namely *A. longispica*, *A. grandis* and *A. wilkesiana*, all in the 2–4 m range. The first two are indigenous to the Bismarcks, the last an import from Fiji. They have hairy twigs, their flowers grow in long spikes, and two of them, *A. grandis* and *A. wilkesiana*, have red leaves.

A. longispica is common in secondary forest. *A. grandis* is grown as an ornamental shrub in New Ireland, but the Kwarae’ae take short poles from it, using them in small buildings, to stake yams and to plant living pig fences (Kwa’ioloa & Burt 2001: 148).

POc **ka[(r,l)aqabusi* appears to have denoted a taxon including at least *A. longispica* and *A. grandis*. The syllable **(r,l)a-* is absent from the PMM form, but present in PEOc. It may or may not have been present in POC. Weakly supported PEOc **(k)a(r,l)adron* appears also to have denoted one or more *Acalypha* species. The two PEOc etyma apparently share the initial element **ka(r,l)a-*, with an ambiguous liquid: North/Central Vanuatu and Kiribati reflexes point to **-r-*, SE Solomonic and Tongan to **-l-*, and other Polynesian languages to either. South Vanuatu languages reflect **-n-*, which I take to be an idiosyncratic local innovation.

Whistler (1991b: 51–52) glosses the Tongan reflex ‘cat’s tail’ (*pusi* ‘cat’), arguing that as the cat was a European introduction to Tonga, the name must be post-contact. However, this cognate set gives the lie to this interpretation.

POc **ka[(r,l)aqabusi* ‘*Acalypha* spp.’

PMM **kaqabusi* ‘*Acalypha* spp.’

MM: Kara (E)	<i>kavus</i>	‘ <i>Acalypha longispica</i> ’ (zero for †-l- or †-r-)
MM: Lihir	<i>buis</i>	‘ <i>Acalypha wilkesiana</i> ’
MM: Patpatar	<i>kakabus</i>	‘ <i>Acalypha longispica</i> ’ (zero for †-l- or †-r-)
MM: Kia	<i>yabusi</i>	‘ <i>Acalypha grandis</i> ’ (W. McClatchey, pers. comm.)
MM: Maringe	<i>yabusi</i>	‘ <i>Acalypha caturus</i> ’ (W. McClatchey, pers. comm.)

PEOc **ka(r,l)aqabusi* ‘*Acalypha* sp.’

SES: Kwara’ae	<i>?alabusi</i>	‘ <i>Acalypha grandis</i> ’
NCV: Neve’ei	<i>no-xorabis</i>	‘tree sp.’ (J. Lynch, pers. comm.)
NCV: Big Nambas	<i>n-irat</i>	‘hardwood tree sp. used for digging sticks’ (J. Lynch, pers. comm.)
NCV: Uripiv	<i>n-orbus</i>	‘ <i>Acalypha</i> sp.’

PSV **na-yniab^wus* ‘*Acalypha* sp.’

SV: Sye	<i>no-ynompi</i>	‘ <i>Acalypha</i> sp.’
SV: Anejoñ	<i>ne-yñop^woθ</i>	‘ <i>Acalypha</i> sp.’

PCP **ka(r,l)aqabusi* ‘*Acalypha* spp.’

Fij: Wayan	<i>karabusi</i>	‘ <i>Acalypha repanda</i> ’
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Fij:	Bauan	<i>karabuði</i>	‘ <i>Acalypha insulana</i> , <i>A. grandis</i> , <i>A. wilkesiana</i> ’
Pn:	Tongan	<i>kala-kalaʻapusi</i>	‘ <i>Acalypha</i> spp.’ (-s- for †-h-)
Pn:	Anutan	<i>kara-karapui</i>	‘ <i>Acalypha grandis</i> ’
Pn:	Tuvalu	<i>kala-kalāpuhi</i>	‘ <i>Acalypha grandis</i> ’
Pn:	E Futunan	<i>kalaʻapusi</i>	‘ <i>Acalypha grandis</i> ’
Pn:	E Uvean	<i>kalāpuhi</i>	‘ <i>Acalypha grandis</i> ’
Pn:	Tikopia	<i>karāpusi</i>	‘ <i>Acalypha hispida</i> and <i>Macaranga</i> spp.’

PEOc **(k)a(r,l)adroŋa* ‘*Acalypha* sp.’

SES:	Ulawa	<i>aladoŋa</i>	‘ <i>Acalypha</i> sp.’ (W. McClatchey, pers. comm.)
Mic:	Kiribati	<i>aroŋa</i>	‘ <i>Acalypha amentacea</i> ’

2.2 *Alphitonia* spp. (Rhamnaceae)

Trees of the genus *Alphitonia* are sub-canopy trees which are conspicuous because of their light grey bark and leaves which are shiny brown or green on the upper surface but grey, white or silver underneath with brown veins (Peekel 1984: 345). The Bismarcks species named by Peekel are *A. macrocarpa*, 8–10 m tall, and *A. excelsa*, 10–20 m tall. Apparently very similar to the latter are *A. incana* (syn. *A. philippensis*) and *A. zizyphoides* (whitewood, B *waetwud*, *huremi*), the latter growing up to 30 m tall. Found respectively in NW Island Melanesia and from Vanuatu to eastern Polynesia, they are important in house construction and in traditional medicine. The leaves were used as soap (Powell 1976, Whistler 1991b: 126, Wheatley 1992: 193–195, Kwa’ioloa & Burt 2001: 116, Thomson & Thaman 2006).

If Lukep (Pono) (NNG) *doi* ‘*Cerbera manghas*’ is cognate (the two trees are of similar size and have similarly shaped leaves), then POC **doi* is reconstructable, but only with the vague sense ‘a medium-sized tree sp.’.

PCP **doi* ‘*Alphitonia* spp.’

Fij:	Wayan	<i>doi</i>	‘ <i>Alphitonia zizyphoides</i> and <i>A. franguloides</i> ’
Fij:	Bauan	<i>doi</i>	‘ <i>Alphitonia excelsa</i> ’
Pn:	Tongan	<i>toi</i>	‘ <i>Alphitonia zizyphoides</i> ’
Pn:	Niuean	<i>toi</i>	‘ <i>Alphitonia zizyphoides</i> ’
Pn:	E Futunan	<i>toi</i>	‘tree sp.’
Pn:	E Uvean	<i>toi</i>	‘ <i>Alphitonia excelsa</i> ’
Pn:	Samoan	<i>toi</i>	‘ <i>Alphitonia zizyphoides</i> ’
Pn:	Rarotongan	<i>toi</i>	‘ <i>Alphitonia zizyphoides</i> ’
Pn:	Tahitian	<i>toi</i>	‘ <i>Alphitonia zizyphoides</i> ’

cf. also:

NCV:	Raga	<i>dovae</i>	‘ <i>Alphitonia zizyphoides</i> ’ (Walsh 2004)
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2.3 *Commersonia bartramia* (Sterculiaceae)

Commersonia bartramia is a common small bushy tree which grows up to 15 m in height, and is particularly common in secondary forest. It has a thin trunk, often crooked or leaning when it is competing with other trees for light (Wheatley 1992: 221).

C. bartramia grows fast and, if the light allows it, straight, and is thus a valued timber in the Bismarcks and the Solomons, as it provides numerous rafters. The wood is lightweight, tough, cardboard-like and termite-proof. However, the Kwara'ae regard it as good only for building cookhouses. On New Britain and in the Solomons it is regarded as good firewood. In both the Bismarcks and the Solomons the bast (inner bark fibre) is an important source of cordage, used to make fishing lines, nets and baskets, and among the Nakanai the bast is beaten into masks (Floyd 1954, Powell 1976, Peekel 1984: 371, Henderson & Hancock 1988: 194, Kwa'io'loa & Burt 2001: 160).

The POc term for *C. bartramia* was **jamaR*. The Mwotlap, Mota and Vera'a reflexes include a reflex of the prefix **mala-* 'like'. One would thus expect them to denote a plant that resembled *C. bertramia*, but they apparently denote *C. bertramia* itself (ch.2, §7.1.4).

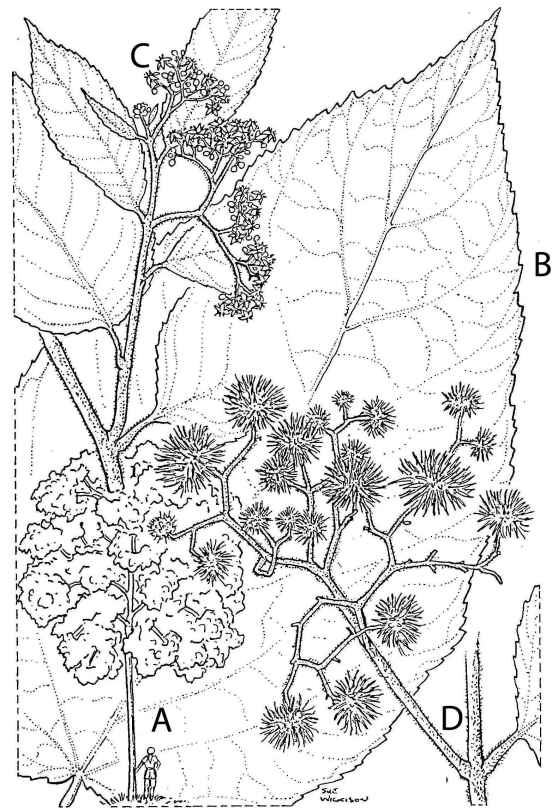


Figure 8.1 *Commersonia bartramia*: A, tree; B, leaf; C, stem bearing leaves and flowering shoot; D, ageing mature fruit.

POc **jamaR* 'Commersonia bartramia'

MM:	Marovo	<i>jamara</i>	' <i>Commersonia bartramia</i> ' (Henderson & Hancock 1988: 194)
TM:	Natügu	<i>tame-tame</i>	' <i>Commersonia bartramia</i> ' (Henderson & Hancock 1988: 194)
SES:	W Guadalcanal	<i>jemara</i>	' <i>Commersonia bartramia</i> ' (borrowed from a NW Solomonic language)
SES:	Kwara'ae	<i>da-dame</i>	' <i>Commersonia bartramia</i> ' (Henderson & Hancock 1988: 194)
SES:	Kwaio	<i>da-dame</i>	' <i>Commersonia bartramia</i> '
SES:	Lau	<i>da-dame</i>	' <i>Commersonia bartramia</i> '
NCV:	Mwotlap	<i>na-(may)ham</i>	' <i>Commersonia bartramia</i> '
NCV:	Mota	<i>(mara)sama</i>	' <i>Commersonia bartramia</i> '
NCV:	Vera'a	<i>(mar)sama</i>	' <i>Commersonia bartramia</i> '
SV:	Sye	<i>ne-hemar</i>	' <i>Commersonia bartramia</i> '
Fij:	Bauan	<i>sama</i>	' <i>Commersonia bartramia</i> ' (Keppel et al. 2005)

2.4 *Glochidion philippicum*, little cheese tree, B *namalao* (Euphorbiaceae)

The little cheese tree, *Glochidion philippicum* (syn. *G. ramiflorum*), grows 10–20 m tall, and is common in secondary forest. Its fruit are dry greyish green disc-like capsules shaped like a Dutch cheese round or a flattened Australian pumpkin, which split open to reveal red or orange seeds (Peekel 1984: 295).

The dark brown wood is strong and durable and provides houseposts and other house members at least in Kwara'ae and in parts of Vanuatu (Wheatley 1992: 93–95, Kwa'ioloa & Burt 2001: 112). The Kwara'ae also plant it to form living fences. Among the Nakanai the red seeds provide a dye and the sap provides caulking material and is mixed with clay to make a paint for decorating canoes (Floyd 1954). The bark has medicinal uses (Record 1945).

The POc term **m^wala(q)u* almost certainly denoted the Bismarcks species *G. philippicum*. Of the other two species represented, *G. stipulare* is apparently limited to Vanuatu and *G. perakensis* is not reported from the Bismarcks.

POc **m^wala(q)u* 'Glochidion philippicum' (Paul Geraghty: **m(e,o)la(q)u*, see Lynch 2001c: 240)

PT:	Muyuw	(ya)manau	'Garcinia sp.' (Damon 1995)
MM:	Madak	(vap)mala	'Glochidion philippicum, G. gimi'
MM:	Patpatar	malau	'Glochidion philippicum'
MM:	Tolai	malau	'Glochidion philippicum'
MM:	Teop	muaeru	'Glochidion sp.'

PROc **m^wala(q)u* 'Glochidion spp.'

NCV:	Mwotlap	maluw	'Glochidion spp.'
NCV:	Mota	malao	'tree sp.'
NCV:	Apma	ma-mlah	'Glochidion spp.'
NCV:	Raga	m ^w a-m ^w alau	'Glochidion stipulare (?)' (Walsh 2004)
NCV:	Paamese	maiao	'Glochidion spp.'

PSV **na-mel(p)au* 'Glochidion spp.' (Lynch 2001c)

SV:	Sye	na-melpau	'Glochidion philippicum' (-p- is unexplained)
SV:	Anejoñ	na-mlau	'Glochidion perakensis'
Fij:	Bauan	molau	'Glochidion sp.'

PWOc **jim^waR* or **jimiR* in all probability denoted the caulking substance made from *Glochidion* sap rather than the tree itself, but in some languages the word has been applied to the tree. The distribution of reflexes of the alternants **jim^waR* (NNG, PT) and **jimiR* (NNG, MM) makes it difficult to know which was the earlier form. However, the Meso-Melanesian reflexes are from languages close to the boundary between Meso-Melanesian and North New Guinea, raising the possibility that the MM forms are borrowings from NNG. This would leave **jim^waR* as the more probable PWOc form.

PWOC **jim^waR* or **jimiR* ‘sap used for caulking’ (Ross 1988: 79)²

NNG: Malai	<i>dimir</i>	‘caulking material’
NNG: Gitua	<i>simer</i>	‘caulking material’
NNG: Malalamai	<i>simaʔ</i>	‘putty nut, <i>Parinarium laurinum</i> ’ (Lincoln 1976)
NNG: Tami	<i>jim</i>	‘caulking material’
NNG: Mangap	<i>zim</i>	‘tree sp.; sap of this tree sp., used as glue and as caulking’
NNG: Lukep	<i>dim</i>	‘caulking material’
NNG: Numbami	<i>dimila</i>	sap, putty, ‘caulking material’
NNG: Gedaged	<i>dim</i>	‘tree, bark used as putty’
NNG: Takia	<i>dim</i>	‘tree sp., resin used as putty and as glue to mix with paints’
NNG: Wab	<i>lim</i>	‘caulking material’
NNG: Mindiri	<i>dim</i>	‘caulking material’
NNG: Dami	<i>dimi</i>	‘caulking material’
PT: Muyuw	<i>(a)sim^wal(gayas)</i>	‘ <i>Glochidion</i> sp.’ (Damon 2004)
MM: Bola	<i>dimi</i>	‘ <i>Glochidion</i> sp.; the sap is mixed with red clay to make canoe paint’
MM: Nakanai	<i>gimi</i>	‘ <i>Glochidion</i> sp.’

2.5 *Macaranga* spp., P *sa’osa’o*, B *navenue* (Euphorbiaceae)

There are a number of species of *Macaranga* growing in the Bismarcks and the Solomons and appearing as the glosses of items in the cognate sets below, but they are all rather similar. All are shrubs or small trees, usually 5–10 m and occasionally 15 m tall. Their saplings need light and do not flourish in primary forest, so they are found where the habitat is more open and often in garden regrowth or secondary forest (Powell 1976, Peekel 1984: 305–207, Henderson & Hancock 1988: 196–197, Wheatley 1992: 99–101, Kwa’ioloa & Burt 2001: 147, Hviding 2005: 109, 148).

From the Bismarcks to Vanuatu much the same uses are reported for *Macaranga* species. The lightweight wood is used for rafters, wall frames and roof battens where better timber is not available, and for cages for pet birds. The wood is fast-burning and good for roasting food. The leaves are used to clean children’s noses and for personal hygiene. Additionally the Bola of New Britain use the wood for outrigger booms, the leaves for wrapping, and the fruit for medicinal purposes (Lentfer 2003, Powell 1976).



Figure 8.2 *Macaranga tanarius*.

² In Ross (1988) the items here glossed ‘caulking material’ were glossed ‘putty nut’, but this was an error, as more recently available references to the caulking material indicate that it is the sap of a *Glochidion* species, not of *Parinari*. Reflexes of **jimiR* listed there included Tabar *cim*, Lamasong, Madak, Barok *sim*, all ‘canoe’. They are excluded here because of the doubtful semantic connection.

The only species singled out for more detailed description in the sources is *M. tanarius*, which occurs with green or red leaves, up to 30 cm in diameter, the veins of which radiate out from a point just off the centre where the petiole is attached. Its tiny cream flowers form large clusters. A bundle of leaves worn around the neck serves as perfume, and the leaves are among those rubbed on the body before ceremonial dancing (Record 1945, Peekel 1984: 307, Wheatley 1992: 101).

Four reconstructions are offered, two for POc, two for PWOC, and all with the meaning ‘*Macaranga* spp.’. They are POc *koka, POc *pinu(q)an, PWOC *bara and PWOC *kobo. Of these the only one for which a more specific denotatum can be inferred is POc *pinu(q)an, glossed as ‘taxon of *Macaranga* spp., perhaps *M. involucrata*’.

POc *koka probably denoted several *Macaranga* species. Known reflexes with this meaning are found in New Ireland (MM) and in the Banks Islands of extreme north Vanuatu (NCV). The distribution of the items in the set below suggests that the term was reapplied to *Bischofia javanica* (ch.7, §5.1) in Eastern Oceanic. The grounds for the reapplication are unclear, as *Macaranga* species are 5–10 m tall, whereas *Bischofia javanica* is a canopy tree up to 30 m.

POc *koka ‘*Macaranga* spp.’

MM:	Patpatar	<i>koka</i>	‘ <i>Macaranga quadriglandulosa</i> ’
MM:	Tolai	<i>koko</i>	‘ <i>Macaranga quadriglandulosa</i> ’
SES:	Kwara’ae	<i>ʔoʔa</i>	‘ <i>Glochidion angulatum</i> ’
NCV:	Hiw	<i>nə-ʔəʔə</i>	‘ <i>Macaranga tanarius</i> ’
NCV:	Mwotlap	<i>no-yoy</i>	‘ <i>Macaranga tanarius</i> ’

PEOC *koka ‘tree sp., *Bischofia javanica*’ (POLLEX)

PCP *koka ‘tree sp., *Bischofia javanica*’ (see ch.7, §5.1)

PMP *binu(q)an below is reconstructed on the basis of the Oceanic data and of Tagalog *binuan* ‘*M. tanarius*, *M. grandifolia*’ (Madulid 2001b: 191).

PMP *binu(q)an ‘*Macaranga* spp., perhaps *M. involucrata*’

POc *pinu(q)an ‘*Macaranga* spp., perhaps *M. involucrata*’

MM:	Solos	<i>hunuan</i>	‘ <i>Macaranga</i> spp.’
SES:	Gela	<i>vinua</i>	‘ <i>Macaranga tanarius</i> ’ (W. McClatchey, pers. comm.)
SES:	Ghari	<i>venua</i>	‘ <i>Macaranga involucrata</i> ’
SES:	Kwara’ae	<i>fino-fino</i>	‘ <i>Macaranga aleuritoides</i> ’
		<i>(taŋa)fino</i>	‘ <i>Macaranga aleuritoides</i> ’
SES:	Kahua	<i>hinua (goro)</i>	‘ <i>Macaranga involucrata</i> ’ (Henderson & Hancock 1988)
NCV:	Mota	<i>vin-vin</i>	‘a tree’
NCV:	NE Ambae	<i>vinue</i>	‘ <i>Macaranga involucrata</i> ’
NCV:	Nduindui	<i>venue</i>	‘ <i>Macaranga involucrata</i> ’ (Wheatley 1992: 99)
		<i>venue (boe)</i>	‘ <i>Macaranga tanarius</i> ’ (Wheatley 1992: 101)
NCV:	Uripiv	<i>ne-vnu</i>	‘ <i>Macaranga</i> sp.’
NCV:	Naman	<i>ni-vnu</i>	‘ <i>Macaranga</i> sp.’
NCV:	Neve’ei	<i>ni-vinu</i>	‘ <i>Macaranga</i> sp.’

NCV: Larëvat	<i>nə-vənu</i>	‘ <i>Macaranga</i> sp.’
NCV: Nese	<i>ne-ɣine</i>	‘ <i>Macaranga</i> sp.’
NCV: Paamese	<i>hinu (ahen)</i>	‘ <i>Macaranga involucrata</i> ’ (Wheatley 1992: 99)
	<i>hinu (wa)</i>	‘ <i>Macaranga tanarius</i> ’ (Wheatley 1992: 101)
NCV: Lewo	<i>(puru)venua</i>	‘a tree’

PWOc **bara* ‘*Macaranga* spp.’

NING: Maenge	<i>vala-vala</i>	‘ <i>Macaranga</i> spp.’
PT: Misima	<i>(e)bal</i>	‘ <i>Macaranga tanarius</i> ’
MM: Tolai	<i>bara-bara</i>	‘ <i>Macaranga</i> sp.’ (Record 1945)
MM: Patpatar	<i>(pala)bara</i>	‘ <i>Macaranga aleuritoides</i> ’
MM: Petats	<i>vana-van</i>	‘ <i>Macaranga aleuritoides</i> ’ (Record 1945)
MM: Teop	<i>bana-bana</i>	‘ <i>Macaranga aleuritoides</i> ’ (Record 1945)

There are formal questions associated with the reconstruction of PWOc **kobo* ‘taxon of *Macaranga* spp.’. First, Far-east Manggarai, Razong, Rembong (all CMP) *kébak* ‘*Macaranga tanarius*’ (Verheijen 1990: 226) is probably cognate with the items below. If so, we would expect a POc form †**koba(k)* rather than **kobo*, so final PWOc **-o* may represent an idiosyncratic innovation. Second, **kobo* seems to have been conflated with **kope* ‘bamboo sp.’ (see ch.13, §3.1) in Motu.

PWOc **kobo* ‘taxon of *Macaranga* spp.’

PT: Muyuw	<i>(a)kob^wow</i>	‘ <i>Macaranga tanarius</i> ’
PT: Motu	<i>kohe</i>	‘ <i>Macaranga tanarius</i> ’ (for † <i>kobo</i>)
MM: Bola	<i>ko-kobo</i>	‘ <i>Macaranga aleuritoides</i> ’
MM: Nakanai	<i>ko-kobo</i>	‘ <i>Macaranga tanarius</i> ’
	<i>ko-kobo(-kiuka)</i>	‘ <i>Macaranga aleuritoides</i> , with deeply serrated leaves’
MM: Kara (E)	<i>(və)kof</i>	‘ <i>Macaranga quadriglandulosa</i> ’
	<i>(və)kof(se)</i>	‘ <i>Macaranga urophylla</i> ’

2.6 *Pipturus argenteus* (syn. *P. velutinus*, *P. incanus*, *Urtica argentea*, *U. incana*) (Urticaceae)

Pipturus argenteus is a small tree, 3–6 m tall, growing mainly in secondary forest. It has a short bole and leaves which are dark green on the upper surface and greyish green to silver underneath. The small white fruits are edible and sweet, but are not harvested systematically: they are eaten by children or as a bush snack. The bast is a useful cordage material, but the timber is used if at all for temporary shelters. It is unsuitable for house-building and is poor firewood, because it refuses to burn and because the smoke is an irritant (Peekel 1984: 153, Whistler 1991b: 99, Wheatley 1992, Kwa’ioloa & Burt 2001: 157, Thieberger 2006b). In Papua New Guinea the leaves are sometimes eaten, but it is not clear whether this includes locations in the Bismarcks (French 1986: 90, May 1984: 63). Arentz et al. (1989: 91) report that in part of New Britain an infusion of the leaves is used against a cough.

The POc term for *Pipturus argenteus* was **qaram^waqi*. Both instances of **q* require comment here.

Blust (ACD) reconstructs PMP **adamay* without initial **q-*, but adds that if Sundanese *haramay* ‘*Boehmeria nivea*’ (a member of the family Urticaceae) is cognate, then the reconstruction will be **qadamay*. The Kara, Patpatar, Notsi, Pije, Nêlêmwa and Tongan reflexes also reflect **q-*, and it is thus reasonable to infer that the PMP form was **qadamay*.

There is disagreement among cognates with regard to the final **-aqi* of POc **qaram^waqi*. Blust reconstructs the final **-ay* of PMP **adamay* with no **-q-* on the basis of Cebuano *handalamay* ‘*Pipturus argenteus*’, Maranao *aramai* ‘*Pipturus arborescens*’ and the Sundanese reflex above, and so putative POc **-q-* must be a post-PMP innovation. PMP **-ay* is normally reflected as POc **-e*, but Raga, Sye and Anejoñ *-ai* reflect POc **-aqi*, not **-e*. POc **-q-* is also reflected in Kara *kaimek* and Patpatar *karanek*, which sporadically retain it as *k*. POc **-aqi* is also arguably the source of *-e* in Marshallese *arm^we* and of long *-ē* in Wayan *rômē*. Against the reconstruction of **-aqi* are the Seimat, Apma, S Efate and all Central Pacific reflexes other than Wayan. Geraghty (1990: 55) accounts for long final *-ā* in Central Pacific reflexes by reconstructing PEOc/PCP **(q)arom^waRa*. PEOc **-R-* is usually lost in PCP but occasionally retained as **-l-*, which, Geraghty suggests, is reflected in NE Viti Levu *ŋala* ‘*Pipturus* sp.’ (1990: 91). However, shorn of not just one but two syllables, this is a questionable reflex, and so I reconstruct PCP **qarom^w(ē,ā)*. The ambiguity of the final long vowel is due to the disagreement between Wayan *-ē* and Lau Fijian and Polynesian *-ā*. Geraghty is right, however, to take the long final vowel seriously, and it is not clear to me how this innovation arose.

PMP **qadamay* ‘*Pipturus argenteus*’ (ACD)

POc **qaram^waqi* ‘*Pipturus argenteus*’ (Geraghty 1990: PEOc **(q)arom^waRa*)

Adm:	Seimat	<i>ahoma</i>	‘a small tree, from the bark of which fishing lines and nets are made’ (Sorensen 1950)
MM:	Kara (E)	<i>kaimek</i>	‘ <i>Pipturus argenteus</i> ’
MM:	Notsi	<i>karamet</i>	‘ <i>Pipturus argenteus</i> ’ (<i>-t</i> unexplained) (Holdsworth et al. 1978)
MM:	Patpatar	<i>karanek</i>	‘ <i>Pipturus argenteus</i> ’ ³
NCV:	Vera’a	<i>demie</i>	‘ <i>Pipturus argenteus</i> ’
NCV:	Raga	<i>adomai</i>	‘ <i>Pipturus argenteus</i> ’
NCV:	Apma	<i>odom^wa</i>	‘ <i>Pipturus argenteus</i> ’
NCV:	S Efate	<i>na-ⁿrm^wa</i>	‘ <i>Pipturus argenteus</i> ’
SV:	Sye	<i>na-nmai</i>	‘ <i>Pipturus argenteus</i> ’
SV:	Anejoñ	<i>ne-lm^wai</i>	‘ <i>Pipturus argenteus</i> ’
NCal:	Pije	<i>hahm^we</i>	‘ <i>Pipturus argenteus</i> ’
NCal:	Nêlêmwa	<i>hâlam^wi</i>	‘ <i>Pipturus argenteus</i> ’
NCal:	Iaai	<i>arma</i>	‘ <i>Pipturus argenteus</i> ’
Mic:	Kiribati	<i>aroma</i>	‘ <i>Pipturus argenteus</i> ’
Mic:	Marshallese	<i>arm^we</i>	‘ <i>Pipturus argenteus</i> ’

³ Medial *-n-* of Patpatar *karanek* may represent an unexplained irregularity or may be a transcription error in Peekel (1984:153).

PCP **qarom*^w(ē,ā) ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’

Fij: Wayan *rōmē* ‘generic for three spp. of Urticaceae : *Boehmeria virgata*, *Leucosyke corymbulosa* and *Pipturus argenteus*’

Fij: Lau *roŋā* ‘*Pipturus* sp.’ (Geraghty 1990: 91)

PPn **q[a,o]loŋā* ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’⁴

Pn: Tongan *?oloŋā* ‘*Pipturus argenteus*’

Pn: Nukuria *oloŋā* ‘*Pipturus* sp.’

Pn: Takuu *aronā* ‘plant sp’

Pn: Luangiua *loloŋa* ‘tree sp., fishing-line from bark.’

Pn: Ifira-Mele *roŋā* ‘*Pipturus* sp.’

Pn: Rarotongan *?oroŋā* ‘*Pipturus argenteus*’

Pn: Tahitian *roo?ā* ‘*Pipturus* sp.’

Pn: Tuamotuan *roŋā* ‘*Pipturus incanus* var. *tuamotensis*’

Pn: Marquesan *hoka* ‘shrubs or small trees, *Pipturus* spp.)’

2.7 *Rhus taitensis* (syn. *R. retusa*, *R. rufa*), *P akwasi* (Anacardiaceae)

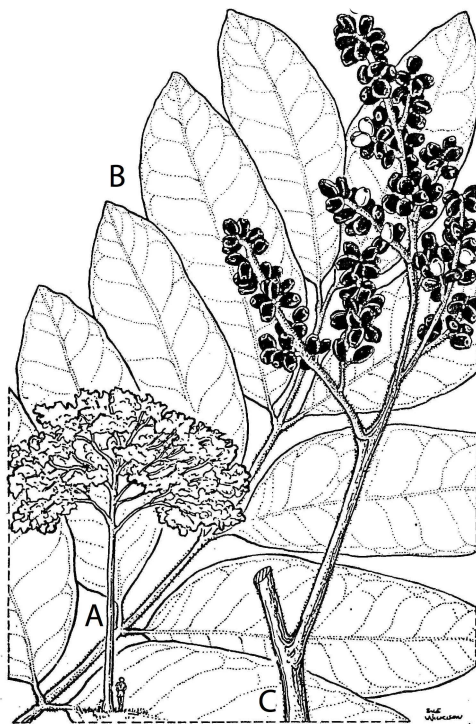


Figure 8.3 *Rhus taitensis*: A, tree; B, stem bearing leaves; C, branch bearing fruit.

Rhus taitensis is a tree which grows to 10–15 m in secondary forest. At flowering time it is covered in white flowers. This is a deciduous tree, and when the leaves are ready to fall, they turn bright red (Peekel 1984: 325).

In New Ireland fishing net floats are made from the white wood. When it is cut down and has dried out, it splits exceptionally easily, but has few uses. In Kwara’ae the tree is a source of protein food in the form of the grubs of a caterpillar that feeds on it (Kwa’ioloa & Burt 2001: 108). On New Hanover (immediately to the north of New Ireland) the young shoots are eaten by women to induce abortion and used for a variety of medicinal purposes (Holdsworth et al. 1982)

The premier uses of *R. taitensis*, however, all have to do with producing black colouring materials. In Marovo pandanus leaves are stained black by boiling them in a mixture that includes pounded *R. taitensis* leaves and a particular seaweed. Gardner & Pawley (2006) report a similar process from Waya Island, where the dye was also used to blacken hair. The charcoal of *R. taitensis* was an ingredient in the black putty used for the caulking and glossy surface finish of war canoes in Marovo

⁴ PPn *-l- for †*-r- is attested by Tongan -l- for †zero.

Lagoon (Hviding 2005: 131). In parts of the Solomons the pounded charcoal is mixed with *Macaranga urophylla* to make paint. In Tonga it was used in hair dye (Whistler 1991*b*: 121).

A number of groups in Indonesia and Melanesia practised ritual tooth-blackening as part of initiation, and this was perhaps also a custom among Proto Oceanic speakers (Chowning 1991: 48–49).⁵ Across southern New Britain the blackening material was mineral (probably manganese). In Malaita it was made from *R. taitensis*, and made the teeth shiny black and allegedly strong. The veins and stems were removed from the leaves, and what remained was roasted in bamboo, then pulverised. This powder was mixed with a crushed blue-black powdery rock known as *oko*, and a chemical reaction produced a black mixture which was cooked further to produce a viscous dye which was coated onto the subject's teeth and left there for a week (during which the subject ate no solid foods). Occasionally the black would wear off after a few weeks, but usually it remained for life (Henderson & Hancock 1988: 238, Kwa'ioloa & Burt 2001: 108; see also vol.1, ch.4, §5.3).

POc **tawasi* 'Rhus taitensis'

MM:	Lavongai	<i>tuas</i>	'Rhus taitensis'
MM:	Kara (E)	(<i>mə</i>) <i>rawəs</i>	'Rhus taitensis'
SES:	Kwara'ae	<i>ak^wasi</i>	'Rhus taitensis'
SES:	Kwaio	<i>ak^wasi</i>	'Rhus taitensis' (Henderson & Hancock 1988)
SES:	Lau	? <i>ak^wasi</i>	'Rhus taitensis'
SES:	Santa Ana	<i>awasi</i>	'Rhus taitensis'
Fij:	Wayan	<i>tawa(rau)</i>	'Rhus taitensis' (obsolete term; Gardner & Pawley 2006)

PPn **tawahi* 'Rhus taitensis' (POLLEX)

Pn:	Tongan	<i>tavahi</i>	'Rhus taitensis'
Pn:	Niuean	<i>tavahi</i>	'Rhus taitensis'
Pn:	Rennellese	<i>tabai</i>	'Rhus taitensis'
Pn:	Samoan	<i>tavai</i>	'Rhus taitensis'
Pn:	Tahitian	<i>avai</i>	'a large timber tree'
Pn:	Māori	<i>tawai</i>	'large trees, <i>Nothofagus</i> (southern beech) spp.'

2.8 *Trema orientalis* (syn. *T. scaberrima*. *T. aspera*) (Ulmaceae)

Trema orientalis is a secondary forest tree growing as tall as 12 m, with shiny bright green twigs and egg-shaped leaves, rough and dark green on the upper surface, pale green underneath (Peekel 1984: 131).

On the north coast of New Britain the bast serves as material for canoe lashings and for making nets to catch birds and pigs and the bark is used to wrap pork and vegetables for cooking. The wood is used for beams and as firewood (Powell 1976). Wheatley (1992: 237) reports similar uses from Vanuatu.

⁵ Chowning (pers. comm.) reports the custom in southern New Britain and up into the Gazelle Peninsula, in the D'Entrecasteaux Archipelago and in parts of the Solomons. She gives a cognate set supporting PWOc **tapal(a)*, denoting the blackening material or the process: Tolai *taval*, Molima *tavana*, Roviana *davala* (*d-* for †*t-*) (Chowning 1991: 48–49).

Blust (ACD) reconstructs PWMP **deRuŋ* on the basis of western Malayo-Polynesian reflexes alone. The reflexes below show that POc **droRu(ŋ)* ‘*Trema* sp.’ is reconstructable and thus that Blust’s reconstruction should be re-labelled as PMP.

PMP **deRuŋ* ‘*Trema orientalis*’ (Verheijen 1984; ACD: PWMP)

POc **droRu(ŋ)* ‘*Trema orientalis*’

MM:	Roviana	<i>do-doru</i>	‘tree, possibly <i>Trema</i> sp. (bark taken off in sheets)’
NCV:	Vera’a	<i>do-ndo</i>	‘ <i>Trema orientalis</i> ’ (Wheatley 1992: 237)
NCV:	Raga	<i>dou-dou</i>	‘ <i>Trema</i> sp.’ (Walsh 2004)
SV:	Sye	<i>ne-nroŋ</i>	‘ <i>Trema cannabina</i> ’ (J. Lynch, pers. comm.)
Fij:	Wayan	<i>drou</i>	‘ <i>Parasponia andersonii</i> ’
Fij:	Bua	<i>[drou-]drou</i>	‘ <i>Trema amboinensis</i> ’ ⁶

2.9 *Trichospermum* spp. (syn. *Althoffia*, *Grewia*) (Tiliaceae)



Figure 8.4 *Trichospermum richii*.

Peekel records two species of *Trichospermum* in New Ireland, *T. peekelii* (syn. *T. fauroensis*, *T. psilocladum*) in the north and *T. pleiostigma* (syn. *T. quadrivale*, *Althoffia tetrapyxis*) in the south, with an overlap in the Madak-speaking area.

Both species grow to 10–20 m and have a single stem with radial branches which form a roundish to conical crown. When it is in bloom, the crown is covered in flowers and is a white mass with a sweet smell which reaches quite a distance. Because the saplings are shade-intolerant, they tend to occur in secondary regrowth, although individual specimens may attain canopy height and survive—but they are unable to reproduce.

The two species provide straight poles for rafters. They are also good firewood and are among the species that were used as fireploughs. The bark can be pulled off in strips and is used for carrying bundles of garden produce or wood, and to cover house entrances and as roofing for temporary shelters. The Kwara’ae used it to make warriors’ shields (Peekel 1984: 357, Wheatley 1992: 233, Kwa’ioloa & Burt 2001: 136–137).

POc **maRako* ‘*Trichospermum peekelii*’ is an unproblematic reconstruction.

POc **maRako* ‘*Trichospermum peekelii*’ (Geraghty 1990: PEOc)

MM:	Lavongai	<i>maŋau</i>	‘ <i>Trichospermum pleiostigmum</i> ’ ⁷
MM:	Kara (E)	<i>maiau</i>	‘ <i>Trichospermum peekelii</i> ’
MM:	Madak	<i>(vap)ma</i>	‘ <i>Trichospermum peekelii</i> ’
SES:	Gela	<i>malayo</i>	‘sp. of forest tree’

⁶ J. Parham (1972). Bua is on Vanua Levu.

⁷ Given Peekel’s comment that *T. pleiostigma* is restricted to the south of New Ireland, *T. peekelii* to the north, this identification may be incorrect.

SES:	Kwara'ae	<i>malaʔo</i>	' <i>Trichospermum peekelii</i> '
SES:	'Are'are	<i>marako</i>	'tree sp., a twig of which is used to indicate a taboo'
SV:	Anejoñ	<i>n-may</i>	' <i>Trichospermum inmac</i> ' (Wheatley 1992: 233)
PCP * <i>mako</i> ' <i>Trichospermum richii</i> ' (for expected †* <i>māko</i>)			
Fij:	Wayan	<i>mako</i>	'tree, probably <i>Trichospermum richii</i> '
Fij:	Bauan	<i>mako</i>	' <i>Trichospermum richii</i> '
Pn:	Samoa	<i>maʔo</i>	' <i>Trichospermum richii</i> , <i>Melochia odorata</i> etc. '
Pn:	Tikopia	<i>mako</i>	'tree sp. of the woodland; wood occasionally used for outriggers'
Pn:	W Futunan	<i>mako</i>	'tree with yellow blossom'
Pn:	Tahitian	<i>mao</i>	'tree name, bark used as dye'
Pn:	Hawaiian	<i>maʔo</i>	' <i>Gossypium tomentosum</i> , <i>Abutilon incanum</i> '
Pn:	Māori	<i>mako-mako</i>	'wineberry, <i>Aristolelia serrata</i> '

3 Grasses

Although grasslands are rare in the Bismarck Archipelago, grasses of course grow there, especially on the edges of forests, around garden clearings and in secondary forest. The most common grass in the Bismarcks is *Paspalum conjugatum* (Figure 8.5, left), which can grow to a metre high (Peekel 1984: 48), but it appears to have been introduced from the New World (R. Gardner, pers. comm.). Evans (ch.3, §4.5) reconstructs POc **pali[s,j]i* 'generic term for grasses and other grass-like plants'. She notes that the generic term for a taxon quite often represents an extension of the meaning of a term for a particular and salient subtaxon. There is flimsy evidence that the Proto Remote Oceanic reflex of **pali[s,j]i* was not only the generic but by this time denoted the creeping beach grass, *Thuarea involuta*, known in Hawai'i as kuroiwa grass. This is its specific denotation in both Mwotlap (NCV) and Woleaian (Mic).

Two less widely reflected terms, the reflexes of which are generic terms for grass, are POc **rabum* and *(*quta*)*quta*.

POc **rabum* 'grass'

NNG:	Mapos	<i>dbu</i>	'grass in general; grass used for thatching a house'
PT:	Magori	<i>rabu(na)</i>	'grass'
MM:	Vitu	<i>rabu-rabu</i>	'grass'
TM:	Nagu	<i>lepμ</i>	'grass'
TM:	Nebao	<i>abəmə</i>	'grass'
TM:	Asuboa	<i>lɔbumɔ</i>	'grass'
TM:	Tanibili	<i>ubomɔ</i>	'grass'
TM:	Buma	<i>abɔ</i>	'grass'
TM:	Vano	<i>abume</i>	'grass'
TM:	Tanema	<i>abome</i>	'grass'

POc *(*quta*)*quta* 'grass and weeds (generic)'

NNG:	Takia	<i>ud</i>	'grass and weeds (generic)'
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Figure 8.5 Left *Paspalum conjugatum*. Middle *Imperata cylindrica*, sword grass. Right *Coix lachryma-jobi*, Job's tears.

MM:	Nakanai	<i>huta-huta</i>	'small plants and leaves' (A. Chowning, pers. comm.)
MM:	Tabar	<i>ot-ot</i>	'grass and weeds (generic)'
Mic:	Kiribati	<i>ute-ute</i>	'grass (generic)'

In Proto Remote Oceanic, **m^wanaya*, another apparently generic term for grass occurred. This quite possibly also denoted a specific but now uncertain subtaxon.

PROc **m^wanaya* 'grass' (Clark 1996a: PNCV **m^wanai*)

NCV:	Raga	<i>m^wanea</i>	'grass'
NCV:	Avava	<i>m^wana</i>	'grass'
NCV:	Nati	<i>nō-m^wōnei</i>	'grass'
NCV:	Paamese	<i>munai</i>	'grass'
NCV:	Lewo	<i>ma-m^wini</i>	'grass'
NCV:	Nguna	<i>na-m^wenau</i>	'grass'
SV:	Lenakel	<i>n-m^wania</i>	'kangaroo grass, <i>Themeda triandra</i> (?)'
Mic:	Kiribati	<i>maunei</i>	' <i>Cyperus laevigatus</i> and <i>Eleocharis geniculata</i> '

3.1 *Imperata cylindrica* (syn. *I. arundinacea*), sword grass, blady grass, cogon grass, TP *kunai* (Poaceae)

Alongside *P. conjugatum*, grasslands in NW Melanesia are dominated by sword grass (*Imperata cylindrica*), kangaroo grass (*Themeda australis*) and *Pennisetum polystachion*. The most common of these in the Bismarcks, and the only one of the three for which a POc term is reconstructed, is sword grass (Figure 8.5, middle).

I. cylindrica (known as *alang-alang* in Malay), a vigorous grass 1–2 m high, is widespread in the Bismarcks. It is the tallest of the grasses, grows densely and spreads easily (Peckel

1984: 46, Hviding 2005: 141–142). Its use in roofing is reported from New Britain to Waya Island, Fiji (Lentfer 2003, Gardner & Pawley 2006).

Three POc etyma can be reconstructed with the denotatum *I. cylindrica*, namely **Reqi(t)*, **guRu(n)* and **pitu*. Both have non-Oceanic cognates denoting the same species, and any difference in their usages is unknown.

By far the most frequently reflected etymon is **Reqi(t)*. POc **guRun* has scattered reflexes.

Blust (ACD) reconstructs PAn **Riaq* ‘sword grass, *Imperata cylindrica*’ on the basis of Formosan reflexes. Whether PCEMP **Reqi* is an irregular development from this, I do not know. This reconstruction is attributed to PCEMP on the basis of Far East Manggarai *ri?i* (Verheijen 1990:221), Sasak *re*, Rotinese *li* (all CMP), all ‘sword grass, *Imperata cylindrica*’. Roviana and Marovo have the form *rekiti*, reflecting earlier **rekit*, but this appears to be an unsourced borrowing, as (i) the regular reflex of POc *-q- is zero and (ii) other languages which regularly retain a final POc consonant (Diodio, Wedau and Tawala) do not retain it here. The expected reflex in Roviana and Marovo is †*rei*, found in their close relative Nduke. All other languages in this cognate set with a non-zero reflex of POc *-q- reflect it regularly: no reflexes other than Roviana and Marovo require the reconstruction of *-k- in this etymon.

PCEMP **Reqi* ‘sword grass, *Imperata cylindrica*’

POc **Reqi* ‘sword grass, *Imperata cylindrica*’

NNG:	Tuam	<i>reg</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Gitua	<i>rek</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Lukep	<i>rei</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Takia	<i>rei</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Wogeo	<i>lei</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Kaiep	<i>rei</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Kairiru	<i>ryek</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Ulau-Suain	<i>ri</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Kela	<i>(ri)ri</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Numbami	<i>lei</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Mumeng (Patep)	<i>hey</i>	‘ <i>Imperata cylindrica</i> ’
NNG:	Maenge	<i>lai</i>	‘ <i>Imperata cylindrica</i> ’
PT:	Diodio	<i>leyi</i>	‘grass’
PT:	Tawala	<i>lei</i>	‘ <i>Imperata cylindrica</i> ’
PT:	Kilivila	<i>lei</i>	‘ <i>Imperata cylindrica</i> ’
PT:	Muyuw	<i>li-lei</i>	‘ <i>Imperata cylindrica</i> ’
PT:	Motu	<i>rei</i>	‘ <i>Imperata cylindrica</i> ’
PT:	Balawaia	<i>leyi</i>	‘grass’
PT:	Hula	<i>leyi</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Bali	<i>re-reke</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Bola	<i>reyi</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Tigak	<i>gi</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Kara (E)	<i>i</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Tabar	<i>ri-ri</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Lihir	<i>le</i>	‘ <i>Imperata cylindrica</i> ’
MM:	Bilur	<i>re</i>	‘ <i>Imperata cylindrica</i> ’

MM:	Tinputz	<i>nee</i>	' <i>Imperata cylindrica</i> '
MM:	Nduke	<i>rei</i>	' <i>Imperata cylindrica</i> '
MM:	Roviana	<i>rekiti</i>	' <i>Imperata cylindrica</i> ' (for † <i>rei</i> : borrowing?)
MM:	Marovo	<i>rekiti</i>	' <i>Imperata cylindrica</i> ' (for † <i>rei</i> : borrowing?)
SES:	Gela	<i>lei-lei</i>	' <i>Imperata cylindrica</i> '
SES:	Kwara'ae	<i>lai</i>	' <i>Imperata cylindrica</i> '
SES:	Arosi	<i>rei</i>	' <i>Imperata cylindrica</i> '
Mic:	Mokilese	<i>re</i>	'k.o. grass'

It is probable that the Central Papuan (Taboro, Hula, Motu and Doura) forms in the set below reflect borrowing from an intrusive Papuan Tip language, as they reflect **k*- rather than **g*- (Ross 1994b: 408).

PMP **guRun* 'sword grass, *Imperata cylindrica*'⁸

POc **guRu(n)* 'sword grass, *Imperata cylindrica*'

NNG:	Kilenge	<i>na-yu</i>	' <i>Imperata cylindrica</i> '
NNG:	Maenge	<i>gur-gur</i>	'grass'
PT:	Taboro	<i>kuru-ru</i>	' <i>Imperata cylindrica</i> '
PT:	Hula	<i>uru</i>	'species of grass'
PT:	Motu	<i>kuru-kuru</i>	' <i>Imperata cylindrica</i> '
PT:	Doura	<i>?uru-?uru</i>	' <i>Imperata cylindrica</i> '
MM:	Meramera	<i>gulu-gulu</i>	'grass'
SES:	Bugotu	<i>gu-guru</i>	'grass'

Blust (ACD) also reconstructs PCEMP **bitu*, POc **pitu* '*I. cylindrica*' on the basis of Savu *widu*, Kambera *witu* (both CMP) and Tangga (MM) *fit*, all '*I. cylindrica*'. To these one might add Nyelâyu (NCal) *uc* '*I. cylindrica*'. Blust (ACD) considers Gedaged *pit* 'roofing material of sago leaves' a possible member of this set, since sago leaves and sword grass are both widely used as roofing thatch. However, POc **pitu* is a rather unconvincing reconstruction, the more so as other apparent Meso-Melanesian reflexes point to a hard-stemmed cane or reed as a denotatum: Patpatar, Tolai *pit*, '*Saccharum edule*', Teop *vito* 'a wild variety of *S. edule*'). It may be that these reflect a confusion between reflexes of POc **pitu* '*I. cylindrica*' and POc **pijo* 'cane or reed taxon, including *Saccharum spontaneum*' (§3.4).

3.2 *Coix lachryma-jobi*, Job's tears (Poaceae)

Coix lachryma-jobi is a robust tropical grass, 1–1.5 m high, with shiny grains like tears (Figure 8.5, right). The grains are the hardened flower-cases of female spikelets. They turn various colours—yellow, purple, white or brown—and are used in rattles and necklaces in places as far apart as New Britain and Malaita (Kwa'ioloa & Burt 2001: 204, Powell 1976). Powell reports that the leaves are eaten in New Britain.

⁸ PMP **guRun* is reconstructed on the basis of the Oceanic data here and of Ifugao *gulun*, Bontok, Inibaloi *golun*, Tagalog *kogon*, Bikol *gogon*, Hanunuo *kugun*, all '*I. cylindrica*' (Madulid 2001b: 165).

POc *sila ‘Job’s tears, *Coix lachryma-jobi*’

Adm:	Leipon	<i>sili-sin</i>	‘ <i>Coix lachryma-jobi</i> (Nevermann 1934)
SES:	Kwara’ae	<i>sila</i>	‘ <i>Coix lachryma-jobi</i> ’
SV:	Anejoñ	<i>na-θec</i>	‘ <i>Coix lachryma-jobi</i> ’
Fij:	Bauan	<i>silā</i>	‘ <i>Coix lachryma-jobi</i> ’
Fij:	Wayan	<i>silā</i>	‘ <i>Coix lachryma-jobi</i> ’

3.3 *Miscanthus floridulus* (syn. *M. japonicus*, *Saccharum floridulum*), *B waelken*
(Poaceae)

A reed-like grass dominant on dry hillsides, *Miscanthus floridulus* grows to about 2 m tall. In some areas it is the predominant material for constructing house walls. In Kwara’ae the solid stems are used as roof battens to which sago thatch is attached, and also as arrow-shafts (Peekel 1984: 47, Kwa’ioloa & Burt 2001: 203).

POc *pi(y)uŋ ‘*Miscanthus floridulus*’

MM:	Nduke	<i>piu</i>	‘ <i>Miscanthus floridulus</i> ’ (unexpected final consonant deletion)
MM:	Roviana	<i>piu</i>	‘ <i>Miscanthus floridulus</i> ’ (unexpected final consonant deletion)
MM:	Marovo	<i>piu</i>	‘small bamboo, used for fishing arrows’ (unexpected final consonant deletion)
NCV:	Uripiv	<i>na-viB</i>	‘ <i>Miscanthus floridulus</i> ’
NCV:	Tape	<i>vieb</i>	‘ <i>Miscanthus floridulus</i> ’
NCV:	Avava	<i>viab</i>	‘ <i>Miscanthus floridulus</i> ’

PSV *na-(v)iuŋ ‘wild cane’ (Lynch 2001c)

SV:	Sye	<i>(nre)n-yuŋ</i>	‘wild cane’
		<i>(pol)yuŋ</i>	‘wild cane’
SV:	Ura	<i>(la)n-yeŋ</i>	‘wild cane’
SV:	Lenakel	<i>nu-viŋ</i>	‘wild cane’
SV:	Kwamera	<i>n-iŋ</i>	‘wild cane’
SV:	Anejoñ	<i>ni-yeŋ</i>	‘wild cane’

3.4 *Saccharum spontaeum*, wild sugarcane (Poaceae)

Saccharum spontaeum is a tall grass up to 3 m in height, with jointed, fibrous stalks similar to those of sugarcane, *S. officinarum* (ch.13, §2.1), to which it is quite closely related. Its English name ‘wild sugarcane’ reflects an earlier belief that it was the wild source of sugarcane.

The reconstruction below originates with French-Wright (1983), who glosses the form as ‘a kind of wild sugarcane’. An expanded cognate set was given with the reconstruction *pijo ‘*Saccharum* sp.’ in Ross (1996c), but some of the items listed there are now attributed to POc *bitu(ŋ) ‘bamboo sp.’ (ch.13, §3.1). Chowning (2001: 81) criticises the sugarcane/*Saccharum* gloss as too precise, and I have modified the gloss below to take account of the reflexes in the New Guinea region that have other denotations.

POc **pijo* ‘cane or reed taxon, including *Saccharum spontaneum*’ (Milke 1968: **piiso* ‘k.o. reed’; French-Wright 1983: **piiso*)

NNG:	Mangap	<i>mbiizi</i>	‘reed, pitpit type plant’
NNG:	Kairiru	<i>vis</i>	‘pitpit, <i>Saccharum spontaneum</i> , a wild sugarcane type with edible fruit’
PT:	Motu	<i>hido</i>	‘a wild cane growing by the riverside’
MM:	Bola	<i>viro</i>	‘sugar cane, <i>Saccharum edule</i> ’
MM:	Nakanai	<i>viro</i>	‘a hollow-stemmed reed, <i>Phragmites</i> sp.’
MM:	Tabar	<i>viso</i>	‘bamboo’

PEOc **piiso* ‘*Saccharum* sp.’

SES:	Gela	<i>viho</i>	‘a sp. of shore lily, <i>Crinum</i> ’
NCV:	Mwotlap	<i>viho</i>	‘ <i>Saccharum spontaneum</i> ’
NCV:	Mota	<i>viso</i>	‘a reed, <i>Arundo</i> , with edible flower heads’
NCV:	Araki	<i>viso</i>	‘ <i>Saccharum edule</i> ’
NCV:	Raga	<i>viho</i>	‘ <i>Saccharum edule</i> ’
NCV:	Kiai	<i>viso</i>	‘ <i>Saccharum edule</i> ’
NCV:	Big Nambas	<i>n-is(əs)</i>	‘wild cane’
NCV:	Uripiv	<i>na-vis</i>	‘ <i>Saccharum edule</i> ’
NCV:	Port Sandwich	<i>na-vis</i>	‘edible reed’
NCV:	Tape	<i>nə-vəs</i>	‘ <i>Saccharum spontaneum</i> ’
NCV:	Avava	<i>a-vis</i>	‘ <i>Saccharum spontaneum</i> ’
NCV:	Nese	<i>na-vse</i>	‘ <i>Saccharum spontaneum</i> ’
NCV:	Lonwolwol	<i>eh</i>	‘a vegetable growing on stalks, in clumps, with soft green sheathing; its flesh, remotely like cauliflower flesh, it is roasted in fire in the sheath’
NCV:	Labo	<i>ni-vie</i>	‘edible reed’
NCV:	Lewo	<i>vio</i>	‘cane flower (edible)’
NCV:	Namagir	<i>vis</i>	‘ <i>Saccharum edule</i> ’
NCV:	Nguna	<i>na-viiso</i>	‘edible reed’
Fij:	Bauan	<i>viðo</i>	‘a wild sugarcane, <i>Saccharum floridulum</i> ’
Pn:	Samoan	<i>fiso</i>	‘a large reed, <i>Erianthus maximus</i> ; stems contain sugar’ (Whistler 2000: 165)
Pn:	Emae	<i>fiso</i>	‘edible wild cane, probably <i>Saccharum edule</i> ’

9 *Staple foods: root crops, bananas, breadfruit and sago*

MALCOLM ROSS

1 Introduction

A Proto Oceanic (POc) meal was typically made up of two categories of ingredient, **kanan* ‘staple food, starchy food’ (ch.2, §6.1) and **tamaji* ‘additional ingredients to accompany starchy food’ (ch.2, §6.2). The main ingredients of **tamaji* were—or rather are in today’s Oceanic societies—green vegetables, treated in chapter 10, and coconut cream, treated in §4.2 of chapter 12.

The present chapter treats staple foods. The chapter is divided according to the four categories of staple foods: root crops (§2), bananas (§3), breadfruit (§4) and stem starch, principally sago (§5).

2 Root crops

There is no term for root crops in general in most Oceanic languages, and there was apparently no general term in POc. The only major staple root crops known to POc speakers were yams (*Dioscorea* spp., §2.1) and taro (*Colocasia* and *Alocasia* spp., §2.2).

Of the root crops found in the Pacific today, the widely consumed sweet potato (*Ipomoea batatas*), as well as cassava (*Manihot esculenta*) and American or Chinese/Hong Kong taro (*Xanthosoma sagittifolium*), are relatively recent introductions from South America, brought by Europeans to Indonesia, whence they spread to New Guinea.¹ They were certainly not present in NW Island Melanesia in POc times. Indeed, the sweet potato arrived in the Bismarck Archipelago and the Solomons only with European traders and settlers in the 19th

¹ *Ipomoea batatas* and *Manihot esculenta* reached Papua New Guinea sometime between European exploration in the New World and European colonisation of New Guinea, i.e. in the period 1500–1870 (Yen 1974*b*, Ballard et al. 2005). *I. batatas* probably arrived about 300 years ago and *M. esculenta* about 200 years ago (Bourke forthcoming). *X. sagittifolium* arrived in Papua New Guinea as recently as the 19th century (Bourke 1982, Kirch 1994: 80).

century (Bourke forthcoming). Barrau (1965) suggests that these introduced crops relegated some less significant earlier staples to the status of famine foods: basing himself on Guppy (1906), he names *Pueraria lobata*, *Dioscorea nummularia* and *Cycas rumphii* as possible earlier staples.

Yams and taro differ in their distributions since yams, and especially *Dioscorea alata*, have more demanding environmental requirements. Unlike *Colocasia* taro, which thrives in generally rainy areas, in damp soil, and up to altitudes of 2200 m or so, yams require seasonal rainfall and flourish in deep, well-drained soils. They are grown in open gardens as they need sunlight. Although *D. alata* and *D. esculenta* require a similar environment, *D. alata* can be grown at altitudes up to 1900 m, *D. esculenta* only to less than 1000 m (M. Bourke, pers. comm.). Thus Ivens (1927) describes a difference in root crops among speakers of dialects of South Malaitan. On the island of Ulawa, only *D. alata* was cultivated. On Small Malaita *D. esculenta* was also grown on the low hills. On Malaita proper, people lived on the central ridge at 1000 m and had no yams, only taro.

Because of its environmental tolerance the taro tuber *Colocasia esculenta* is the most important subsistence plant in Melanesia (Barrau 1955: 50). When the ancestors of POc speakers arrived in the region *C. esculenta* was already the dominant staple over much of New Guinea. In drier lowland and mid-altitude areas *Dioscorea* species predominated (Bourke 1982, Swadling & Hide 2005). However, it seems likely on circumstantial grounds that the yam *D. alata* was an important staple of POc speakers, at least immediately after their arrival in the Bismarcks.

POc speakers lived on small islands and in coastal enclaves (vol.2, ch.2), and most of their environments were probably suitable for growing *D. alata*. Taro would have assumed greater importance as they moved inland on the larger islands. Significantly, one of the POc terms for *Colocasia* taro was **m^wapo(q)*, a borrowing from a mainland Papuan language (§2.2.1). Taro was certainly known to POc speakers—they also had their own Austronesian word for it, **talo(s)*—but the presence of a Papuan borrowing for such a seemingly central item of diet implies that taro cultivation came to assume greater importance through contact with taro growers on the New Guinea mainland.

Both yams and taro allow some variety in their preparation for eating: they are boiled, braised or baked whole or in large chunks, and sometimes they are eaten grated or mashed.

A huge number of varieties of both yams and *Colocasia* taro (in the tens, if not the hundreds) are individually named in Oceanic-speaking communities (Malinowski 1935a: 100–104, Fox 1978, Barrau 1962: 99–100). Where more than one name for a species is reconstructed, it may be that one or other name denoted a variety. However, no deliberate attempt has been made here to reconstruct names for varieties, partly because sources do not provide Linnaean names for individual varieties and partly because their names are often transparently descriptive and have probably been innovated over and over again.

2.1 Yams, *Dioscorea* spp.

Unlike the Araceae (taros and taro-like plants; §2.2) with their large leaves, yam plants form long vines which in the wild twine around tree trunks. When they are cultivated, the farmer usually provides a stake or frame for support. On Ulawa yams were planted communally only in newly cleared gardens.² The men felled the trees, cleared the ground and dug the holes,

² Terms associated with gardening practices are treated in vol.1, ch.6.

and the women planted the small tubers or tuber tops or slices (Ivens 1927: 10, 355–357). In other places yams are sometimes planted in old gardens, but only after they have lain fallow for a while, as yams need fertile soil. Generally there is only one yam crop per year, and tubers are harvested 9–12 months after planting. However, on Small Malaita and Ulawa yam tops were also planted as yams were consumed, providing an earlier occasional crop (Ivens 1927: 361).

Barrau (1955: 39–40) points out that yam-growing communities require a good understanding of the seasons. ‘Flowering and fructification of local plants often indicate to the natives the season best suited for the various agricultural activities.’ Thus on Espiritu Santo (Vanuatu) and in Fiji, yams are planted when the coral trees, *Erythrina variegata* (ch.5, §5.5), are in flower (Baker & Harrison 1936).

Preparing and planting a yam garden requires a major effort, and in many yam-growing communities the planting was associated with rituals and incantations calling on the spirits to stand guard over the crop, protecting it from thieves, yam beetles and other malign beings (Fox 1924: 104–106, Malinowski 1935a). On Ulawa the rituals began the night before planting by blessing the pieces of yam to be planted, followed in the morning by incantations in the garden and culminating with a small feast (Ivens 1927: 358–361). Weeding also had associated ritual. The women bathed, and then ceremonially cleansed themselves with *Euodia* sprigs (ch.7, §5.6) before they went to weed the yam garden. When the yams were ready for harvesting, the priest took to the beach two yams tied with *Dracaena* (ch.13, §6.1), where he sacrificed them to the sea spirits on behalf of the village. Only after this might the villagers harvest their yams as they needed them (Ivens 1927: 362–363). On both Small Malaita and Ulawa the yams were first placed in a temporary shelter near the garden, then transferred to a storehouse (Ivens 1927: 363–366). Malinowski’s (1935) account of yam cultivation among the Kilivila is similar to Ivens’ account of the Ulawa; the processes are the same, the rituals pervasive, but yam cultivation is strictly a male domain.

Because they are seasonal, communities dependent on fresh yams alone would undergo regular food shortages while the young yams were growing (Barrau 1955: 58). Before the advent of the sweet potato a few hundred years ago, the perils of shortage were avoided in two ways. First, yams were often co-staples with other starchy foods: in New Guinea societies with either *Colocasia* taro or bananas (Bourke 1982), in Vanuatu coastal communities with breadfruit (Walter & Sam 2002: 41). Secondly, by storage: of the root crops grown in NW Island Melanesia, yams can be stored longest, kept on shaded or dark shelves in a dry, well aired location for up to six months, providing food between harvest periods (Henderson & Hancock 1988: 19). Yam storage houses are a salient feature in Melanesian villages from the Trobriand Islands of Papua New Guinea to New Caledonia (Barrau 1955: 58).

2.1.1 Why so few yam terms?

Today six yam species are found in Melanesia: *D. alata*, *D. bulbifera*, *D. esculenta*, *D. pentaphylla*, *D. hispida*, and *D. nummularia* (Barrau 1955: 56, Bourke 1982). The first four are present throughout the region, but POC names can be reconstructed for only the first two. This is curious, because the two main garden yam species in NW Island Melanesia today are the greater yam, *D. alata*, and the lesser yam, *D. esculenta*. We might expect to reconstruct a POC term for at least the first four species, and certainly for *D. esculenta*, but no term for the latter can be reconstructed with certainty. Barrau (1965) suggests that *D. nummularia*, which

he found cultivated in scattered locations throughout the Pacific,³ was also once much more widely cultivated than it is today. No term can be reconstructed for it, but this is likely to be an artifact of the data: no source offers a term for it.

The lesser yam is agronomically superior to the greater yam and is in many areas a major source of nutrition, but it is the greater yam which is ceremonially significant and a source of prestige for the grower (Bourke 1982: 55, in preparation and pers. comm.).⁴ From this one may infer that the greater yam is an ancient crop, whilst the lesser yam was cultivated at least a little more recently—but long pre-dates the sweet potato.

The linguistic evidence is consistent with Bourke's inference. The POc etymon **qupi* 'greater yam, *D. alata*' indicates that POc speakers had this crop, and the fact that it was also the generic term for yams suggests that it was the 'default' yam species in the POc economy. Because there is no widely distributed cognate set, no POc term for the lesser yam, *D. esculenta*, can be reconstructed. What does this imply? In its wild state the lesser yam seems to have long been a feature of the forests of NW Island Melanesia and was presumably present in the POc period.⁵ The most appropriate conclusion seems to be that when POc was breaking up it had not yet been extensively cultivated, and that it became a significant part of the diet only as early Oceanic speakers moved inland on the larger islands from their coastal and small-island habitats.

By the same token, the apparent existence of a POc term for *D. bulbifera*, the potato yam, implies that it was consumed by POc speakers, even though it is today cultivated only as a marginal crop and only in certain parts of New Guinea.

The visible differences between *D. alata*, *D. esculenta* and *D. bulbifera* are shown in Figure 9.1.

2.1.2 *Dioscorea alata*, greater yam, water yam, winged yam, TP *yam*, P *iam* (Dioscoreaceae)

Left to themselves, *D. alata* tubers come in an amazing variety of forms, as shown in Figure 9.2. In various parts of Oceanic-speaking Melanesia—the Papuan Tip islands, Fiji, New Caledonia—farmers strove to produce yams with a regular form and giant length. Barrau (1955: 57) mentions a 2.6 m yam seen in New Caledonia in 1953. These long yams were produced by hollowing out a cylindrical growing hole and lining it with wooden sticks to provide growth space for the tuber. More generally, the yield is maximised by staking the growing vine with a support 2–3 m high.

It is not nutrition that drives the desire to produce the largest and the most yams in Melanesian societies, but rather competition for prestige, carried out by exhibiting one's success as a yam grower. Thus among Kilivila speakers of the Trobriands yams are displayed first in conical heaps in the garden, then again in front of the in-law's storehouse, before being placed in one's own storehouse. A good feast, from the host's perspective, is one at which the guests eat their fill of yam, then see how full their host's storehouse remains after the feast. A large yam

³ Borrell (1989: 21) notes its cultivation on Kairiru Island (Schoutens).

⁴ The agronomic and cultural relationship between the lesser and greater yam is to a degree parallel to that between taro and sweet potato. The introduced sweet potato yields better and is the more widely cultivated crop, but the taro is in many places more prestigious.

⁵ Chowning (2001: 79, pers. comm.) reports that Sengseng and Maenge speakers on New Britain still ate wild yams in the 1950s, and Nakanai speakers remembered having done so until recently.

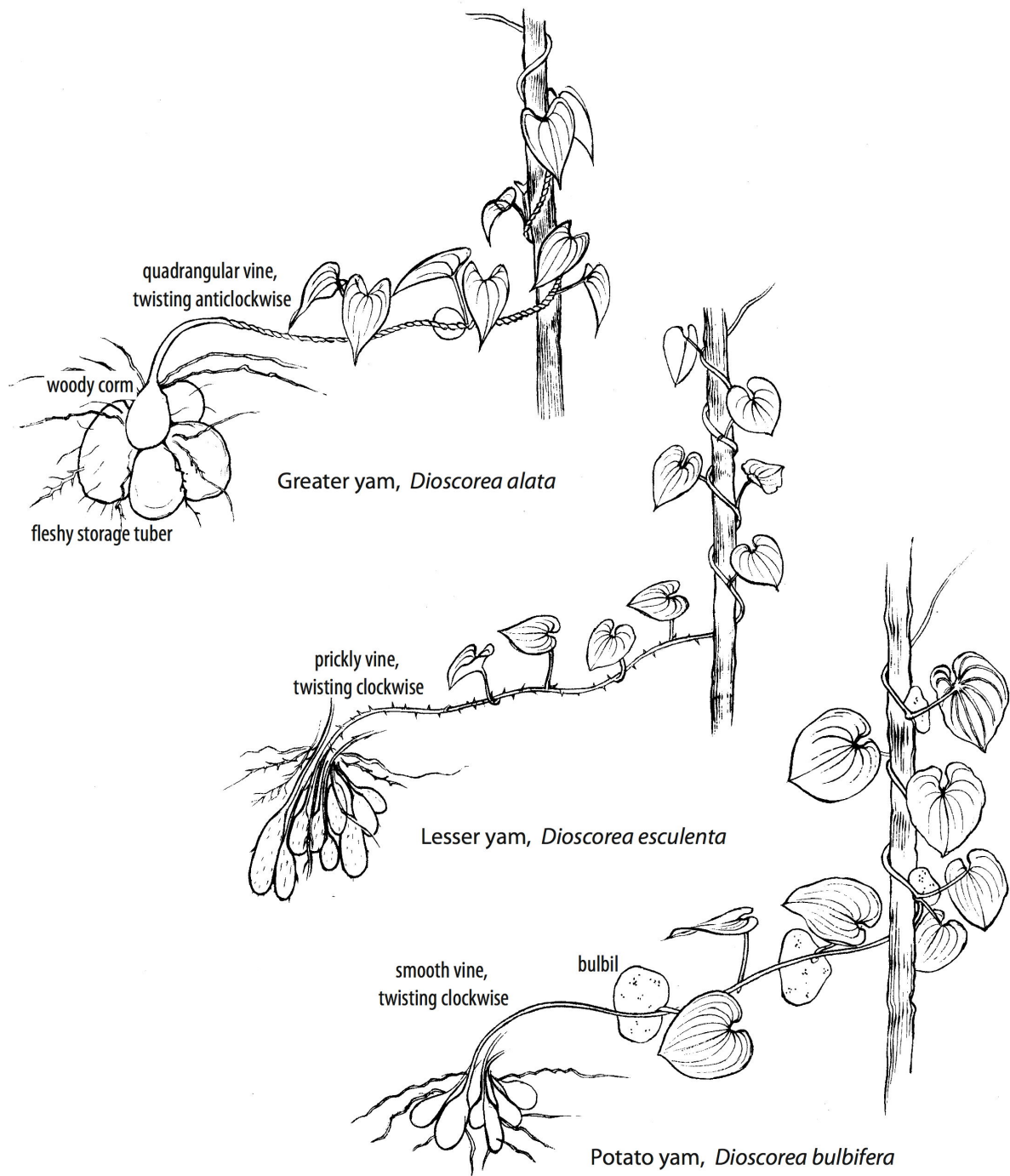
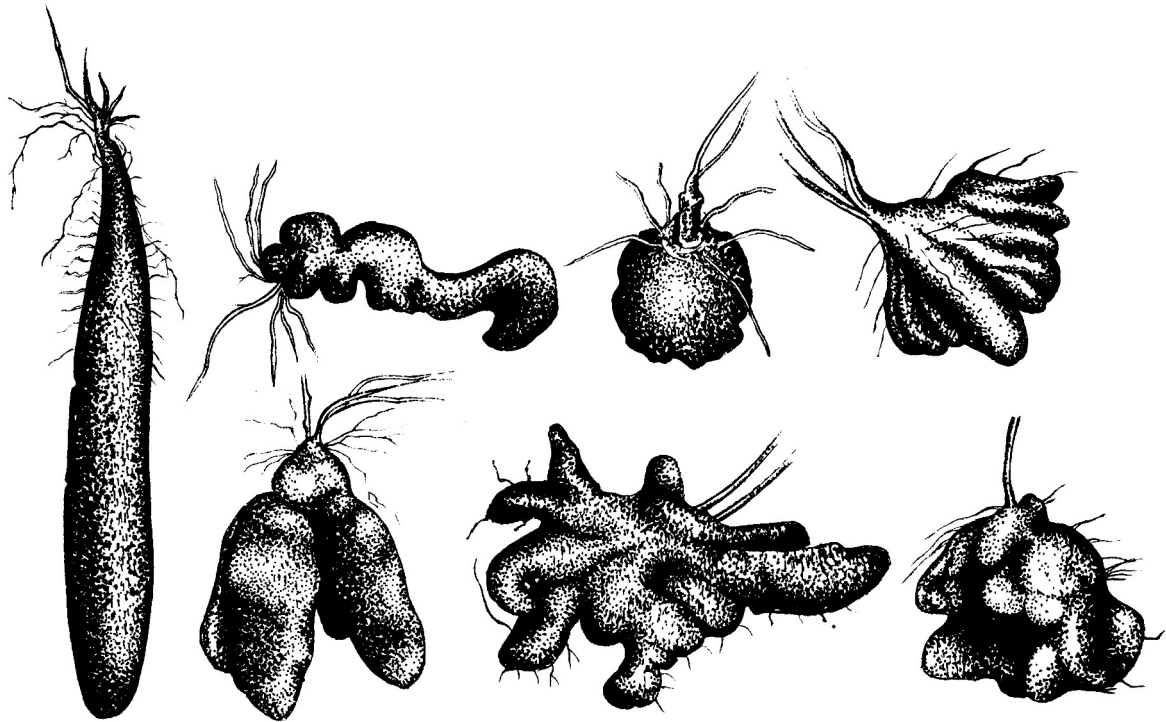


Figure 9.1 Growth habit of three yam (*Dioscorea*) species

Figure 9.2 Yam (*Dioscorea alata*) tuber shapes

with a fantastic form is good for display. The very fact that yams can be stored places them above taro in the food hierarchy because it allows a man to accumulate them until he can distribute them at a feast in the large quantities which bolster his prestige (Howes 2003: 67–68, 96–97).

The most widely reflected term for *D. alata* is POc **qupi*, which is also widely reflected in a second sense as the generic term for yams.

PMP **qubi* ‘yam’ (Dempwolff 1938)

POc **qupi* ‘greater yam, *Dioscorea alata*; yam (generic)’

Adm:	Drehet	<i>u</i>	‘greater yam; yam (generic)’
NNG:	Malasanga	<i>kui-kui</i>	‘greater yam; yam (generic)’
PT:	Iduna	<i>kuvi</i>	‘greater yam; yam (generic)’
MM:	Vitu	<i>yuvi</i>	‘greater yam; yam (generic)’
MM:	Tolai	<i>a-up</i>	‘greater yam; yam (generic)’
MM:	Marovo	<i>uvi</i>	‘greater yam; yam (generic)’
MM:	Maringe	<i>n-ufi</i>	‘greater yam, <i>Dioscorea alata</i> ; yam (generic)’
(Henderson & Hancock 1988)			
TM:	Buma	<i>uwâ</i>	‘yam’
TM:	Tanema	<i>uva</i>	‘yam’
TM:	Tanabili	<i>no-upio</i>	‘yam’
TM:	Vano	<i>upie</i>	‘yam’

SES:	Lengo	<i>uvi</i>	‘greater yam, <i>Dioscorea alata</i> ; yam (generic)’ (Henderson & Hancock 1988)
SES:	Arosi	<i>uhi</i>	‘greater yam; yam (generic)’
NCV:	Uripiv	<i>n-ov</i>	‘k.o. yam’
NCV:	Paamese	<i>o-uhu</i>	‘greater yam; yam (generic)’
NCV:	Lewo	<i>yuwi</i>	‘greater yam; yam (generic)’
NCV:	Namakir	<i>?uw</i>	‘greater yam; yam (generic)’
NCV:	Nguna	<i>na-wii</i>	‘greater yam; yam (generic)’
NCV:	Lewo	<i>yui</i>	‘yam (generic)’
SV:	Sye	<i>n-up</i>	‘greater yam; yam (generic)’
SV:	N Tanna	<i>n-up</i>	‘greater yam; yam (generic)’
SV:	Kwamera	<i>n-uk</i>	‘greater yam; yam (generic)’
SV:	SW Tanna	<i>n-ekw</i>	‘greater yam; yam (generic)’
SV:	Lenakel	<i>n-uw</i>	‘greater yam; yam (generic)’
SV:	Whitesands	<i>n-u</i>	‘greater yam; yam (generic)’
SV:	Anejoñ	<i>n-u</i>	‘greater yam; yam (generic)’
NCal:	Pije	<i>kuuk</i>	‘greater yam; yam (generic)’
NCal:	Fwâi	<i>kuuk</i>	‘greater yam; yam (generic)’
NCal:	Nemi	<i>kuuk</i>	‘greater yam; yam (generic)’
NCal:	Jawe	<i>kuic</i>	‘greater yam; yam (generic)’
NCal:	Nyelâyu	<i>uvi</i>	‘greater yam; yam (generic)’
NCal:	Nêlêmwa	<i>kuvic</i>	‘greater yam; yam (generic)’
NCal:	Xârâcùù	<i>ku</i>	‘greater yam; yam (generic)’
NCal:	Iaai	<i>u</i>	‘greater yam; yam (generic)’
Fij:	Wayan	<i>uvi</i>	‘greater yam; yam (generic)’
Pn:	Tongan	<i>?ufi</i>	‘greater yam; yam (generic)’
Pn:	Samoan	<i>ufi</i>	‘greater yam; yam (generic)’

Three other terms can be reconstructed from cognate sets some of whose members are glossed ‘large yam’, ‘greater yam’ or ‘*D. alata*’. This is weak evidence for inferring that the reconstructed terms denoted a *D. alata* cultivar. The terms are POc **m^waruqe*, POc **udu(r,R)* and POc **p^wasepe*.

POc **m^waruqe* ‘*Dioscorea* sp. or perhaps a cultivar of *D. alata*’

Adm:	Titan	<i>m^ware(n)</i>	‘a big yam’
Adm:	Loniu	<i>m^wat</i>	‘k.o. large yam’
MM:	Roviana	<i>marihi</i>	‘yam’ (Henderson & Hancock 1988) (borrowed?)
NCV:	Paamese	<i>a-marue</i>	‘k.o. wild yam’
NCV:	Lewo	<i>mol-malu</i>	‘k.o. wild yam, ready before cultivated yams’
NCV:	Nguna	<i>m^wālu</i>	‘k.o. yam like English potato’
NCV:	Namakir	<i>māro?</i>	‘k.o. taro’
NCV:	S Efate	<i>n-m^wal</i>	‘ <i>Dioscorea</i> sp.’

PSV **-m^wariq* ‘*Dioscorea* sp.’ (Lynch 2001c: 234)

SV:	Sye	<i>(n-uv)mori</i>	‘ <i>Dioscorea</i> sp.’ (<i>n-uv</i> ‘yam (generic)’)
SV:	Ura	<i>(n-up)mori</i>	‘ <i>Dioscorea</i> sp.’ (<i>n-up</i> ‘yam (generic)’)

POc **udu(r,R)* ‘*Dioscorea alata* cultivar (?)’

NNG:	Amara	(o)udo	‘greater yam’
MM:	Kara (W)	udi	‘greater yam’
MM:	Nalik	udur	‘greater yam’
SES:	Arosi	ugu-ugu	‘yam sp. with nice smell’

POc **p^wasepe* ‘*Dioscorea alata* variety (?)’ is of interest, because it also seems to be the source of the PT forms listed below the cognate set. However, the sound correspondences attested by the PT forms are not those of PT languages but the distinctive reflexes (**p^w* > *k^w*; **s* > *t*) of North Malaitan languages of the SES group. Dictionaries are available for two North Malaitan languages, Lau (Fox 1974) and Kwaio (Keesing 1975), but neither includes this item. I assume it is nonetheless a borrowing from a North Malaitan language, but I do not know the source of the borrowing.

POc **p^wasepe* ‘*Dioscorea alata* variety (?)’

MM:	Petats	waseh	‘ <i>Dioscorea alata</i> ’
MM:	Selau	wesewe	‘ <i>Dioscorea alata</i> ’

cf. also:

PT:	Molima	atea	‘greater yam’
PT:	Dobu	k ^w atea	‘yam’
PT:	Duau	k ^w atea	‘yam’
PT:	‘Auhelawa	ateya	‘yam’
PT:	Suau (Saliba)	k ^w atea	‘greater yam, <i>Dioscorea alata</i> ; yam (generic)’
PT:	Tubetube	k ^w atea	‘greater yam’
PT:	Duau	k ^w atea	‘lesser yam’

2.1.3 *Dioscorea bulbifera*, potato yam, aerial yam, air potato (Dioscoreaceae)

The terms ‘potato yam’ and ‘aerial yam’ reflect the fact that *D. bulbifera* has multiple aerial bulbils rather than a single basal tuber. Except in parts of Papua New Guinea it is not cultivated but quite commonly grows wild (Barrau 1962: 113). Its bulbils contain a toxin, dioscorine, and need to be cooked and grated, then washed continuously in fresh water for several hours (Barrau 1955: 59). In Papua New Guinea it is sometimes cultivated as a minor staple alongside the two major staple species, *D. alata* and *D. esculenta* (Bourke 1982).

POc **p^watika* evidently referred to the potato yam, *D. bulbifera*, because its reflexes denote this species in widely separated languages: Patpatar (MM), Kwara’ae (SES) and Sye and Ura (SV) (the Chuukese form appears to be borrowed). The languages in which it is glossed ‘lesser yam’ (*D. esculenta*) are contiguous and appear to represent a semantic innovation local to central New Ireland.

POc **p^watika* ‘potato yam, aerial yam, *Dioscorea bulbifera*’

Adm:	Lou	puet	‘ <i>Dioscorea bulbifera</i> ’
PT:	Boanaki	posika	‘yam’
MM:	Notsi	pias	‘lesser yam’
MM:	Tabar	poti-poti	‘lesser yam’

MM:	Lamasong	<i>patik</i>	‘lesser yam’
MM:	Patpatar	<i>patuk</i>	‘ <i>Dioscorea bulbifera</i> ’
MM:	Halia (Haku)	<i>pat</i>	‘greater yam’
SES:	Kwara’ae	<i>(dau)fasia</i>	‘ <i>Dioscorea bulbifera</i> cultivars’ (Henderson & Hancock 1988)

PSV **(nə-tai-)b^watyV* ‘yam sp.’ (Lynch 2001c)

SV:	Sye	<i>(tai)potyo(nei)</i>	‘k.o. wild yam’
SV:	Ura	<i>(dai)borye(ni)</i>	‘ <i>Dioscorea bulbifera</i> ’

cf. also:

Mic:	Chuukese	<i>p^wereka</i>	‘ <i>Dioscorea bulbifera</i> ’ (-r- for †∅)
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2.1.4 *Dioscorea esculenta*, lesser yam, prickly yam, TP *mami*, P *pana* (Dioscoreaceae)

Dioscorea esculenta has a prickly vine stem and winds clockwise around its stake, whereas *D. alata* winds anti-clockwise (Figure 9.1).

The reasons why a POc etymon for this widespread species is apparently not reconstructable are discussed in §2.1.1. There are, however, a number of terms in NNG and MM languages which imply that there may have been a PWoc term for the species.⁶ Two forms are quite widely reflected, **ka-misa* and **ma-misa*. The **ka-/*ma-* alternation is typical of stative (adjective-like) verbs in POc,⁷ implying that this was originally an epithet applied to *D. esculenta* rather than a noun. However, no other meaning for this word can be reconstructed at present.

The possibility of reconstructing PWoc **ka-misa/*ma-misa* ‘lesser yam, *D. esculenta*’ perhaps means that the lesser yam was domesticated in NW Island Melanesia after the break-up of POc but before PWoc had dispersed far. Against this inference, however, is the fact that we would also expect to find reflexes of such a significant item in languages of the Papuan Tip linkage, the third member linkage of Western Oceanic, yet none have been found.⁸ The S Efate and Wayan Fijian forms are both very doubtful cognates.

PWoc **kamisa* ‘lesser yam, *Dioscorea esculenta*’

NNG:	Tuam	<i>amez</i>	‘yam’
NNG:	Tami	<i>kamit</i>	‘yam’
NNG:	Yabem	<i>ame</i>	‘lesser yam, <i>Dioscorea esculenta</i> ’
NNG:	Yalu	<i>amis</i>	‘lesser yam, <i>Dioscorea esculenta</i> ’
NNG:	Sissano	<i>emie</i>	‘greater yam’
MM:	Tangga	<i>kam</i>	‘sweet potato; lesser yam’
MM:	Tomoip	<i>misa</i>	‘lesser yam, <i>Dioscorea esculenta</i> ’

⁶ The account given here differs somewhat from that in Ross (1996c).

⁷ Cf. **ma-sauq/*ka-sauq* ‘be far away’ (vol.2, ch.7, §2.2.3). The history of stative verb forms in **ma-* and **ka-* is analysed by Evans & Ross (2001).

⁸ The form *mami* ‘lesser yam’ also occurs in various languages of the region, but we know that this is a recent borrowing from Tok Pisin *mami*, because it shares in the *s*-loss characteristic of words which have entered Tok Pisin from the MM languages Ramoaaina and Tolai (Ross 1993).

cf. also:

NCV: S Efate *n-am* ‘wild varieties of *Dioscorea bulbifera*’

PWOc **mamisa* ‘lesser yam, *Dioscorea esculenta*’

NNG: Maenge *mamisa* ‘lesser yam, *Dioscorea esculenta*’

NNG: Mamusi *mamisa* ‘yam’

MM: Minigir *mamisa* ‘lesser yam’

cf. also:

Fij: Wayan *mami* ‘cooking banana with short thick fruit;
sweet-tasting, but skin remains green and flesh hard
even when ripe’

2.1.5 Other terms for yam

Further terms for yam can be reconstructed, but it is unclear which species they denoted.

PWOc **gobu* ‘*Dioscorea* sp.’

NNG: Numbami *go-gobu* ‘greater yam’

NNG: Mumeng (Patep) *yeb* ‘yam’

MM: Bali *gobu* ‘yam, *Dioscorea alata*, cultivar’ (Hide 1985)

MM: Kara (E) *go-gof* ‘*Dioscorea bulbifera*’

PROc **damu* ‘*Dioscorea* sp.’

NCV: Mota *nam* ‘yam’

NCV: Araki *tsam* ‘*Dioscorea* sp.’

NCV: Tamambo *dam* ‘yam’

NCV: NE Ambae *damu* ‘*Dioscorea* sp.’

NCV: Raga *damu* ‘yam’

NCV: Uripiv *drum* ‘*Dioscorea* sp.’

NCV: Naman *ne-dum* ‘*Dioscorea* sp.’

NCV: Neve’ei *ne-dam* ‘*Dioscorea* sp.’

NCV: Avava *a-dam* ‘*Dioscorea* sp.’

NCV: Larëvat *dram* ‘*Dioscorea* sp.’

NCV: Nese *na-ram* ‘*Dioscorea* sp.’

NCV: Port Sandwich *na-ⁿram* ‘yam’

NCV: Lonwolwol *dem* ‘yam’

SV: Kwamera *nau-ram* ‘kind of wild yam’

SV: Anejoñ *rame* ‘k.o. yam, stringy’

NCal: Pije *dim^wa* ‘*D. bulbifera*’

NCal: Jawe *dim^wa* ‘*D. bulbifera*’

NCal: Fwâi *niwâ* ‘*D. bulbifera*’

NCal: Nemi *niwâ* ‘*D. bulbifera*’

NCal: Nyelâyü *dem^wa* ‘*D. bulbifera*’

NCal: Nêlêmwa *dem^wa* ‘*D. bulbifera*’

cf. also:

Fij: Wayan *damu(ni)* ‘k.o. yam with curved tuber and chocolate coloured skin’ (final *-ni* is unexplained)

PWoc **ka(p)ul* ‘seed yam’

PT:	Dobu	<i>awona</i>	‘seed yam’
PT:	Kakabai	<i>ko-koya</i>	‘yam’
PT:	Misima	<i>ka-kaun</i>	‘seed yam’
PT:	Kilivila	<i>kaula</i>	‘yam’
MM:	Tiang	<i>ko</i>	‘lesser yam’
MM:	Kara (E)	<i>ko-kau</i>	‘lesser yam, <i>D. esculenta</i> ’
MM:	Patpatar	<i>kau-kau</i>	‘lesser yam, <i>D. esculenta</i> ’ ⁹
MM:	Nehan	<i>ko-ko</i>	‘yam’
MM:	Marovo	<i>co-core</i>	‘wild yam sp.’

2.2 Taro (Araceae)

Most major food plant terms both in English and in Oceanic languages refer to a single genus. The English term ‘taro’ is an exception. In much of the Pacific ‘taro’ is used to refer collectively to five genera of the Araceae family, namely *Colocasia*, *Cyrtosperma*, *Alocasia*, *Amorphophallus*, and *Xanthosoma*, each represented by a single cultivated species in the Pacific and shown in Figure 9.3. The most important species are—and in POC times probably were—*Colocasia esculenta* and *Cyrtosperma merkusii*.

2.2.1 *Colocasia esculenta* (syn. *C. antiquorum*), taro, Asian taro, TP taro tru (Araceae)

Like the other Araceae, in its natural state *Colocasia* taro prefers a shady, damp (and even swampy) environment, which explains its cultivation in rain forest environments and the need for irrigation elsewhere. It is often grown on crudely terraced slopes, the terraces supported by tree trunks or stick fences. It is usually propagated by planting a section from the top of the tuber together with the plant’s stem (the leaves are removed). Less often a cutting or a sucker from the side of the corm is used. Ivens (1927: 355) reports from Ulawa that, because taro is not a seasonal crop, the farmer may simply cut the top off a newly pulled tuber and re-plant it immediately. Tubers are ready for harvesting 7–12 months after planting. It grows throughout the year, obviating the need for storage (Barrau 1955: 50–52).

Two POC terms for *C. esculenta* can be reconstructed: **talo(s)* and **m^wapo(q)*. This synonymy perhaps reflects the complex history of taro cultivation by early Oceanic speakers. On the one hand they brought with them varieties of taro that they named **talo(s)*. Evidence for this is that the term was inherited from PMP. On the other hand they interacted with Papuan speakers in NW Melanesia and may have acquired new taro varieties from them,

⁹ This is the source of the Tok Pisin term *kaukau* ‘sweet potato’, whose source was noted as unknown by Ross (1993).

along with the label **m^wapo(q)*, which apparently entered POc from a mainland Papuan language. Reflexes of a possible source occur in languages of the northern Adelbert Range in the present-day Madang Province (see Z'Graggen 1980), and the widespread currency in Papuan languages of words with a form resembling *mao* is noted by Dutton (1973: 443) and Hays (2005: 642).

The cognate set from which POc **m^wapo(q)* is reconstructed contains several formal difficulties. The alternation of reflexes of POc **m* and **m^w* in certain items including this one has been discussed by Blust (1981a). French-Wright (1983: 130–132) also considers the alternation between zero and reflexes of POc **-p-* in this set, choosing to reconstruct two POc forms, one with and one without **-p-*, but suspecting that they are reflexes of a single form. With more data at our disposal, it is clear on both formal and semantic grounds that this is a single cognate set, but one in which two common sporadic changes often occur, namely that **m^w* becomes **m* and that **p* is lost between vowels when one is rounded. Some of the NNG reflexes (Kove, Gitua and Mangap) complicate the picture by reflecting POc **-q*. These variations may mean that the earliest forms in Oceanic do not date back to POc itself but represent slightly later borrowings from dialect to dialect among early Oceanic dialects.

The distribution of the two cognate sets is also interesting. Whilst POc **m^wapo(q)* is distributed throughout Oceania, POc **talo(s)* hardly occurs in Western Oceanic. Its only known Western Oceanic reflexes are in Manam (NNG), Motu (PT) and Roviana and Marovo (MM). In the cases of Manam and Motu, no reflex has been found in nearby closely related languages, and it is quite possible that these are borrowings from an Eastern Oceanic language or from an English-based pidgin.¹⁰ In any case, POc **talo(s)* has been widely replaced by POc **m^wapo(q)* in Western Oceanic languages. John Lynch (pers. comm.) points out that reflexes of **talo(s)* have been replaced by reflexes of PSoc **b^weta* in all of North/Central Vanuatu except South Efate (which arguably subgroups with South Vanuatu).

A search for languages in which reflexes of **talo(s)* and **m^wapo(q)* are in contrast has turned up very little, but this may be an artefact of inadequate data. Only Arosi reflects both terms, each as the first element of names of taro varieties (see below).¹¹ The Arosi generic term for taro is *b^wā*, reflecting neither POc term.

PMP **tales* 'taro, *Colocasia esculenta*' (Dempwolff 1938)

POc **talo(s)* 'taro, *Colocasia esculenta*' (Capell 1943: **dalo(s)*)

NNG:	Manam	<i>taro</i>	'taro, <i>C. esculenta</i> '
PT:	Motu	<i>talo</i>	'taro, <i>C. esculenta</i> '
MM:	Roviana	<i>talo</i>	'taro, <i>C. esculenta</i> '
MM:	Marovo	<i>talo</i>	'taro, <i>C. esculenta</i> '
SES:	Kwaio	<i>alo</i>	'taro (generic); unit of a hundred taro for a feast'

¹⁰ Hiri Motu, the Motu-based pidgin of Papua, received input from policemen from the Solomons, some of whom presumably spoke a SES language (Dutton 1985). John Lynch (pers. comm.) points out that Hiri Motu speakers may also have copied items from Papuan Pidgin English. Roviana is widely used as a lingua franca in the western Solomons and, like other languages of the area, has borrowings from SES languages. Roviana and Manam would also be candidates for borrowing the word 'taro' from, respectively, Solomons Pijin and Tok Pisin.

¹¹ Fox (1978) glosses these names as 'sp. of taro', and I have retained this in the glosses, but I assume that these are in fact different cultivars.

SES:	Lau	<i>alo</i>	‘taro (generic)’
SES:	Arosi	<i>aro(-kamae)</i>	‘taro sp.’
		<i>aro(-kauhi)</i>	‘taro sp.’
		<i>aro(-maiki)</i>	‘taro sp.’
SES:	Bauro	<i>aro</i>	‘taro’
NCV:	S Efate	<i>(n)tal</i>	‘taro, <i>C. esculenta</i> ’
SV:	Sye	<i>n-tal</i>	‘taro, <i>C. esculenta</i> ’
SV:	Lenakel	<i>nə-te</i>	‘taro, <i>C. esculenta</i> ’
SV:	SW Tanna	<i>nə-tel</i>	‘taro, <i>C. esculenta</i> ’
SV:	Anejoñ	<i>n-tal</i>	‘taro, <i>C. esculenta</i> ’
Fij:	Bauan	<i>dalo</i>	‘taro, <i>C. esculenta</i> ’
Pn:	Tongan	<i>talo</i>	‘taro, <i>C. esculenta</i> ’
Pn:	Samoa	<i>talo</i>	‘taro, <i>C. esculenta</i> ’

POc **m^wapo(q)* ‘taro, *Colocasia esculenta*’ (Milke 1968: **m^wao*)

Adm:	Lou	<i>m^wa</i>	‘wild plant like taro’
Adm:	Nali	<i>mah</i>	‘k.o. taro’
Adm:	Drehet	<i>muh</i>	‘taro, <i>C. esculenta</i> ’
Adm:	Loniu	<i>mah</i>	‘taro, <i>C. esculenta</i> ’
Adm:	Titan	<i>ma</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Kove	<i>moi</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Tuam	<i>mo</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Gitua	<i>m^wai</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Mangap	<i>mok</i>	‘taro; good food’
NNG:	Kilenge	<i>mo</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Mangseng	<i>m^wa</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Maenge	<i>mao</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Bing	<i>muāw</i>	‘k.o. yam’
NNG:	Takia	<i>mao</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Yabem	<i>mo</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Sirasira	<i>moa</i>	‘taro, <i>C. esculenta</i> ’
NNG:	Wogeo	<i>m^wau</i>	‘taro, <i>C. esculenta</i> ’
PT:	Dawawa	<i>mavu</i>	‘taro, <i>C. esculenta</i> ’
PT:	Sinaugoro	<i>mayo</i>	‘yam (generic)’
PT:	Motu	<i>maho</i>	‘greater yam’
MM:	Nakanai	<i>mavo</i>	‘taro (generic); <i>C. esculenta</i> ’
MM:	Teop	<i>mū</i>	‘taro, <i>C. esculenta</i> ’
MM:	Kia	<i>mahu</i>	‘taro, <i>C. esculenta</i> ’
MM:	Maringe	<i>m^hau</i>	‘taro, <i>C. esculenta</i> ’ (Henderson & Hancock 1988)
SES:	Arosi	<i>m^wa(-rata?ai)</i>	‘taro sp.’
SES:	Arosi	<i>m^wa(-rugu?ino)</i>	‘taro sp.’
NCal:	Xârâcùù	<i>m^wε</i>	‘taro, <i>C. esculenta</i> ’
Pn:	Hawaiian	<i>nao</i>	‘k.o. taro’

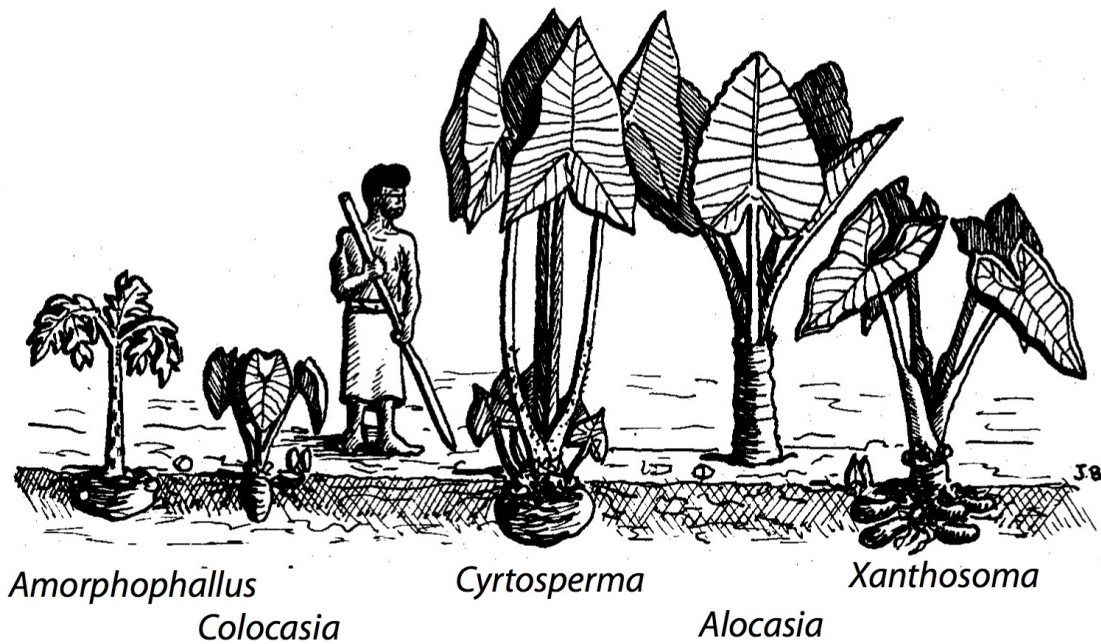


Figure 9.3 Taro (Araceae) genera and *Amorphophallus*: growth habit

PSOc **b^weta* ‘taro, *Colocasia esculenta*’ (Lynch 2004a)

NCV: Mwotlap	<i>p^wet</i>	‘taro, <i>C. esculenta</i> ’
NCV: NE Ambae	<i>p^weta</i>	‘taro, <i>C. esculenta</i> ’
NCV: Araki	<i>pera</i>	‘taro, <i>C. esculenta</i> ’
NCV: Raga	<i>b^weta</i>	‘taro, <i>C. esculenta</i> ’
NCV: Nokuku	<i>p^weta</i>	‘taro, <i>C. esculenta</i> ’
NCV: Kiai	<i>peta</i>	‘taro, <i>C. esculenta</i> ’
NCV: Tamambo	<i>bueta</i>	‘taro, <i>C. esculenta</i> ’
NCV: Sakao	<i>(oe)vad</i>	‘taro, <i>C. esculenta</i> ’
NCV: Uripiv	<i>na-b^wet</i>	‘taro, <i>C. esculenta</i> ’
NCV: Big Nambas	<i>na-p^wet</i>	‘an edible root (not taro)’
NCV: Lonwolwol	<i>(u)b^wer</i>	‘taro, <i>C. esculenta</i> ’
SV: Anejoñ	<i>na-p^wat</i>	‘k.o. taro’
NCal: Nemi	<i>p^wEEK</i>	‘wild arrowroot, <i>Amorphophallus paeoniifolius</i> ?’
NCal: Jawe	<i>p^wEEK</i>	‘wild arrowroot, <i>Amorphophallus paeoniifolius</i> ?’

The leaves of *Colocasia esculenta* are eaten as a green vegetable in many parts of Oceania, and many languages have a separate word for them (ch.4, §2.5). A possible POc term for taro leaves, POc **gal(a,o)* is weakly supported, along with a possible PWOc candidate, *[*qa*]p^wasu—‘possible’ because only its NNG and PT reflexes denote leaves; its MM reflexes denote *Colocasia esculenta* itself.

POc **gal(a,o)* ‘taro leaves’ ? (Ross 1996c: 190)

Adm: Baluan	<i>gal</i>	‘taro’
NNG: Labu	<i>ka</i>	‘taro’

MM:	Vitu	<i>galo</i>	‘taro leaves’
SES:	Kwaio	<i>gala-</i>	‘taro shoot’

PWOc *[qa]p^wasu ‘taro leaves’ ?

NNG:	Kaulong	<i>pasu</i>	‘(mature) taro leaf’
NNG:	Sengseng	<i>paso</i>	‘taro leaf’ (A. Chowning, pers. comm.)
NNG:	Manam	(<i>minam</i>) ?ap ^w as	‘k.o. yam’
PT:	Misima	p ^w asuwa	‘k.o. tree with edible leaves; <i>Gnetum gnemon</i> ’
MM:	Kara (E)	<i>iavas</i>	‘taro, <i>Colocasia esculenta</i> ’
MM:	Madak	<i>pas</i>	‘taro’
MM:	Patpatar	<i>pas</i>	‘taro, <i>Colocasia esculenta</i> ’
MM:	Tolai	<i>pa</i>	‘taro, <i>Colocasia esculenta</i> ’

Other terms for parts of the taro plant are reconstructed in chapter 4. They are

- POc *[s,j]uli(q) ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’ (ch.4, §2.6)¹²
- POc *baRa-baRa ‘stem or stalk of non-woody plants, such as taro and banana, probably also the soft stems of leaves’ (ch.4, §2.2)
- POc *up(e,a) ‘taro seedling’ (ch.4, §2.6)

2.2.2 *Cyrtosperma merkusii* (syn. *C. chamissonis*, *C. edule*), swamp taro, giant taro, P *kakake*, *kakama*, B *wota taro* (Araceae)

At 4 metres tall swamp taro, *Cyrtosperma merkusii*, is a giant among the Araceae. It grows wild or is cultivated in swampy areas on many of the islands of Melanesia, Polynesia and Micronesia. *Cyrtosperma taro* is commonly grown in the mud directly behind the mangrove swamp (Barrau 1955: 25–26). In pre-European times it was cultivated in the Bismarcks (on Manus and New Ireland), the Solomons, Vanuatu, Micronesia, western Polynesia and parts of Fiji but not on mainland New Guinea, in New Caledonia, or in eastern Polynesia (Barrau 1962: 103, Andrew Pawley, pers. comm.). It tolerates saline swamps and requires little labour to cultivate (Bourke 1982). Because of its suitability for marginal conditions, it is an important staple on atolls in Micronesia. Elsewhere it has only marginal importance as a food crop. It is propagated by planting cuttings in marshy ground, and the tuber, which may weigh up to 15 kg, is harvested only after three years or longer. It is usually cooked by baking (Barrau 1955: 53). Its huge waxy leaves are used in the Solomons for sealing stone ovens and for laying out food (Henderson & Hancock 1988: 29–30).

The reconstruction of a term for ‘swamp taro’ has a chequered history. In Ross (1996c) I proposed that the POc name for swamp taro was **bulaka*, but indicated that there was a formal problem with this reconstruction. Its NCV reflexes lack a consonant corresponding to *-l-, and Clark (1996b) accordingly reconstructed PNCV **buaga* ‘taro’. Geraghty (1990: 57–58) observed that POc *R, but not *l, is often lost in NCV languages, and took this as evidence for

¹² The Tawala and Kilivila (PT) reflexes of which (*huli* and *uli*) now mean simply ‘taro’.

PEOc **buRaka*, rather than **bulaka*, citing Nakanai *bureka* in support of this. This is just one of three Nakanai reflexes, however,¹³ and at least two out of the three must be borrowings.

Geraghty suggested that Polynesian reflexes were probably borrowings from Micronesian, and Barrau (1959) and Whistler (1991a: 47, 58–59) suggested that *Cyrtosperma merkusii* was indeed introduced into Polynesia from Micronesia. Kikusawa (2003) has expanded on this and argues that the Micronesian terms below, other than Marshallese, reflect Proto Chuukic-Ponapeic **p^wulaka* ‘swamp taro, *Cyrtosperma merkusii*’ (Chuukic-Ponapeic is a subgroup of Micronesian), and that all the other terms listed below were borrowed directly or indirectly from a Chuukic-Ponapeic language.

Kikusawa may well be right,¹⁴ as Bourke (1990) suggests that *Cyrtosperma* taro was introduced into the Bismarcks by Polynesians living on the atolls to the east. Swamp taro is the dominant root crop only in Micronesia, and the irregularities of reflexes outside Micronesia and Polynesia cause difficulties both for my **bulaka* and Geraghty’s *buRaka*.¹⁵ In order to demonstrate this, I list against each reflex below the POc form that it **would** reflect if it were directly inherited. The Micronesian terms, other than Marshallese, reflect Proto Chuukic-Ponapeic **p^wulaka*, which reflects a hypothetical POc **bulaka*. The Polynesian terms appear to reflect PPN **pulaka*, also reflecting a hypothetical POc **bulaka*. However, the claim in Ross (1996c) that they *actually* reflect POc **bulaka* collapses as we move westward, as does Geraghty’s reconstruction of **buRaka*. NCV terms consistently reflect PNCV **bu(R)aga*, whilst MM and Adm reflexes are chaotic and typical of sets most or all of whose members are borrowed.

The items listed below denote ‘swamp taro, *Cyrtosperma merkusii*’ unless glossed otherwise.

Adm: Mussau	<i>ulaa</i>	<i>*pu(l,r,R)a(q,k)a</i>	
Adm: Seimat	<i>hula</i>	<i>*pula(q,k)a</i>	‘swamp taro, <i>Alocasia</i> sp., introduced from Aua’ (Sorensen 1950)
Adm: Aua	<i>fuula</i>	<i>*pula(q,k)a</i>	‘taro’
Adm: Lou	<i>pulak</i>	<i>*(p,b)ulaka</i>	
MM: Nakanai	<i>ula</i>	<i>*u(l,r,R)a(q,k)a</i>	‘an inedible wild taro, <i>Colocasia</i> sp.’
	<i>buleha</i>	<i>*bu(l,r,R)eqa</i>	‘an inedible wild taro, <i>Colocasia</i> sp.’
	<i>bureka</i>	<i>*buseqa</i>	‘variety of elephant ear taro, <i>Alocasia macrorrhizos</i> ’

¹³ In Ross (1996c) I listed *buleha* and *bureka*. Nakanai *ula* is cited by Bender et al. (2003) from Chowning & Goodenough (n.d.).

¹⁴ However, Kikusawa’s paper contains some problems. Firstly, she reconstructs POc **biRaq*, denoting both *Alocasia* and *Cyrtosperma*, i.e. giant taros in general (only Wayan *via* supports the double gloss), but it is clear that the POc form was **piRaq* (ch.9, §2.2.3). She offers no evidence for POc initial **b-*. In a footnote she cites Bauan *via* as a regular reflex, but this reflects **piRaq*, not **biRaq*. Second, Kikusawa argues that Proto Chuukic-Ponapeic **p^wulaka* is perhaps a borrowed reflex of **biRaq*, but this is unlikely, as the form was in fact **piRaq*. Third, she lumps together as reflexes of POc **biRaq* the NCV terms reflecting PNCV **bu(R)aga* and POc **piRaq*. This is unmotivated, as the forms reflecting POc **piRaq* (listed under **piRaq* in §2.2.3) are regular reflexes. I assume that PNCV **buaga* was also a borrowed form, ultimately from Proto Chuukic-Ponapeic **p^wulaka*.

¹⁵ *Cyrtosperma* is reported to have been present in New Ireland 16,500 years ago (Barton & White 1993, cited by Swadling & Hide 2005: 307). I do not know how this meshes with the much later history that concerns us here.

MM: Kara (E)	<i>vul̩i</i>	* <i>bulaqa</i>	‘k.o. taro’
MM: Patpatar	<i>pulaka</i>	* <i>pulaka</i>	‘Polynesian arrowroot, probably <i>Tacca leontopetaloides</i> ’ ¹⁶
MM: Tolai	<i>pulaka</i>	* <i>pulaka</i>	‘Polynesian arrowroot, probably <i>Tacca leontopetaloides</i> ’
NCV: Mota	<i>puaka</i>	* <i>bu(R)aga</i>	‘boggy ground, mud’
NCV: Uripiv	<i>vuak</i>	* <i>bu(R)aga</i>	‘(rare) taro’
NCV: Big Nambas	<i>bōak</i>	* <i>bu(R)aga</i>	‘taro, <i>Colocasia</i> sp.’
NCV: Port Sandwich	<i>^mbuɑ^ŋg</i>	* <i>bu(R)aga</i>	‘hill taro’
NCV: Naman	<i>buag</i>	* <i>bu(R)aga</i>	
NCV: Neve’ei	<i>ni-biaŋ</i>	* <i>bu(R)aga</i>	
NCV: Avava	<i>vuɑŋ</i>	* <i>bu(R)aga</i>	
NCV: Nese	<i>boak</i>	* <i>bu(R)aga</i>	
NCV: Namakir	<i>buag</i>	* <i>bu(R)aga</i>	
NCal: Xârâcùù	<i>buraa</i>	?	‘variety of taro’
Mic: Marshallese	<i>p^uəl</i>	* <i>bulaqa</i>	‘swamp taro patch’
Mic: Mortlockese	<i>p^wulæ</i>	* <i>bula(q,k)a</i>	
Mic: Chuukese	<i>p^wura</i>	* <i>bula(q,k)a</i>	
Mic: Puluwatese	<i>p^wula</i>	* <i>bula(q,k)a</i>	
Mic: Satawalese	<i>p^wula</i>	* <i>bula(q,k)a</i>	
Mic: Carolinian	<i>b^wula</i>	* <i>bula(q,k)a</i>	
Mic: Woleaian	<i>f^wuraxe</i>	* <i>bulaka</i>	
Mic: Pulo-Annan	<i>v^wuraxa</i>	* <i>bulaka</i>	
Pn: Anutan	<i>pulaka</i>	* <i>bulaka</i>	
Pn: Pukapukan	<i>pulaka</i>	* <i>bulaka</i>	
Pn: E Futunan	<i>pulaka</i>	* <i>bulaka</i>	
Pn: E Uvean	<i>pulaka</i>	* <i>bulaka</i>	
Pn: Samoan	<i>pulaʔa</i>	* <i>bulaka</i>	
Pn: Tuvalu	<i>pulaka</i>	* <i>bulaka</i>	
Pn: Tokelauan	<i>pulaka</i>	* <i>bulaka</i>	
Pn: Raratangan	<i>puraka</i>	* <i>bulaka</i>	‘coarse kind of taro’

2.2.3 *Alocasia macrorrhizos* (syn. *A. macrorrhiza*, *A. indica*), giant taro, elephant ear taro, *P waeltaro* (Araceae)

The giant taro, *Alocasia macrorrhizos*, growing to 3–4 m, is not strictly a root crop; it is the corm (i.e. the thick lower stem) that is eaten. It is present as a minor staple in much of New Guinea and the Bismarcks, but appears to have been grown as much for ceremonial significance as for eating (Bourke 1982). Ann Chowning (pers. comm.) reports that among the Nakanai and the Sengseng of New Britain, giant taro is often eaten by people who are abstaining from *Colocasia* taro as an act of mourning for a dead relative. *A. macrorrhizos* is

¹⁶ The dictionary source defines this term as ‘wild arrowroot, *Amorphophallus campanulatus*’ (= *A. paeonifolius*). Peekel (1984: 91) gives *bulaka* as ‘Polynesian arrowroot, probably *Tacca leontopetaloides*’ in both Patpatar and Tolai, and I take him to be the more reliable source with regard to botanical identifications. Hay (1990: 42) notes that the leaves of the two plants are easily confused.

not mentioned at all in Henderson and Hancock's (1988) Solomons survey. Barrau (1955: 54) says that it is found throughout Melanesia but only sometimes cultivated in gardens, Hay (1990: 41–42) that it is uncommon in rural Papua New Guinea. Its calcium oxalate content is such that it requires lengthy baking or scalding with water several times.

The POc name for giant taro was **piRaq*, continuing a PMP etymon. The final *-*q* is attested in Gumawana, Bwaidoga, Big Nambas and Tape and indirectly in the retention of the final vowel in SV languages (Lynch 2001c: 121).

PMP **biRaq* 'taro sp.' (Blust 1972b)

POc **piRaq* 'giant taro, elephant ear taro, *Alocasia macrorrhizos*' (Blust 1972b)

Adm:	Mussau	<i>ia</i>	' <i>Alocasia macrorrhizos</i> '
PT:	Gumawana	<i>vilava</i>	'taro'
PT:	Bwaidoga	<i>vilaya</i>	'edible root resembling taro'
PT:	Motu	<i>hira</i>	'large sp. of edible arum'
MM:	Kara (E)	<i>fia</i>	' <i>Alocasia macrorrhizos</i> '
SES:	Gela	<i>vila</i>	' <i>Alocasia macrorrhizos</i> '
SES:	Arosi	<i>hira</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Mwotlap	<i>vi</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Mota	<i>via</i>	'the giant caladium'
NCV:	NE Ambae	<i>via</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Kiai	<i>via</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Araki	<i>via</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Raga	<i>via</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	Big Nambas	<i>ḍix</i>	' <i>Alocasia macrorrhizos</i> ' (J. Lynch, pers. comm.)
NCV:	Uripiv	<i>na-vi</i>	'wild arrowroot, <i>Amorphophallus paeoniifolius</i> '
NCV:	Tape	<i>viay</i>	' <i>Cyrtosperma merkusii</i> '
NCV:	Nese	<i>na-ḍi</i>	'k.o. taro'
NCV:	Big Nambas	<i>viah</i>	' <i>Alocasia macrorrhizos</i> '
NCV:	SE Ambrym	<i>o-hia</i>	'unidentified edible tuber'
NCV:	Paamese	<i>u-hiaa</i>	'wild yam'
NCV:	Lewo	<i>ko-yuia</i>	'(wild) yam'
NCV:	Namakir	<i>vi</i>	' <i>Cyrtosperma</i> '?
NCV:	Nguna	<i>na-via</i>	'taro sp., inedible; very bitter or acidic; said to burn the mouth if eaten'
NCV:	S Efate	<i>na-fi</i>	'taro sp.'
SV:	Sye	<i>ne-vye</i>	'water taro'
SV:	Lenakel	<i>nu-via</i>	'k.o. taro'
SV:	Kwamera	<i>nu-via</i>	' <i>Cyrtosperma</i> (wild taro)'
SV:	Anejoñ	<i>nehei</i>	' <i>Alocasia macrorrhizos</i> '
NCal:	Pije	<i>pia</i>	' <i>Alocasia macrorrhizos</i> '
NCal:	Fwâi	<i>pia</i>	' <i>Alocasia macrorrhizos</i> '
NCal:	Nemi	<i>pia</i>	' <i>Alocasia macrorrhizos</i> '
NCal:	Jawe	<i>pia</i>	' <i>Alocasia macrorrhizos</i> '
NCal:	Nêlêmwa	<i>pia</i>	' <i>Alocasia macrorrhizos</i> '
Fij:	Wayan	<i>via</i>	'giant taro, <i>Alocasia</i> and <i>Cyrtosperma</i> spp.; cultivated but eaten only in time of famine'

2.2.4 Another term for taro?

The glosses suggest that the denotatum of POc **(p,b)oso* below belonged to the Araceae family, but it is impossible to infer its identity from the available data.

POc **(p,b)oso* ‘k.o. taro’

NNG:	Barim	<i>bus</i>	‘taro’
NNG:	Lukep (Pono)	<i>bus</i>	‘taro’
MM:	Madak	<i>pos</i>	‘greater yam’
Mic:	Kosraean	<i>ot</i>	‘taro sp.’
Mic:	Marshallese	<i>wetu</i>	‘elephant ear taro, <i>Alocasia macrorrhizos</i> ’
Mic:	Chuukese	<i>wōt</i>	‘taro, <i>Colocasia esculenta</i> ’

2.3 Other tubers

Three other tubers are quite widely distributed in the Pacific. Two are the wild arrowroot, *Amorphophallus paeoniifolius* (syn. *A. campanulatus*), and the Polynesian arrowroot, *Tacca leontopetaloides*, but I am unable to reconstruct a POc term for either. This suggests either that they, too, are more recent introductions or, more probably, that they are rarely eaten and have undergone frequent renaming. The third tuber is *Pueraria lobata*, apparently more widely cultivated in earlier times than it is today.

2.3.1 *Amorphophallus paeoniifolius* (syn. *A. campanulatus*), wild arrowroot, elephant yam (Araceae)

Amorphophallus paeoniifolius is a wild plant. In the Austronesian speaking areas of Papua New Guinea it is a minor staple only in parts of western New Britain and in coastal SE Papua New Guinea (Bourke et al. 1998). Margetts (2005b) notes of the latter region that *A. paeoniifolius* is traditionally grown but not very common as people do not go out of their way to cultivate it. It is not as valued as other taro types and does not play a role in feasts and wealth exchanges. In the Solomon Islands it is reported to have been a garden crop in parts of Choiseul and Malaita (Henderson & Hancock 1988: 32). Barrau (1955: 55) reports that it is no longer cultivated anywhere in Melanesia.

2.3.2 *Tacca leontopetaloides*, Polynesian arrowroot (Taccaceae)

The tuber of *Tacca leontopetaloides* is bitter and requires considerable processing to produce a starch pudding somewhat like sago pudding. It was used in this way on the small islands of the SE Solomons and the Temotu Province, and in much of Polynesia (Henderson & Hancock 1988: 34) but apparently had only limited use in the Bismarcks.

Interestingly, almost all the names I have collected for it reflect a reassignment of the name of some other starchy food:

MM:	Patpatar	<i>pulaka</i>	< <i>*bulaka</i> ‘ <i>Cyrtosperma merkusii</i> ’ (§2.2.2)
MM:	Tolai	<i>pulaka</i>	< <i>*bulaka</i> ‘ <i>Cyrtosperma merkusii</i> ’ (§2.2.2)
TM:	Äiwoo	<i>(to)piya</i>	< POc <i>*piRaq</i> ‘ <i>Alocasia macrorrhizos</i> ’ (§2.2.3)
Fij:	Bauan	<i>yabia</i>	< POc <i>*Rabia</i> ‘ <i>Metroxylon sagu</i> ’ (§5.1)
Pn:	Pileni	<i>pia</i>	< POc <i>*Rabia</i> ‘ <i>Metroxylon sagu</i> ’ (§5.1)
Pn:	Rarotongan	<i>pia</i>	< POc <i>*Rabia</i> ‘ <i>Metroxylon sagu</i> ’ (§5.1)

The elements in the PPn binomial below are PPn **mā* ‘fermented breadfruit’ (POLLEX) and **soaʔa* ‘banana’ (§3).

PPn **mā-soaʔa* ‘Polynesian arrowroot, *Tacca* sp.’ (POLLEX)

Pn:	Tongan	<i>māhoaʔa</i>	‘arrowroot, <i>Tacca</i> sp.’
Pn:	Tokelauan	<i>mahoā</i>	‘ <i>Tacca leontopetaloides</i> ’
Pn:	Anutan	<i>maoa</i>	‘arrowroot, <i>Tacca</i> sp.’
Pn:	E Futunan	<i>māsoʔā</i>	‘arrowroot, <i>Tacca</i> sp.’
Pn:	Samoa	<i>māsoā</i>	‘ <i>Tacca leontopetaloides</i> ’
Pn:	Tuvalu	<i>māsoa</i>	‘arrowroot, <i>Tacca</i> sp.’

For the Micronesian names of *T. leontopetaloides*, however, no origin has been found: Nauru (*da*)*mag-mag*, Proto Western Micronesian **m*“*aku-m*“*aku* ‘arrowroot, *T. leontopetaloides*’ (Bender et al. 2003).

2.3.3 *Pueraria lobata* (syn. *P. novo-guineensis*, *P. thunbergiana*, *P. triloba*, *P. hirsuta*, *P. neo-caledonica*, *Pachyrrhizus trilobus*, *P. montanus*, *P. angulatus*, *Dolichos hirsutus*, *D. tuberosus*, *D. lobatus*) (Fabaceae)

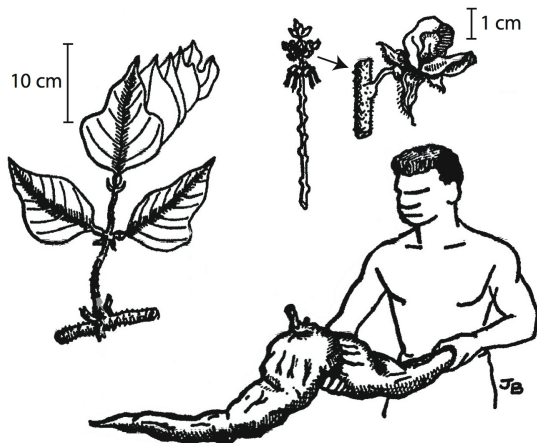


Figure 9.4 Tuber and plant parts of *Pueraria lobata*

Pueraria species are half-woody lianas, 3–5 m high, with stems covered in hairs, brown on older parts, rust-yellow to white on younger. The bast is used to make yarn for rope, fishing lines and fish nets. One species, *P. lobata* (with an enormous number of synonyms), is found as far east as Samoa.

P. lobata has a fleshy, tapioca-like tuber that is widely eaten in times of famine (Barrau 1965; Peekel 1984: 253–255). Barrau (1965) supports Guppy’s (1906: 412) suggestion that *P. lobata* may also have been more widely cultivated by Oceanic speakers before the arrival of the sweet potato. It is still cultivated in the Kangean Islands (120 km east of Madura, Indonesia) and in New Caledonia, where Haudricourt (1964: 97), cited by Barrau, labels it ‘a food for chiefs’ rather than a famine food. One of Guppy’s mid-nineteenth-century sources noted that it also had ceremonial significance in Fiji.

No POC term for *P. lobata* is reconstructable, and the cognate set below is restricted to North–Central Vanuatu and Central Pacific, and thus allow only a PROc reconstruction. None of Barrau’s sources make specific mention of the Bismarcks or the Solomons, and it may be that its significance has faded more definitely from folk memory there than on smaller islands where it still serves as a famine food.

The gloss of the Raga reflex refers to famine food, and probably denotes *P. lobata*.

PROc **Raka* ‘k.vine, *Pueraria lobata*’ (Geraghty 1990)

NCV:	Raga	<i>aga</i>	‘yam with blue flowers, eaten in time of famine’
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NCV: Port Sandwich	<i>ni-ax</i>	‘vine sp.’
NCV: Paamese	<i>e-ā</i>	‘kind of tree with very tough roots that are very tough to dig out while hoeing in garden’
NCV: Namakir	<i>ni-ak</i>	‘vine sp. with blue flowers like a yam; <i>Pueraria</i> (?)’
Fij: Wayan	<i>aka</i>	‘creeper, <i>Pueraria lobata</i> ’
Fij: Bauan	<i>yaka</i>	‘creeper, <i>Pueraria lobata</i> ’ (Geraghty 2004: 79)
Pn: Tongan	<i>aka</i>	‘creeper, <i>Pueraria lobata</i> , whose root is eaten when better food is scarce’
Pn: Niuean	<i>aka</i>	‘ <i>Pueraria lobata</i> ’
Pn: Ifira-Mele	<i>aka</i>	‘creeper sp., probably <i>Pueraria lobata</i> ’
Pn: Pukapukan	<i>aka</i>	‘a root’
Pn: Rennellese	<i>aka</i>	‘bush vine, <i>Pueraria lobata</i> with long roots, eaten in times of shortage’
Pn: Tikopia	<i>aka</i>	‘root of <i>Pueraria lobata</i> ’
Pn: Samoan	<i>aʔa</i>	‘creeper, <i>Pueraria lobata</i> ’
Pn: Tokelauan	<i>aka</i>	‘root’
Pn: Māori	<i>aka</i>	‘ <i>Metrosideros</i> spp. that begin life as climbing vines.’

3 Bananas, cultivars of the genus *Musa*

Banana plants have a non-woody stem and huge leaves which, along with the stem holding the bunches of bananas, grow directly out of the top of the main stem. The plant as a whole is usually around 3 m in height.

In Papua New Guinea today bananas are the second most widely consumed food crop after the sweet potato. For some PNG communities starchy varieties of bananas are the sole staple, picked and cooked before they are fully ripe. Some varieties lend themselves better to boiling, others to baking. Traditional banana varieties are relatively hard to grow; each year they must be moved to new garden sites with fertile soil. Many of these varieties produce fruit within six months of planting (French & Bridle 1978: 12). Figure 9.5 shows a traditional banana plant.

Banana leaves have a variety of uses. The most common are wrapping food for baking in a stone oven (vol.1, ch.6, §3.1) and laying out food on them at feasts.

Edible bananas are all sterile hybrids with complex genetic histories, cultivars of the genus *Musa*.¹⁷ In my 1996 attempt to gloss the various reconstructed terms for bananas, I employed the old division, based on morphological characteristics, of the genus *Musa* into five sections, varieties of which found in NW Melanesia belong to the sections *Eumusa* and *Australimusa*. In the past fifty years a new understanding of *Musa* sections has emerged, resulting in a reduction in their number from five to three, but two are still relevant to NW Melanesia, namely *Musa*¹⁸ (including the former *Eumusa*) and *Callimusa* (including the for-

¹⁷ The taxonomic and archaeobotanical information in this section is drawn from two papers which Jean Kennedy kindly made available to me: J. Kennedy 2008 and forthcoming.

¹⁸ Thus genus and section share the same name, unfortunately for the non-specialist.

mer *Australimusa*) (Simmonds & Shepherd 1955, Wong et al. 2002). In Simmonds and Shepherd's cultivated banana nomenclature, each section contains species (plus subspecies) and hybrids, the latter labelled with letters denoting the subspecies from which they are derived: A for the various subspecies of *Musa acuminata*, B for those of *M. balbisiana*, S for the minor New Guinea species *M. schizocarpa* (all three in the section *Musa*) and T for *Callimusa*-derived genomes. Thus '*M. sapientum*' and '*M. paradisiaca*', the two alleged species recognised by Linnaeus, are both AAB triploid hybrids. Arnaud and Horry's (1997) survey of 108 banana varieties in Papua New Guinea includes AA and AB diploid and AAA, AAB and ABB triploid hybrids, as well as hybrids of *Musa* and *Callimusa* species.¹⁹



Figure 9.5 Traditional (diploid) banana plant

Biomolecular study confirms these sections and is currently bringing about a revision of ideas about the archaeobotany of bananas, which is considerably more complicated than previously thought (J. Kennedy forthcoming). The transformation from wild to cultivated edible bananas occurred independently in the two sections. The wild species of the section *Musa* that have contributed to edible bananas are found over a region stretching from eastern India and Sri Lanka through island SE Asia into the NW Melanesia as far as the Solomons, but the fact that New Guinea is home to many highly diverse diploid AA cultivars makes it the probable area of their domestication. Wild *Callimusa* species are confined to a region stretching from Halmahera to the Solomons, indicating that NW Melanesia was the region where *Callimusa* bananas were also first domesticated.

J. Kennedy (2008) points out that all bananas east of the Solomons were carried there by settlers. These belong to three distinct lineages. The first consists of so-called *Fe'i* bananas, hybrids among several *Callimusa* species (and the world's only edible *Callimusa* bananas). The other two, both known as 'Pacific plantains', are derived from *Musa* species. One involves *M. acuminata*, subspecies *banksii*, endemic to New Guinea, and the other is a cross between the *M. acuminata* subspecies *banksii* and *errans*, the latter endemic to the Philippines. *Fe'i* bananas and *banksii* derivatives both originated in New Guinea, but the site of *banksii/errans* hybridisation is unknown. Archaeological evidence from Kuk in the New Guinea Highlands indicates that edible diploids derived from *M. acuminata banksii* were under cultivation by 7000 years ago, but the origins of *Fe'i* bananas and *banksii/errans* hybrids cannot be dated. The geographic and chronological unknowns do not exclude the possibility that all three lineages were carried into the Pacific by early Oceanic speakers, but they do not confirm it either.

The likelihood that banana domestication first occurred in New Guinea, and that edible bananas spread from there into Asia and Africa, means that any bananas brought to New Guinea and the Bismarcks by Austronesian speakers probably came from this region in the

¹⁹ Arnaud & Horry use the old section terms *Eumusa* and *Australimusa*.

first place. That bananas have long been a part of their diet is confirmed by the very well attested PMP term **punti* and its POc continuation **pudi*. The fact that its reflexes are so widespread makes it certain that this was the generic term for bananas. Today's Oceanic speakers usually have numerous terms for the different banana cultivars in their gardens, but fact that few people use Simmonds and Shepherd's nomenclature in glosses (and that old terms persist) makes it difficult or impossible to provide scientific names for these. Because of this difficulty, old species terms are retained in glosses.

PMP **punti* 'banana' (Dempwolff 1938)

POc **pudi* 'banana, *Musa* cultivars' (Capell 1943: **puti*)

Adm:	Mussau	<i>uri</i>	'banana'
Adm:	Seimat	<i>pudi</i>	' <i>Musa</i> sp.' (Sorensen 1950)
Adm:	Drehet	<i>puŋ</i>	'banana'
NNG:	Maenge	<i>puri</i>	'banana'
NNG:	Kove	<i>puri</i>	'banana'
NNG:	Lukep (Pono)	<i>pur</i>	'banana'
NNG:	Gitua	<i>pudi</i>	'banana'
NNG:	Mapos Buang	<i>vud</i>	'banana'
PT:	Tubetube	<i>udi</i>	'banana'
MM:	Nakanai	<i>vugi</i>	'banana'
MM:	Bulu	<i>vudi</i>	'banana'
MM:	Tigak	<i>ur</i>	'banana' (Beney 1980)
MM:	Tolai	<i>vudu</i>	'banana'
TM:	Äiwoo	<i>no-u</i>	'banana'
SES:	Gela	<i>vudi</i>	'banana'
SES:	To'aba'ita	<i>fudi</i>	'banana' (archaic)
SES:	Lau	<i>fudi</i>	'banana'
SES:	Sa'a	<i>huti</i>	'banana'
NCV:	Naman	<i>nə-vəj</i>	'banana'
NCV:	Nese	<i>no-ŋic</i>	'banana'
NCV:	Uripiv	<i>na-vij</i>	'banana'
NCV:	Lonwolwol	<i>vih</i>	'banana'
NCV:	Port Sandwich	<i>na-viic</i>	'banana'
NCV:	Nguna	<i>na-adi</i>	'banana'
SV:	Sye	<i>no-voh</i>	'banana'
SV:	Anejoñ	<i>no-hos</i>	'banana'
NCal:	Pije	<i>piji(ŋ)</i>	' <i>Musa paradisiaca</i> '
NCal:	Xârâcùù	<i>pwî</i>	'banana'
NCal:	Iaai	<i>o-vic</i>	'banana'
Mic:	Kosraean	<i>uʃ</i>	'banana'
Mic:	Mokilese	<i>wus</i>	'banana'
Mic:	Ponapean	<i>ūt</i>	'banana'
Mic:	Chuukese	<i>wūç</i>	'banana'
Mic:	Puluwat	<i>wūr</i>	'banana'
Mic:	Satawalese	<i>wūr</i>	'banana'
Mic:	Woleaian	<i>wīʃi</i>	'banana'

Fij:	Wayan	<i>vudi</i>	‘cooking banana; sometimes used as generic term for banana’
Pn:	Tongan	<i>fusi</i>	‘cooking banana or banana of any kind’

The term *Musa troglodytarum* is used (inaccurately) both of wild varieties of *M. balbisiana* and of *Fe'i* bananas. In the Uripiv and Samoan glosses below it is likely that it denotes the latter, in agreement with the Bauan gloss. POc **joRaga* is glossed accordingly, but with a question mark, because this was the meaning of the PROc reflex but not necessarily of the POc term. *Fe'i* bananas are uncommon in New Guinea today, and it is not clear whether they were present in the Bismarcks in Proto Oceanic times.

POc **joRaga* ‘banana, *Fe'i* (?) cultivars’

NNG:	Middle Watut	<i>cok</i>	‘banana’
NNG:	Mumeng (Patep)	<i>joŋ</i>	‘banana (generic); banana, <i>Musa sapientium</i> ’
MM:	Vaghua	<i>soga</i>	‘banana’
SES:	Arosi	<i>toraga</i>	‘banana sp.’
NCV:	Raga	<i>hoaga</i>	‘k.o. banana’
NCV:	Uripiv	<i>jok</i>	‘ <i>Musa troglodytarum</i> , a kind of banana’
NCV:	Paamese	<i>sōko</i>	‘kind of banana with large orange coloured fruit’
NCV:	Nguna	<i>soaga</i>	‘cooking banana’
Fij:	Bauan	<i>soaga</i>	‘banana sp., <i>Musa fehi</i> ’
Pn:	Samoa	<i>soaʔa</i>	‘mountain plantain, <i>Musa troglodytarum</i> ’ (Whistler 2000: 7)

The glosses of the four terms below are vague, both because the glosses of present-day forms are often vague and for the reasons given above, but they appear to have denoted banana cultivars. POc **sakup* perhaps denoted a cultivar with long fruit, as the glosses of its Gumawana, Motu and Kwara’ae reflexes suggest. In view of its upright bunches Kwara’ae *sa-sao* appears to denote a *Fe'i* cultivar (J. Kennedy, pers. comm.), but this is neither confirmed nor disconfirmed by the glosses of its cognates. It is probable that POc **b^wera* was a descriptive term meaning ‘white’, since Puluwat *p^wer* retains this meaning. The POc form is probably a reflex of PMP **burak* ‘white’. If so, one may infer that it referred to bananas of the *Musa* group, since *Fe'i* bananas are typically copper-coloured.

POc **sakup* ‘banana cultivar with long fruit’ (?)

PT:	Gumawana	<i>yagowa</i>	‘a long non-sweet banana’
PT:	Taupota	<i>hakova</i>	‘banana’
PT:	Taboro	<i>daua</i>	‘k.o. banana: white flesh’
PT:	Motu	<i>dau</i>	‘k.o. banana: very long’
MM:	Roviana	<i>hakua</i>	‘banana’
MM:	Maringe	<i>cau</i>	‘banana’
SES:	Kwara’ae	<i>sa-sao</i>	‘k.o. banana with upright bunches and large fruit’
SES:	’Are’are	<i>sao-sao</i>	‘k.o. wild banana’
NCV:	NE Ambae	<i>haka</i>	‘banana’
NCV:	Larëvat	<i>(nəv)say</i>	‘banana’
NCV:	Tape	<i>(ni)say</i>	‘banana’
NCV:	Paamese	<i>sou-sou</i>	‘k.o. banana’

POc **b^wera* ‘*Musa* cultivar’

PT:	Gapapaiwa	<i>bora-bora</i>	‘k.o. banana’
PT:	Budibud	<i>b^wela-m^wela</i>	‘banana’
NCV:	Paamese	<i>a-voi</i>	‘k.o. banana’
Mic:	Puluwatese	<i>(wuru)p^wer</i>	‘k.o. banana enjoyed cooked’

POc **baqun* ‘banana cultivar’

Adm:	Loniū	<i>pakɔw</i>	‘k.o. wild banana’
MM:	Teop	<i>pauna</i>	‘banana; kidney’
SES:	To’aba’ita	<i>baʔu</i>	‘banana plant and fruit’ (syn. <i>fudi</i> , now archaic)
SES:	Dori’o	<i>baʔu</i>	‘banana’

PSV **n-ban* ‘banana (generic)’ (Lynch 2004a)

SV:	Sye	<i>ni-mpa</i>	‘k.o. banana with long fruit’
SV:	Lenakel	<i>nə-pən</i>	‘banana’
SV:	SW Tanna	<i>nə-p^wan</i>	‘banana’
Mic:	Puluwatese	<i>(wuru)pāwo</i>	‘k.o. cooking banana’

cf. also:

NNG:	Nenaya	<i>bayup</i>	‘banana’ (Stober 2005)
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PWOC **b^watiq* ‘banana cultivar’

PT:	Tawala	<i>bihiya</i>	‘banana plant’
PT:	Misima	<i>b^wahiki</i>	‘banana’
PT:	Nimoa	<i>b^wasihe</i>	‘banana’
MM:	Vitu	<i>beti</i>	‘banana’
MM:	Vagunu	<i>batia</i>	‘banana’

There is evidence for PWOC **pudi-pudi* ‘wild banana’, a transparent reduplication of the generic POc term for banana (see ch. 2, §7.2).

NNG:	Mangap	<i>pin-pin</i>	‘wild banana’
PT:	Sudest	<i>yudu-yudu</i>	‘wild banana seeds’
MM:	Ramoaina	<i>udu-udu</i>	‘wild banana’
MM:	Tolai	<i>vudu-vudu</i>	‘wild banana, <i>Ensete glaucum</i> ’ ²⁰ (Arnaud & Horry 1997: 19)

Names for the various parts of the banana plant are discussed in chapter 4. Some are also mentioned in §2.2.1, as they are also used for the taro (and probably for other plants, too). Sorting out glosses is sometimes difficult, but the following inferences appear to be well founded (section numbers refer to ch. 4): the banana plant has a main stem, **baRa-baRa* (§2.2) of its own, from which protrudes a stem holding a bunch, **puŋu* (§2.8) of bananas, from which in turn grow small stems, **kulo* (§2.8) each holding a hand, **qitiŋ* (§2.8) of

²⁰ The genus *Ensete* belongs, like *Musa*, to the Musaceae family. Its members have edible roots.

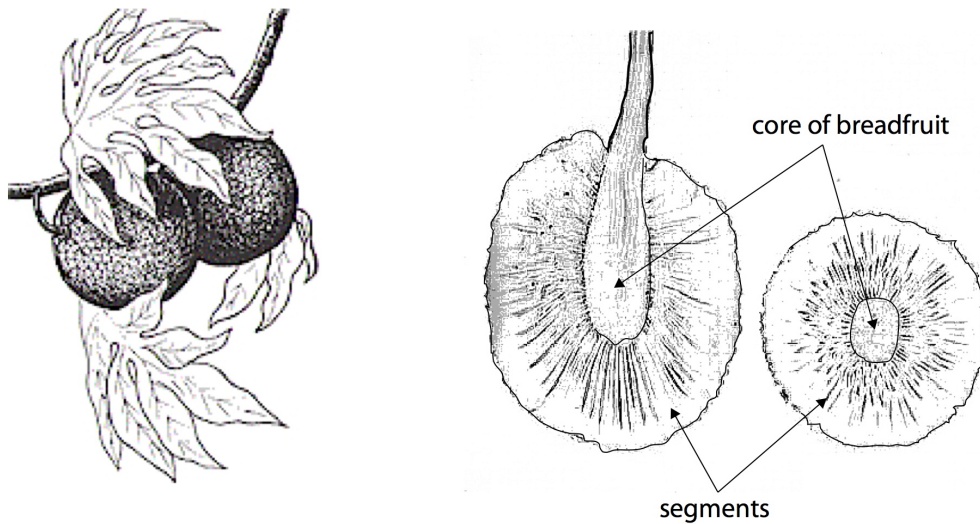


Figure 9.6 Fruit, leaves and sections of breadfruit, *Artocarpus altilis*

bananas.²¹ A new banana plant is planted with a slip or cutting, *[s,j]uli(q) (§2.6), and the new growth first appears as a shoot, *qili (§2.6).

4 *Artocarpus altilis* (syn. *A. communis*, *A. incisus*), breadfruit, TP *kapiak*, P *beletiutu* (Moraceae)

Breadfruit trees grow throughout the Oceanic-speaking region, except for New Zealand and the Chatham Islands. Breadfruit tend to be co-staples with other starchy foods, providing starch when the other staples are out of season and vice versa. In Melanesia it is most significant as a staple in the Temotu Province of the Solomons, but is also important in SE Papua, the Bismarcks and Bougainville,²² on the coasts of the islands of Vanuatu, in Micronesia, in Fiji and in parts of Polynesia (Henderson & Hancock 1988: 36, Walter & Sam 2002: 107–108).

Breadfruit trees grow to a height of 20 m and usually at altitudes below 1200 m. They are fairly tolerant with regard to soil, and grow in the coral soils of atolls. In the South Pacific, a tree yields 50 to 150 ovoid grapefruit-sized pale yellow to yellow-orange fruit per (annual) season. In some areas there is a second smaller fruiting halfway between main annual fruitings. The breadfruit is a syncarp, a compound fruit with many segments arranged around the core, which itself is the spike of the original flower. Each segment contains a seed surrounded

²¹ Ross (1996c: 185) reconstructed a form *paRa(l,R) ‘stem, bunch (of bananas)’ supported by Wayan *bābā* ‘leaf-stalk’, Tawala *halana* ‘bunch/hand of bananas’ and Bing *parar* ‘stem of/cluster (bananas, betelnut, etc); handle of axe’. The Bing term also means ‘axe handle’ and in fact reflects widely reflected POc *paRara ‘axe handle’ (ACD). Tawala *halana* is at best a borrowed reflex of this term, and perhaps not a reflex at all. Wayan *bābā* is a regular reflex of POc *baRa-baRa (ch.4, §2.2).

²² Kennedy & Clarke (2004) draw attention to the often overlooked but very considerable importance of breadfruit in Papua New Guinea.

by flesh and growing from the core on a fleshy receptacle. The segments are visible on the skin of the fruit as hexagon-like shapes, as shown in Figure 9.6. A breadfruit may weigh as much as 5 kg.

Breadfruit seeds have a high protein content and are nutritionally the most valuable part of the fruit (Paijmans 1976: 123). Breadfruit are very rich in starch and contain about 25% carbohydrates. They are usually roasted, baked, fried, or boiled before being eaten. The cooking method depends on the cultivar. They can be eaten raw, but in Papua New Guinea and the Solomons they are commonly baked whole in a fire or an oven, and then the skin and seeds are removed. Some fruit have seeds about the size and texture of chestnuts and taste rather like very dense young potatoes. They are removed from the baked fruit and sometimes roasted over the fire before eating. In New Guinea this is usually the only part that is eaten (Walter & Sam 2002: 107–110, Bourke & Allen forthcoming).

The description above applies to breadfruit varieties in New Guinea and the Bismarck Archipelago. As one moves eastward across the Pacific, one finds breadfruit varieties that have been increasingly selected for flesh rather than seeds, so that most cultivars in Polynesia are seedless and are propagated by root cuttings. The genetic history is more complex than this implies, however, as two other species have contributed to the varieties subsumed under *A. altilis*. One is *A. camansi*, sometimes called ‘breadnut’, which occurred both wild and cultivated in New Guinea, the other *A. mariannensis*, endemic to the high islands of western Micronesia (Yen 1991, Zerega 2003, cited by Kennedy & Clarke 2004).

Because breadfruit trees usually produce large crops at certain times of the year, preservation is an issue. In parts of Papua New Guinea and in the Temotu archipelago, breadfruit are dried into a sort of biscuit (French & Bridle 1978: 40, Henderson & Hancock 1988: 37). A traditional preservation technique in Vanuatu, Micronesia and Polynesia is to bury peeled and washed fruits in a leaf-lined pit where they ferment over several weeks and produce a sour, sticky paste. So stored, the product may last a year or more, and some pits are reported to have produced edible contents more than 30 years later (for terms associated with fermentation, see vol.1, ch.6, §4.2).

A common breadfruit product is a mixture of cooked or fermented breadfruit mash mixed with coconut milk and baked in banana leaves. In Vanuatu breadfruit are sometimes grated before cooking, or made into small balls and cooked in coconut milk.

All parts of the tree yield latex, a milky juice, which is used in some locations for boat caulking. At least in parts of New Britain and Vanuatu it is used to catch birds (Powell 1976, Walter & Sam 2002: 109). It also has medicinal uses. On Manus (Admiralties) the latex is diluted and drunk as treatment for dysentery, diarrhoea and stomach ache (O’Collins & Lamothe 1989). On Vanua Lava (Banks Islands, Vanuatu) latex from the breadfruit is mixed with latex from *Ficus adenosperma* as a potion against excessive menstrual discharge (Bourdy & Walter 1994). It is also used in Vanuatu to ‘patch’ damaged yams for storage (Walter & Sam 2002: 109).

The Bola and the Nakanai of New Britain beat the inner bark into cloth and use it for articles of clothing, including rain capes and it was formerly also used in this way in Tonga (Floyd 1954, Powell 1976, Walter & Sam 2002: 109). Infusions of the bark and leaves are used to treat disorders of the digestive tract in parts of Vanuatu. The wood sometimes serves for making outriggers and paddles and for firewood.

Two POC terms for ‘breadfruit’ are reconstructed with reasonable certainty, **kuluR* and **baReko*, whilst a third, **beta*, is less well supported.

By far the most widespread and frequently reflected of the three is POc **kuluR*, inherited from PMP, with reflexes in the Admiralties and Mussau, North New Guinea, Papuan Tip, Bali-Vitu (MM), the Willaumez group (MM), New Caledonia and Central Pacific. It is apparently also reflected in the Chuukic subgroup of Micronesian with a change in denotation to *Barringtonia asiatica*. A variant form **kunuR* is reflected in North New Guinea, languages of the Ngero-Vitiaz and Markham groups and in the Willaumez (MM) language Meramera (which has probably borrowed it from a Ngero-Vitiaz language).²³ There are also possible reflexes of **kunuR* in Papuan Tip languages, but these are open to two interpretations. One is that they indeed reflect **kunuR*. The other is that the Dobu, Kalokalo and Wedau forms below reflect **kuluR*, as POc **l* is regularly reflected as *n* in these languages, and that Suau and the Central Papuan languages (Balawaia, Motu, Roro and Mekeo) have borrowed from a language with a *n*. This second hypothesis encounters a problem. Although the Central Papuan languages have a number of loans from the Are-Taupota group to which Wedau belongs (Ross 1994b), Suau shows no sign of such loans. What is more, Suau (Dau) *unuli* and Suau (Kwato) *?unuli* are the expected reflexes of **kunuR*, displaying a uniquely Suauic paragogic *-i* after the earlier final consonant, and Wedau *kunori* is clearly a loan from Suauic. Thus the first hypothesis is apparently correct: Papuan Tip languages also reflect **kunuR*. In consequence, **kunuR* can be reconstructed to PNGOc, and it is tentatively marked thus below—‘tentatively’, because we would expect all North New Guinea terms to reflect the PNGOc etymon, but some of the Bel languages (Bilibil, Gedaged and Takia) and all the Schouten languages (Wogeo, Manam, Ali and Sissano are cited below) instead reflect POc **kuluR*, and I have no explanation for this.

Reflexes of POc **baReko* are found in New Ireland (MM), NW Solomonic (MM), SE Solomonic, Temotu, North-Central and Southern Vanuatu. In three Central Papuan languages, Lala, Roro and Kuni, the reflex of **baReko* denotes ‘sago palm’, a shift from one starch source to another. In the sense ‘breadfruit’, reflexes of **kuluR*~**kunuR* and **baReko* are geographically in complementary distribution. The distribution of **baReko* forms an uninterrupted block across much of Island Melanesia excluding New Caledonia, with reflexes of **kuluR*~**kunuR* across most of the remaining Oceanic-speaking region. Just two reflexes of **baReko* in the sense ‘breadfruit’ occur outside the block. One is Tawala *beleha*, which displays the wrong vowels and may be a chance resemblance. The other is Tomoip *buŋ-biria*.²⁴ Tomoip is situated near the languages of the Mengen family (NNG), but it is a New Ireland outlier (Ross 1988: 292–293) and as such is an extension from the block.

How are we to explain the complementary distribution? It is clear from non-Oceanic cognates and from its Oceanic distribution that the usual POc term for breadfruit was **kuluR*. But on our criteria for POc reconstruction (ch. 1, §3.2.3) **baReko* must also be reconstructed to POc, as it is reflected in Western Oceanic (MM), SE Solomonic, Temotu, and North and South Vanuatu. The distributions suggest that POc **kuluR* was the default term for *A. altilis* and that it was then replaced by **baReko* in a block from New Ireland to South Vanuatu. However, the reflexes of **baReko* are generally regular, suggesting that replacement took place very early in the history of Oceanic.²⁵

²³ In New Caledonian languages *-n-* regularly reflects **-l-*.

²⁴ Tomoip *buŋ-* is a classifier that occurs on fruit names.

²⁵ Cf. ch.13, §3.4, where a similar but not identical situation is described with regard to *Morinda citrifolia*.

POc **baReko* or perhaps **beta* may have denoted *A. calamansi* or a particular breadfruit cultivar or, for example, the cooked breadfruit, but these possibilities remain speculations.

Scattered areas—many North New Guinea languages on New Britain, scattered languages in the islands of the Papuan Tip area, much of Central and South Vanuatu, and Micronesia—have a breadfruit term other than **kuluR*~**kunuR* and **baReko*. Two of these, POc (?) **beta* and PROc **maRi*, are sufficiently widespread to warrant mention

POc (?) **beta* has a more restricted distribution: its reflexes occur in the New Georgia group, within SE Solomonic only in Gela, and in North-Central Vanuatu. This distribution requires that it be reconstructed for POc. The fact that its only non-Eastern Oceanic reflexes are in Nduke and Roviana in New Georgia in the northwest Solomons raises the possibility that **beta* is a PEOc term that has been borrowed westward, but there is no other evidence I know of for Eastern Oceanic loans in New Georgia.

A fourth term, PROc **maRi* ‘breadfruit’, is limited to South Vanuatu, Micronesian and Polynesian, but Geraghty (2004: 88) attributes Polynesian reflexes of the form *mei* (presumably for †*mai* or †*maī*) to borrowing, presumably from a Micronesian source. Again the distribution requires an explanation, this time because it is bipartite, but I can provide none.

PMP **kuluR* ‘breadfruit, *Artocarpus altilis*’ (Dempwolff 1938)

POc **kuluR* ‘breadfruit, *Artocarpus altilis*’

Adm: Mussau	<i>ulu</i>	‘breadfruit’
Adm: Loniū	<i>kun</i>	‘breadfruit’
Adm: Titan	<i>kul</i>	‘breadfruit’
Adm: Ponam	<i>gul</i>	‘breadfruit’
NNG: Bilibil	<i>uli</i>	‘breadfruit’
NNG: Gedaged	<i>ul</i>	‘breadfruit’
NNG: Takia	<i>ul</i>	‘breadfruit’
NNG: Wogeo	<i>kul</i>	‘breadfruit’
NNG: Manam	<i>kulu</i>	‘breadfruit’
NNG: Ali	<i>kul</i>	‘breadfruit’
NNG: Sissano	<i>uɿ</i>	‘breadfruit’
MM: Vitu	<i>kulu</i>	‘breadfruit’
MM: Bola	<i>ulu</i>	‘breadfruit’
MM: Nakanai	<i>ulu</i>	‘breadfruit’
NCal: Pije	<i>cin</i>	‘breadfruit’
NCal: Nemi	<i>cin</i>	‘breadfruit’
NCal: Nyelâyu	<i>yen</i>	‘breadfruit’
NCal: Nêlêmwa	<i>cen</i>	‘breadfruit’
NCal: Iaaī	<i>i-oun</i>	‘breadfruit’
Fij: Wayan	<i>kulu</i>	‘breadfruit’
Pn: Samoan	<i>?ulu</i>	‘breadfruit’

Proto Chuukic **kulu* ‘*Barringtonia asiatica*’ Bender et al. (2003)

Mic: Chuukese	<i>kuun</i>	‘ <i>Barringtonia asiatica</i> , <i>B. racemosa</i> ’
Mic: Puluwatese	<i>kuul</i>	‘tree, used for fish poison’

PNGOc **kunuR* ‘breadfruit’

NNG:	Kove	<i>unu</i>	‘breadfruit’
NNG:	Gitua	<i>unu</i>	‘breadfruit’
NNG:	Lukep (Pono)	<i>kun</i>	‘breadfruit’
NNG:	Sio	<i>kunu</i>	‘breadfruit’
NNG:	Tami	<i>kun</i>	‘breadfruit’
NNG:	Sukurum	<i>gunik</i>	‘breadfruit’
NNG:	Adzera	<i>guni</i>	‘breadfruit’
NNG:	Mato	<i>uŋ</i>	‘breadfruit’
NNG:	Wab	<i>un</i>	‘breadfruit’
NNG:	Bing	<i>un</i>	‘breadfruit’
PT:	Dobu	<i>?unu</i>	‘breadfruit’
PT:	Kalokalo	<i>kunu</i>	‘breadfruit’
PT:	Wedau	<i>kunori</i>	‘breadfruit’ (loan from Suauiç)
PT:	Suau (Dau)	<i>unuli</i>	‘breadfruit’
PT:	Suau (Kwato)	<i>?unuli</i>	‘breadfruit’
PT:	Balawaia	<i>?unu</i>	‘breadfruit’
PT:	Hula	<i>?unu</i>	‘breadfruit’
PT:	Motu	<i>unu</i>	‘breadfruit’
PT:	Roro	<i>unu</i>	‘breadfruit’
PT:	Mekeo	<i>unu</i>	‘breadfruit’
MM:	Meramera	<i>unu</i>	‘breadfruit’ (borrowed from a NNG source)

POc **baReko* ‘breadfruit’ (French-Wright 1983)

PT:	Tawala	<i>beleha</i>	‘breadfruit’ (for † <i>bale[h]o</i>)
PT:	Lala	<i>bale?o</i>	‘sago palm’
PT:	Roro	<i>pare?o</i>	‘sago palm’
MM:	Lavongai	<i>beiŋo</i>	‘breadfruit’
MM:	Tigak	<i>bego</i>	‘breadfruit’ (Beney 1980)
MM:	Nalik	<i>bəɾəuə</i>	‘breadfruit’
MM:	Tabar	<i>bareu</i>	‘breadfruit’
MM:	Lihir	<i>bale</i>	‘ <i>Artocarpus altilis</i> ’ (Burley 2006)
MM:	Tangga	<i>bīe</i>	‘breadfruit’
MM:	Tomoip	<i>(buŋ)biria</i>	‘breadfruit’
MM:	Nehan	<i>bario</i>	‘breadfruit’
MM:	Halia-Haku	<i>baleo</i>	‘breadfruit’
MM:	Tinputz	<i>baniu</i>	‘breadfruit’
MM:	Teop	<i>banio</i>	‘ <i>Artocarpus altilis</i> ’ (Record 1945)
MM:	Uruava	<i>bareo</i>	‘breadfruit’
MM:	Babatana	<i>bario</i>	‘ <i>Artocarpus altilis</i> ’ (McClatchey et al. 2005)
TM:	Äiwoo	<i>ñi-bälo</i>	‘breadfruit’
TM:	Natügu	<i>bia</i>	‘breadfruit’
TM:	Tanema	<i>baloe</i>	‘breadfruit’
TM:	Buma	<i>bale</i>	‘breadfruit’
SES:	Gela	<i>baleyō</i>	‘a pair of breadfruit tied together’

SES:	Lengo	<i>beyo</i>	‘breadfruit’
SES:	Talise	<i>baleyo</i>	‘breadfruit’
SES:	Longgu	<i>baleʔo</i>	‘breadfruit’
SES:	Kwaio	<i>baleʔo</i>	‘breadfruit tree, breadfruit’
SES:	Birao	<i>baleho</i>	‘breadfruit’
SES:	Lau	<i>b^waleo</i>	‘breadfruit’
SES:	Kwara’ae	<i>baleoʔ</i>	‘breadfruit’
SES:	’Are’are	<i>pareʔo</i>	‘breadfruit’
SES:	Sa’a	<i>p^waleʔo</i>	‘breadfruit’
SES:	Arosi	<i>b^wareʔo</i>	‘breadfruit’
SES:	Bauro	<i>pareyo</i>	‘breadfruit’
NCV:	Mota	<i>pego</i>	‘breadfruit sp.’
NCV:	Nduindui	<i>baeko</i>	‘breadfruit’
NCV:	NE Ambae	<i>baego</i>	‘breadfruit’
NCV:	Nokuku	<i>peko</i>	‘breadfruit sp.’
NCV:	Tamambo	<i>baeho</i>	‘breadfruit’
NCV:	Raga	<i>baeyo</i>	‘ <i>Artocarpus altilis</i> ’ (Walsh 2004)
SV:	Lenakel	<i>nu-(və)vaau</i>	‘k.o. breadfruit with very large fruit’

POc **beta* ‘breadfruit’

MM:	Nduke	<i>beta</i>	‘breadfruit’
MM:	Roviana	<i>beta</i>	‘breadfruit’
SES:	Gela	<i>beta</i>	‘breadfruit’
NCV:	Mwotlap	<i>b[e]te</i>	‘breadfruit’
NCV:	Mwesen	<i>per</i>	‘breadfruit’ (Bourdy & Walter 1994)
NCV:	Naman	<i>ne-bet</i>	‘breadfruit’
NCV:	Tape	<i>pəte</i>	‘breadfruit’
NCV:	Avava	<i>e-bet</i>	‘breadfruit’
NCV:	Lonwolwol	<i>beta</i>	‘breadfruit’
NCV:	Paamese	<i>vetā</i>	‘breadfruit’

PROc **maRi* ‘breadfruit’ (Geraghty 1990)

SV:	Ura	<i>ni-mal</i>	‘breadfruit’
SV:	Sye	<i>n-mar</i>	‘breadfruit’
SV:	Whitesands	<i>nə-mei</i>	‘breadfruit’
SV:	Kwamera	<i>ne-mer</i>	‘breadfruit’
SV:	Anejoñ	<i>in-ma, in-mer-</i> <i>in-mer-</i>	‘breadfruit’ ‘breadfruit’ (in compounds)
Mic:	Kiribati	<i>mai</i>	‘breadfruit’
Mic:	Marshallese	<i>may</i>	‘breadfruit’
Mic:	Woleaian	<i>māy</i>	‘breadfruit’
Mic:	Puluwatese	<i>māy</i>	‘breadfruit’
Mic:	Chuukese	<i>māy</i>	‘breadfruit’
Pn:	Tongan	<i>mei</i>	‘breadfruit’
Pn:	E Futunan	<i>mei</i>	‘breadfruit’
Pn:	Marquesan	<i>mei</i>	‘breadfruit’

Names of some breadfruit parts are reconstructed in chapter 4. They are:

- PWOC **kalijo* ‘edible kernel of breadfruit segments’ (ch.4, §2.9)
- POC **malo-* ‘breadfruit flower, breadfruit core’ (ch.4, §2.9)
- POC **bul[i,u]t* ‘sap (of plant) or other sticky substance; be sticky’ (Micronesian and Polynesian reflexes denote the latex of the breadfruit tree; ch.4, §2.11)

5 Plants which store starch in their stems

5.1 *Metroxylon* spp., sago palm, TP *saksak*, P *bevinat*, *aevrinat*, B *natanggura* (Arecaceae)

The starch source in a *Metroxylon sagu* palm is the pith within its trunk. The palm only flowers and fruits once, and large stocks of carbohydrate are accumulated in the trunk in preparation for this event, after which the palm dies. This reserve of starch reaches its maximum just before flowering, when sago-eaters fell the palm and harvest its starch.

Sago palms are species of the genus *Metroxylon*. They grow in fresh-water swamps and wetlands, but not on permanently flooded sites. The species which produces most food starch, *M. sagu*, reaches 15 m in height and has a bole diameter without leaf sheaths of 35–60 cm. Each palm is produced from a root stock which gives out several shoots, with the result that sago stands are naturally very dense. Other species vary in height, some smaller, some larger, the very largest, *M. amicarum*, growing to 33 m.

There are a number of different species of *Metroxylon* found in the Oceanic-speaking region. Those upon which the literature (Barrau 1955: 45–46, 1962: 140–143, Henderson & Hancock 1988: 34–35, McClatchey et al. 2006b) appears to agree are:²⁶

<i>M. sagu</i>	New Guinea, Bismarcks, Bougainville, Choiseul, New Georgia ²⁷
<i>M. bougainvillense</i>	New Guinea, Bismarcks, Bougainville, Choiseul, New Georgia ²⁸
<i>M. solomonense</i>	Solomon Islands
<i>M. warburgii</i>	Solomon Islands, Vanuatu, Fiji, Rotuma, Samoa ²⁹
<i>M. vitiense</i>	Fiji
<i>M. amicarum</i>	Micronesia

It seems probable that sago starch was consumed by POC speakers. The POC homeland was in the Bismarcks (vol.2, ch.2) and it is there and in areas nearby (New Guinea, Bougainville, Choiseul and New Georgia) that *Metroxylon* palms are used for food purposes. This is almost certainly related to the fact that this region is the domain of the two species, *M. sagu* and *M. bougainvillense*, which provide the best supplies of starch (Henderson & Hancock 1988: 34–35). Outside the sago-eating region sago species usually do not grow naturally but are cultivated for their leaves.

²⁶ The term ‘sago palm’ is also used in North America and in New Zealand for a decorative cycad, *Cycas revoluta*, because of its vague resemblance to a *Metroxylon* palm.

²⁷ According to Barrau (1962: 142), *M. sagu* is a sterile cultivar of *M. rumphii*. Barrau (1955: 45) also lists *M. oxybracteatum* (New Guinea). Other sources do not list it.

²⁸ French (1986: 27) and McClatchey et al. (2006b) say that *M. bougainvillense* is a synonym of *M. solomonense*, but other sources view them as markedly separate species.

²⁹ McClatchey et al. (2006b) also list *M. paulcoxii* (Samoa) but say it is possibly a cultivar of *M. warburgii*.

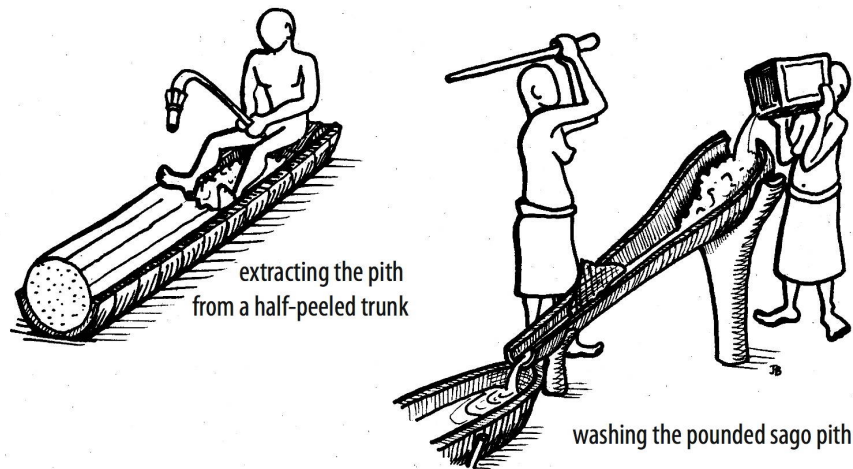


Figure 9.7 Extracting the starch from a sago trunk

It is probably true to say that in Oceanic-speaking communities sago is only a staple where a marshy environment causes other staples to be in short supply. Except at locations in the Admiralties, it is always a supplement to garden staples, not a replacement. Although there are communities in New Guinea which get their sago entirely from natural palm stands, Oceanic-speaking communities probably also plant palms from suckers (transplanting seedlings is rare; Rhoads 1986).

Sago palms grow very quickly, up to 1.5 m of vertical stem growth per year. They are harvested at the age of 7 to 15 years just before they flower. The palm is felled, the trunk is cut into sections. These are either split lengthways or the bark is half peeled off, and in pre-contact times the pith was extracted with tools made from hard wood, rough stone or sharpened bamboo. Commonly the crushed pith is washed and pounded, crushed or wrung (POc **poRos*, vol.1, ch.9, §7) in an inclined trough made from a sago leaf petiole (see Figure 9.7). The starchy liquid thus extracted from the fibrous residue runs through a coconut frond-netting strainer (POc **Runut*, vol.1, ch.6, §5.6; this volume, ch.12, §5.2) and is collected in leaf pans to settle. The water is decanted so that the starch can dry. The dried starch is sago flour, which is almost pure carbohydrate, for which reason it is rarely eaten alone. To preserve it, sago flour is wrapped in sago leaves or placed in clay pots and simply dampened with water from time to time. It is sometimes eaten as a porridge with additional ingredients, sometimes made into a paste which is baked into a pancake or biscuit with other ingredients, and sometimes baked in a hollow bamboo over a fire (May 1984: 54).

At least on Malaita and in the Temotu archipelago chunks of unprocessed pith are sometimes baked as an emergency food (Kwa'ioloa & Burt 2001: 191, Henderson & Hancock 1988: 34). Throughout Oceania, sago leaves, which are pinnate, not palmate, provide excellent roofing thatch. They were evidently used for this purpose by POc speakers, who called the leaves and thatch **qatop* (vol.1, ch.3, §3.4). Parts of the sago palm have a variety of uses,

and not just in the sago-making process itself. As well as thatching, among the Bola of New Britain the leaves are used for making screens, pillows, and canoe sails, laths of skin from the leaf midrib are made into matting which serves as a fish trap, and midribs are used to make internal partitions and heavy stiff rope (Powell 1976). The Kwara'ae feed the pith to pigs. They use the leaf spines to make needles for stitching sago thatch and darts for shooting birds, as well as for making brooms. The leaf shoot is stained and used to make decorative armbands. The frond bases used to be used as stools, and a fallen palm becomes a source of sago grubs and sago fungus, both of which are eaten (Kwa'ioloa & Burt 2001: 191).

There was apparently just one POc term for the sago palm, namely POc **Rabia*. As the Fijian and Polynesian reflexes below show, early Central Pacific speakers reassigned PCP **abia*, reflecting POc **Rabia*, to another starch source, *Tacca leontopetaloides*, Polynesian arrowroot (§2.3.2). Kikusawa (2003: 49) argues—correctly, I think—that PPn **pia* ‘Polynesian arrowroot’ is cognate with Bauan *yabia* ‘arrowroot’, and reflects loss of initial **a-* from PCP **abia*.³⁰

PMP **Rambia* ‘sago palm’ (Blust 1989)

POc **Rabia* ‘sago, *Metroxylon* spp., mainly *Metroxylon sagu* (syn. *Metroxylon rumphii*)’
(Grace 1969: **r(a,u)bia*)

Adm:	Seimat	<i>api</i>	‘sago’ (Sorensen 1950)
Adm:	Titan	<i>api</i>	‘sago’
Adm:	Bipi	<i>abi</i>	‘sago’
NNG:	Maenge	<i>lamvia</i>	‘sago’
NNG:	Malasanga	<i>labia</i>	‘sago’
NNG:	Kaiwa	<i>labi</i>	‘sago’
NNG:	Kairiru	<i>rabi</i>	‘sago’
PT:	Muyuw	<i>yabiy</i>	‘sago’ (F. Damon, pers. comm.)
PT:	Kilivila	<i>yabia</i>	‘sago’
PT:	Bwaidoga	<i>labia</i>	‘sago’
PT:	Suau (Saliba)	<i>labia</i>	‘sago’
PT:	Balawaia	<i>labia</i>	‘sago’
MM:	Bola	<i>rabia</i>	‘sago’
MM:	Babatana	<i>rabia</i>	‘ <i>Nypa fruticans</i> ’ (McClatchey et al. 2005)
TM:	Nebao	<i>në-rë</i>	‘sago’
TM:	Asuboa	<i>(lov)ne-te</i>	‘sago’
TM:	Tanabili	<i>no-k'o</i>	‘sago’
TM:	Buma	<i>ɔtɔɔ</i>	‘sago’
SV:	Kwamera	<i>ni-epi</i>	‘ <i>Metroxylon warburgii</i> ’

PCP **abia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’

Fij: Bauan *yabia* ‘arrowroot, starch, *Tacca leontopetaloides*’

PPn **pia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’

Pn: Samoan *pia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’ (old term; Whistler 2000: 192)

Pn: Pileni *pia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’

Pn: Rarotongan *pia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’

³⁰ Samoan *pia* (and its cognates) thus do not reflect POc **piRaq* ‘giant taro, *Alocasia macrorrhizos*’, as I assumed in Ross (1996c). The regular PPn reflex of POc **piRaq* would be †**fia*.

In Ross (1993) I followed Dutton (1994) in reconstructing POc **sag(u)* ‘sago starch’ as a continuation of Dempwolff’s (1938) PMP **sa[ŋ]gu* ‘sago starch’. I now think this reconstruction is too insecure to stand. As Chowning (2001: 79) points out, some of the supporting data are semantically doubtful reflexes, and others may represent borrowings from Tok Pisin *saksak* ‘sago’. I still think that Kara (E) *sa-sək* ‘sago’, Solos *sa-sak* and Haku *saka-saka*, both ‘sago pancake’, may represent a continuation of Dempwolff’s etymon, but I cannot be sure.

A glance through chapter 4 shows that where the parts of a sago palm resemble those of the coconut palm, the same terms are used for both. Thus most of the terms in §5.1 of ch.12 probably also applied to the fronds of the sago palm. The petioles of some sago species are covered in thorns, for which the POc term was **ruRi* or **druRi* (ch.4, 2.12).

5.2 *Cycas* spp., cycad, Malayan palm fern, TP *baibai*, B *namele* (Cycadaceae)

Cycads are palm-like plants of the family Cycadaceae (unlike sago, coconut, betelnut and the black, fan and nipa palms, all members of the family Arecaceae). Until a decade ago *Cycas rumphii* (syn. *Cycas circinalis*) was believed to be the only cycad species in Oceanic-speaking territory. However, recent work on the genus reported by Laubenfels & Adema (1998) has established that two species, *C. rumphii* and *c.*, have almost identical distributions extending from the north coast of New Guinea eastward through the Bismarcks and into the Solomons with outliers in Micronesia. At least one of these is evidently also present in Vanuatu and New Caledonia, to judge from the data listed below.³¹

The description here is limited to *C. rumphii*, but, as some sources treat *C. scratchleyana* as a synonym of *C. rumphii*, I assume that the two species have almost identical features. *C. rumphii* grows 3–10 m tall. Guppy (1906: 413), cited by Barrau (1965), considered *C. rumphii* to have been one of the early food sources of the Pacific Islands. Barrau mentions oral traditions about its use in New Guinea, Vanuatu, New Caledonia and Fiji. The seeds were and sometimes still are used at least as famine foods on islands throughout its Pacific distribution. Such is the strength of these oral traditions that Barrau concurs with Guppy’s view that it was at one time more than a famine food, pointing to the popularity of food made from the seeds, for example, on Guam. Other sources mention the seed pudding as something prized in places as far apart as the Ninigo Islands (Sorensen 1950) and Bellona (Christiansen 1975). Exploitation of the stem starch seems to have been much rarer in the Pacific (it is more common in parts of Asia; Thieret 1958, Whiting 1953), but it occurred at Wedau (north coast of SE Papua, Kahn 1986), in the Solomons and in New Caledonia. In the Solomons the starch was processed in much the same way as sago starch (and as with sago, the starch was harvested before fruiting; ch.9, §5.1 Parkinson 1907). In New Caledonia the stem starch was cut up and cooked (Jumelle 1907, cited by Thieret 1958). In Tonga the grated stem starch was rinsed and the starch that settled out was collected as a famine food (Whistler 1991*b*).

The seeds need considerable processing before they can be eaten, as they contain the toxin hydrocyanic acid. In the Ninigo Islands the otherwise poisonous fruit is submerged in salt water until the skin begins to peel off, then washed in fresh water and dried in the sun. This process removes the toxin, and the seeds are then pounded into flour, made into

³¹ A third species, *C. celebica*, has a discontinuous distribution—from Borneo to the Moluccas, and from Bougainville to Tonga, with an outliers in the Marianas.

a pudding and baked (Sorensen 1950). The process on Guam was similar (Safford 1905, cited by Whiting 1953). On Rennell and Bellona Islands the seeds are wrapped in a fern leaf (*Microsorium scolopendria*) and soaked in water for five or more days, then pounded and baked (Henderson & Hancock 1988: 140). In Fiji the seeds were boiled until they were soft, then eaten (H. B. R. Parham 1943, cited by Thieret 1958).

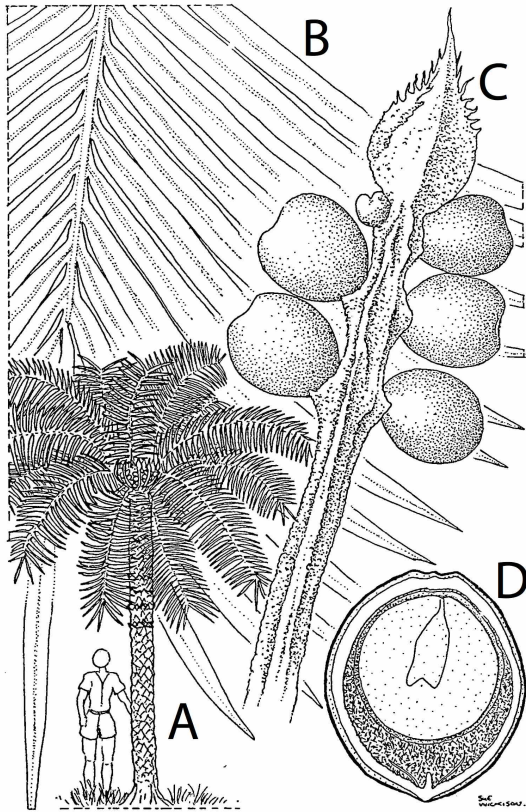


Figure 9.8 *Cycas rumphii*: A, plant with fronds removed to show fruit; B, apex of leaf with leaflets; C, fruit; D, single fruit, longitudinal section.

C. rumphii also has a variety of other uses. Its bark sap is reported as a wood glue in Marovo and northern Malaita. In a number of places in the Bismarcks and the Solomons seeds are threaded on a string and used as a bull-roarer toy (Peekel 1984: 35, Henderson & Hancock 1988: 140, Hviding 2005: 143).

Various parts of the plant are used to cover small wounds and tropical ulcers. In the Bismarcks it is the resin of the fruit (Peekel 1984: 35, Holdsworth et al. 1982); in the Morobe Province of Papua New Guinea, the raw seeds (Barrau 1965); among Drehet speakers in Manus, it is sap obtained by cutting a notch in the bark (Beard n.d.); on Santa Ana (Solomons), the pulp of a scraped fruit. In the Reefs a bark preparation is used to treat a stomach ailment (Henderson & Hancock 1988: 140).

Barrau's assertion that *C. rumphii* played an important role in earlier Oceanic cultures receives some support from the fact that several terms for it are reconstructable: POC *p^(w)atoRu and *bai-bai(t), PEOc *m^wa(q)ele and PCP *loŋo-loŋo. The geographic distributions of these terms scarcely overlap.

The glosses of many of the terms listed below refer simply to 'cycad' or '*Cycas*'. None is identified as '*C. scratchleyana*', and there is reasonable support for glossing all of them '*Cycas rumphii*', but this is likely to be due to the fact that the two species were not distinguished until recently.

reasonable support for glossing all of them '*Cycas rumphii*', but this is likely to be due to the fact that the two species were not distinguished until recently.

PMP *patuRu 'a cycad, *Cycas rumphii*'³²

POc *p^(w)atoRu 'a cycad, *Cycas rumphii*'

Adm: Mussau	otou	' <i>Cycas rumphii</i> '
Adm: Seimat	haato	' <i>Cycas rumphii</i> ' (Sorensen 1950)
Adm: Lou	paro	' <i>Cycas rumphii</i> '
Adm: Drehet	potop	' <i>Cycas palm</i> '
MM: Nakanai	patola	'cycad' (-a for †-u)

³² PMP *patuRu is supported by the Oceanic data here and by the following non-Oceanic cognates: Pinatubo Sambal *patogo*, Tagalog *patugo*, Hanunuo *pitugu*, Panay Bisayan *pitogo* (Madulid 2001b: 87), Kangean Madurese *pətoko*, Gorontalo *patuhu*, Buol *potugu*, Buginese *patuku* (Heyne 1950: 107).

PMP **ba(y)it* ‘a cycad, *Cycas rumphii*’ (Ross 1996c)

POc **bai-bai(t)* ‘a cycad, *Cycas rumphii*’ (Ross 1996c)

PT:	Minaveha	<i>hai-hai</i>	‘palm’
MM:	Patpatar	<i>be-be</i>	‘cycad palm’
MM:	Tolai	<i>bai-bai</i>	‘arborescent fern sp.; cycad palm’
MM:	Nehan	<i>be-be</i>	‘cycad’
TM:	Äiwoo	<i>(n^wasi)poyi</i>	‘ <i>Cycas rumphii</i> ’
TM:	Äiwoo	<i>(n^wasi)poyi</i>	‘ <i>Cycas rumphii</i> ’
SES:	Longgu	<i>bai-bai</i>	‘cycad palm’
SES:	Lau	<i>bai-bai</i>	‘k.o. cycad; nut of this tied to strings and made to hum, a bull-roarer’
SES:	Kwara’ae	<i>bai-bai</i>	‘ <i>Cycas rumphii</i> ’
SES:	Baelelea	<i>g^wae</i>	‘cycad palm’
SES:	Kwaio	<i>bai-bai</i>	‘k.o. cycad; nut used in whirling toy’
SES:	’Are’are	<i>pai-pai</i>	‘k.o. cycad’

PCP **loŋo-loŋo* ‘a cycad, *Cycas rumphii*’

Fij:	Bauan	<i>loŋo-loŋo</i>	‘ <i>Cycas rumphii</i> ’ (Ryan 1988: 140)
Pn:	Tongan	<i>loŋo-loŋo</i>	‘ <i>Cycas rumphii</i> ’
Pn:	Niuean	<i>loŋo-loŋo</i>	‘ <i>Cycas rumphii</i> ’
Pn:	W Uvean	<i>loŋo-loŋo</i>	‘ <i>Cycas rumphii</i> ’
Pn:	Tikopia	<i>roŋo-roŋo</i>	‘ <i>Cycas rumphii</i> ’
Pn:	Emae	<i>roŋo-roŋo</i>	‘cycad’

Most of the forms below point to PEOc **m^wele*. However, Namakir and Wayan point to **m^wali*, Santa Ana and Paamese to **m^wa(q)ele*, and Naman and Neve’ei also reflect a vowel sequence. Since the vowel sequence **ae* is not known to have occurred in POc, I posit a medial **-q-* and reconstruct PEOc **m^wa(q)ele*.

PEOc **m^wa(q)ele* ‘a cycad, *Cycas rumphii*’

SES:	Ulawa	<i>m^waele</i>	‘ <i>Cycas rumphii</i> ’ (W. McClatchey, pers. comm.)
SES:	Santa Ana	<i>m^waere</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Mwotlap	<i>m^wel</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Mota	<i>m^wele</i>	‘cycad’
NCV:	NE Ambae	<i>m^wele</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Kiai	<i>mele</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Raga	<i>m^wele</i>	‘ <i>Cycas</i> sp.’ (Walsh 2004)
NCV:	Naman	<i>meil</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Neve’ei	<i>ni-m^wiyil</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Tape	<i>ni-m^wil</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Uripiv	<i>na-m^wel</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Araki	<i>(vi)mele</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Tamambo	<i>vu-m^wele</i>	‘ <i>Cycas rumphii</i> ’
NCV:	Paamese	<i>maili</i>	‘ <i>Cycas rumphii</i> ’

NCV: Lewo	<i>(puru)m^wela</i>	‘ <i>Cycas rumphii</i> ’
NCV: Namakir	<i>m^wal</i>	‘ <i>Cycas rumphii</i> ’
NCV: Nguna	<i>na-m^wele</i>	‘ <i>Cycas rumphii</i> ’
NCV: S Efate	<i>na-m^wel</i>	‘ <i>Cycas rumphii</i> ’
SV: Sye	<i>no-mol</i>	‘ <i>Cycas rumphii</i> ’
SV: Lenakel	<i>nə-məl</i>	‘ <i>Cycas rumphii</i> ’
SV: Kwamera	<i>na-mur</i>	‘ <i>Cycas rumphii</i> ’
SV: Anejoñ	<i>no-m^woc</i>	‘ <i>Cycas rumphii</i> ’
NCal: Pije	<i>ŋēn</i>	‘ <i>Cycas rumphii</i> ’
NCal: Fwâi	<i>ŋēn</i>	‘ <i>Cycas rumphii</i> ’
NCal: Nemi	<i>ŋēn</i>	‘ <i>Cycas rumphii</i> ’
NCal: Jawe	<i>ŋēn</i>	‘ <i>Cycas rumphii</i> ’
NCal: Nyelâyu	<i>m^wēŋ</i>	‘ <i>Cycas rumphii</i> ’

6 Summary

This chapter has treated POc terms for staple foods, i.e. sources of starch. ‘Starchy food’ was evidently a POc category of meal ingredient and was the hyponymous sense of POc **kanaj* ‘food’. Additional ingredients to accompany starch were probably POc **tamaji*.

The main root crops grown by POc speakers were evidently **qupi*, the greater yam (*Dioscorea alata*), **p^watika*, the potato yam (*D. bulbifera*), and **talo(s)* or **m^wapo(q)*, taro (*Colocasia esculenta*) (**talo(s)* was the inherited term, **m^wapo(q)* a borrowing from a New Guinea mainland Papuan language). They also grew **piRaq*, giant taro (*Alocasia macrorrhizos*). The importance of the greater yam and *Colocasia* taro is attested by the fact that several terms can be reconstructed for (cultivars of?) each. The lesser yam, PWOc **kamisa* or **mamisa* (*Dioscorea esculenta*), seems to have been domesticated by early Oceanic speakers shortly after the break-up of POc.

The swamp taro, *Cyrtosperma merkusii*, was a later introduction, reaching Melanesia probably from Micronesia. The arrival of other modern root crops postdates the European presence in Central and South America: they are the sweet potato (*Ipomoea batatas*), cassava (*Manihot esculenta*) and *Xanthosoma* taro.

The banana, **pudi* (*Musa* cultivars), and the breadfruit, **kuluR* and **baReko* (*Artocarpus altilis*) were also important sources of starch for POc speakers, but the sago palm, **Rabia* (*Metroxylon* species), was probably no more than a supplementary or emergency starch source.

10 *Green vegetables and figs*

MALCOLM ROSS

1 Introduction

Green vegetables form an important part of **tamaji* (ch.2, §6.2), the ingredients of a meal which accompany **kanaŋ*, starchy food (ch.2, §6.1). Henderson & Hancock (1988: 83) point out that there is often no meat or fish component in the accompanying ingredients in the Solomons, and that these often consist only of green vegetables, which are a major source of protein. This explains the popularity of the high-protein *Abelmoschus manihot*. Solomon Islanders consume a diverse range of green vegetables, some cultivated, some collected from the wild, and the same is true in the Bismarcks.

Probably the most widely cultivated leafy vegetables in the Bismarck Archipelago are *Abelmoschus manihot* (§2.1) and various species of *Amaranthus* (§2.2). However, all the latter except *Amaranthus tricolor* are introduced plants (R.M. Bourke, pers. comm.) and were most probably not present in the gardens of Proto Oceanic speakers. Young leaves and petioles of *Colocasia esculenta* taro (ch.9, §2.2.1) are also commonly eaten as vegetables, and many languages have a separate word for them (ch.4, §2.5).

Ferns recorded as being eaten include species of *Asplenium*, *Athyrium*, *Ctenitis*, *Cyathea* (§3.1), *Dennstaedtia*, *Diplazium* and *Dryopteris*, as well as *Cyclosorus truncatus* (Paijmans 1976: 125). *Diplazium esculentum* is noted by Henderson & Hancock (1988: 84) as the most widely eaten fern in the Solomons. However, the only fern for which a POc term is reconstructed here is *Cyathea* (§3.1).

An important seasonal food in some areas is the inflorescence (the unopened flower) of *Saccharum edule* (§3.2). Another edible grass, *Setaria palmifolia* (no reconstruction), is an important vegetable in inland areas of the Bismarcks and New Guinea (M. Bourke, pers. comm.). The stinging herb *Laportea interrupta* (syn. *Fleurya interrupta*, *Urtica interrupta*) is cultivated and eaten by the Tolai of the Gazelle Peninsula of New Britain (ch.7, §6.3.2). The leaves of *Morinda citrifolia* are also eaten as a green vegetable in parts of Papua New Guinea (ch.13, §3.4). Despite the large number of species that serve as green vegetables, however, only a few terms for them have been reconstructed.

Trees of the genus *Ficus* (§4) are included here because leaves of some freestanding species serve as green vegetables in NW Island Melanesia. This is not true of all *Ficus* species in the region, but it is convenient to keep all species of the genus together, as there are difficulties in tying the glosses of some reconstructions down to particular species.



Figure 10.1 *Abelmoschus manihot*: A, plant (height 1.5 m); B, stem with leaf (edible) and flower bud; C, flower; D, varieties displayed to show the diversity in leaf shape.

2 Leafy vegetables

2.1 *Abelmoschus manihot* (syn. *Hibiscus manihot*), slippery cabbage, bush cabbage, island cabbage, TP *aibika*, P *slipari kabis*, B *kabis aelan* (Malvaceae)

Abelmoschus manihot is a low, many-branched tree-like shrub, seemingly present in every garden throughout the Bismarck Archipelago and the Solomons (Figure 10.1). Barrau (1955: 77) calls it 'truly the traditional vegetable of the whole of Melanesia'. Cuttings are planted in mixed crop gardens and are also harvested from young regrowth in abandoned gardens. There are many varieties, the young shoots and leaves of which have a high protein-to-calorie ratio and are cooked in stone ovens, boiled or steamed in bamboo containers or roasted in bark (Paijmans 1976: 124, Hviding 2005: 131).

POc **wasa* primarily denoted *A. manihot*, evidently the most salient and commonly consumed green vegetable in Lapita communities, but it also appears to have been used hypernymously for 'green vegetables' in general, to judge from the glosses below.

POc **wasa* '*Abelmoschus manihot*; green vegetables in general' (French-Wright 1983)

Adm: Mussau	<i>wasa</i>	'vine (generic?)'
NNG: Tuam	(<i>ai</i>) <i>waz</i>	'edible greens, <i>Gnetum gnemon</i> '

NNG:	Mangap	(<i>kai</i>) <i>wos</i>	‘edible greens, <i>Gnetum gnemon</i> ’
NNG:	Bing	<i>wās</i>	‘ <i>Abelmoschus manihot</i> ’
NNG:	Matukar	<i>wai</i>	‘greens’ (Kaspruś 1945)
NNG:	Takia	<i>wos</i>	‘ <i>Abelmoschus manihot</i> ’
NNG:	Sissano	(<i>eyl-</i>) <i>wuas</i>	‘ <i>Abelmoschus manihot</i> ’
NNG:	Kairiru	<i>was</i>	‘vegetable greens; legumes’
MM:	Madak	<i>vas</i>	‘ <i>Abelmoschus manihot</i> ’
MM:	Patpatar	<i>wasa</i>	‘fern, <i>Dryopteris aridis</i> ’
MM:	Tangga	(<i>fun</i>) <i>wes</i>	‘ <i>Abelmoschus manihot</i> ’
SES:	Arosi	<i>wata</i>	‘herb with edible leaves, <i>Amaranthus</i> ’
NCV:	Mota	<i>as</i>	‘a convolvulus, <i>Ipomoea</i> sp.’

PSV **nə-was* ‘*Abelmoschus manihot*’ (Lynch 2001c)

SV:	Kwamera	<i>nu-vas</i>	‘ <i>Abelmoschus manihot</i> ’
SV:	Lenakel	<i>nu-hua</i>	‘ <i>Abelmoschus manihot</i> ’

French-Wright (1983: 162) also reconstructs a term POc **bele* which apparently denoted *A. manihot* alone. Geraghty (2004: 85) suspects that the Polynesian terms are borrowed from Fijian, since Fijian *bele* can be glossed as ‘soft leaf’. If, however, the Gedaged, Sye and Ura terms are cognate, this observation is not relevant.

POc **bele* ‘*Abelmoschus manihot*’ (French-Wright 1983)

NNG:	Gedaged	<i>bel</i>	‘shrub like the croton with aromatic dark green leaves’
SV:	Sye	(<i>nta</i>) <i>mple</i>	‘ <i>Abelmoschus manihot</i> ’
SV:	Ura	(<i>da</i>) <i>mle</i>	‘ <i>Abelmoschus manihot</i> ’
Mic:	Kiribati	<i>bere</i>	‘ <i>Abelmoschus manihot</i> ’ (Polynesian borrowing?)
Fij:	Wayan	<i>bele</i>	‘taxon including <i>Abelmoschus manihot</i> and <i>A. moschatus</i> ’
Fij:	Bauan	<i>bele</i>	‘ <i>Abelmoschus manihot</i> ’
Pn:	Tongan	<i>pele</i>	‘ <i>Abelmoschus manihot</i> ’
Pn:	Samoan	<i>pele</i>	‘ <i>Abelmoschus manihot</i> ’

Two terms for *A. manihot* can be reconstructed in lower interstage languages.

PROc **sasaRu* ‘*Abelmoschus manihot*’ (François 2004: Proto Banks **sasar*)

NCV:	Vurës	<i>sasar</i>	‘ <i>Abelmoschus manihot</i> ’
NCV:	Lemerig	<i>n-sasar</i>	‘ <i>Abelmoschus manihot</i> ’
NCV:	Merlav	<i>na-ssar</i>	‘ <i>Abelmoschus manihot</i> ’
Fij:	Wayan	<i>sasau</i>	‘wild spinach taxon, bitter tasting, eaten boiled’
Fij:	Ba	<i>sasau</i>	‘ <i>Abelmoschus manihot</i> ’ (Preston et al. 1998)

PNCV **vera* ‘*Abelmoschus manihot*’ (Lynch 2004a)

NCV:	Maewo	<i>f^vere</i>	‘ <i>Abelmoschus manihot</i> ’ (Preston et al. 1998)
NCV:	NE Ambae	<i>were</i>	‘ <i>Abelmoschus manihot</i> ’
NCV:	Tamambo	(<i>ha</i>) <i>vera</i>	‘ <i>Abelmoschus manihot</i> ’

NCV: Uripiv	<i>nu-ver</i>	‘ <i>Abelmoschus manihot</i> ’
NCV: Rerep	<i>ne-ver</i>	‘ <i>Abelmoschus manihot</i> ’
NCV: Lonwolwol	<i>(faha)ver</i>	‘green edible plants or leaves, a general term for native greens’

The meaning of the etymon reconstructed below is not clear. It may have been another generic for green vegetables in general or denoted a kind of green vegetable. On the evidence of Lau alone, may have been *Abelmoschus manihot*. It was probably not *Amaranthus viridis*, as this appears to have been unknown to POc speakers.

POc **p^wa(k,g)e* ‘k.o. green vegetable (?)’

Adm: Lou	<i>p^wake</i>	‘fern’
Adm: Drehet	<i>p^wake</i>	‘greens; fibrous/stringy, mainly stems after cooking, found wild near water or grown in gardens’
PT: Dobu	<i>pai</i>	‘green foods’
MM: Tolai	<i>pe-pege</i>	‘ <i>Amaranthus viridis</i> ’
SES: Lau	<i>k^wake</i>	‘ <i>Abelmoschus manihot</i> ’

2.2 *Amaranthus tricolor* (syn. *A. gangeticus*, *A. oleraceus*), Chinese spinach, Joseph’s coat amaranth, TP *aupa* (Amaranthaceae)

Amaranthus tricolor is described by Peekel (1984: 166–168) as an erect plant 0.6–1.2 m tall, with many long leaves growing directly from the stem and no or almost no terminal flower cluster. Varieties with the multicoloured leaves to which *tricolor* refers are decorative plants in gardens in western countries, but the varieties grown as a green vegetable in gardens in India, China, Indonesia, Papua New Guinea and the Solomons usually have green leaves.

A number of *Amaranthus* species are grown in New Guinea and the Bismarcks today, but probably only *A. tricolor*, an ancient introduction from SE Asia, was present traditionally.¹ Others, mostly Central and South American domesticates, have been introduced by Europeans since 1870 (Bourke forthcoming, Bourke & Allen forthcoming).

A. tricolor is grown from seed in mixed gardens and gathered whole after 1–2 months growth. Some plants are left to go to seed, and the seeds stored for planting. The spinach-like leaves are,



Figure 10.2 *Amaranthus tricolor*, Chinese spinach

¹ The antiquity in New Guinea of *A. dubius*, also of SE Asian origin, is unknown; Bourke & Allen forthcoming.

like *Abelmoschus manihot*, cooked in stone ovens, boiled or steamed in bamboo containers or roasted in bark (Paijmans 1976: 124–125).

The only reconstruction is at the level of PNCV:

PNCV *keka ‘cockscomb plant, *Amaranthus tricolor*’

NCV: Mota	yeya	‘cockscomb plant, <i>Amaranthus</i> sp.’
NCV: Raga	gega	‘cockscomb plant, <i>Amaranthus</i> sp.’
NCV: Apma	kek	‘ <i>Amaranthus tricolor</i> ’
NCV: Namakir	kek	‘tree sp. with green leaf’

2.3 *Gnetum gnemon*, TP *tulip* (Gnetaceae)

Gnetum gnemon is a small tree found in lowland forests in the Bismarcks, the Solomons, Vanuatu and Fiji, growing to between 8 and 15 m in height. Leaf stalks grow directly from the branch in pairs: hence its Tok Pisin name, *tulip* ‘two-leaf’ (Figure 10.3). The young leaves and shoots are widely cooked and eaten as a vegetable. It has red or orange fruit, the seeds and mesocarp of which are roasted and eaten in some areas (Paijmans 1976: 124, Evans 1999: 19–21, Hviding 2005: 139): Evans singles out the islands of the Temotu Province of the Solomons for special mention. In the wild it grows along rivers and streams, but not near the beach, as it appears to dislike salt spray (Manner & Elevitch 2006a). Peekel (1984: 37) describes it as a ‘cultivated tree’ and Kennedy & Clarke (2004) mention it in their list of species that are subject to arboriculture.

On New Britain and Manus and in the Siassi Islands the bark fibre of *G. gnemon* is reported as being used to make ropes and string (Floyd 1954, O’Collins & Lamothe 1989, Bugenhagen & Bugenhagen 2007). On Manus the bark is also used as a wrapping material.

POc *kusaq ‘k.o. edible greens’ may have denoted *G. gnemon*, but more widespread reflexes are needed before we can be sure of this. Like the other terms for green vegetables reconstructed in this chapter, reflexes refer to more than one kind of green vegetable.

Misima *kusai* provides evidence for the final *-q of POc *kusaq. Misima has borrowed much of its vocabulary from Suauic dialects: these add paragogic -i after a final consonant, and -i here points to the earlier presence of *-q.



Figure 10.3 *Gnetum gnemon*: A, tree; B, fruiting branch with edible young leaves and fruit; C, mature edible fruit; D, flowering branch with edible flower.

POc *kusaq 'k.o. edible greens'

PT:	Misima	<i>kusai</i>	' <i>Gnetum gnemon</i> '
PT:	Sudest	<i>uða</i>	' <i>Gnetum gnemon</i> '
SES:	Kwaio	<i>?uta</i>	' <i>Abelmoschus manihot</i> '

2.4 *Polyscias* spp., panax, *B nalaslas* (Araliaceae)

Polyscias species are erect thin shrubs between one and 5 m in height found at least as far east as Fiji. They grow wild in shady environments and have green foliage which is eaten as a green vegetable in New Guinea, the Bismarcks, the Solomons and Vanuatu. In NW Island Melanesia they are often planted (from cuttings) as hedges, but when they are cultivated in sunlight, their appearance changes, as the foliage turns pale green or yellow and cultivated shrubs are often pruned to obtain a thick bushy form. French (1986: 74) names five species growing in Papua New Guinea, namely *P. cumingiana*, *P. scutellaria*, *P. fruticosa*, *P. macgillivrayi* and *P. verticillata*, and Henderson & Hancock (1988: 111–112) list all except the first for the Solomons (Figure 10.4). They comment that the greens have 'a pleasant mild "curry" taste'.

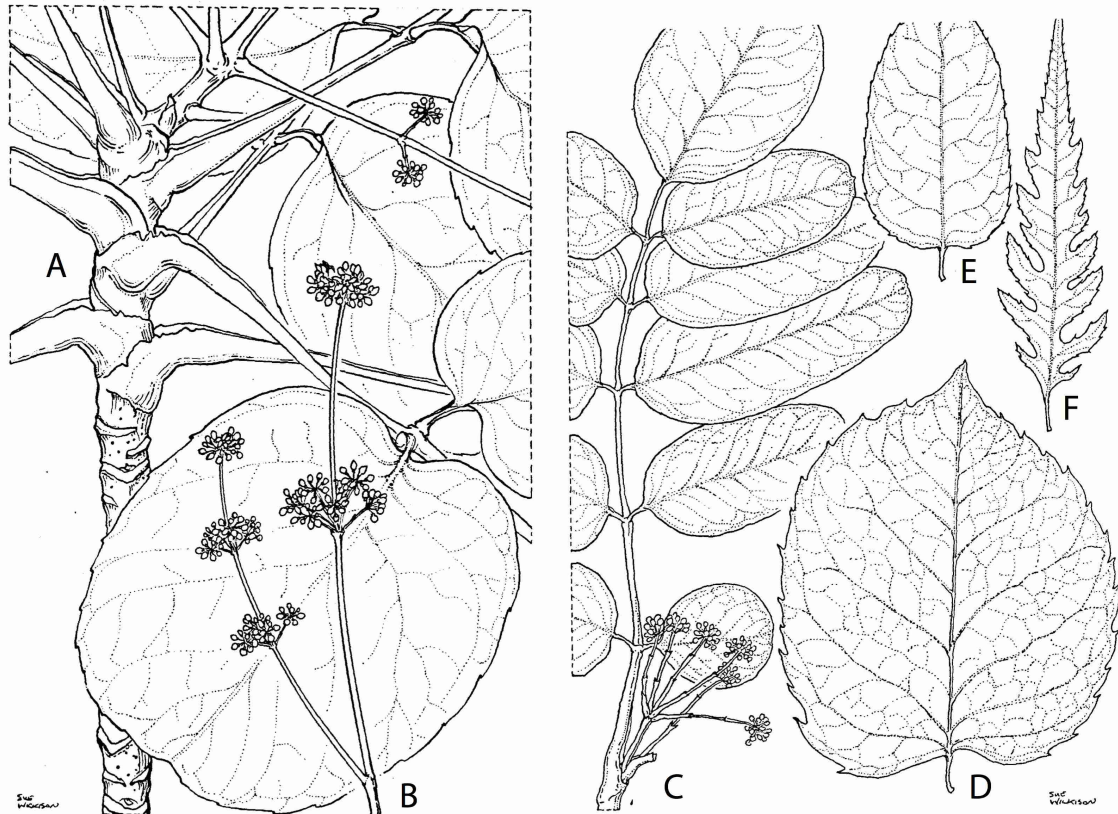


Figure 10.4 *Polyscias* species: A, *P. scutellaria*, young shoot with small portion of inflorescence; B, terminal portion of inflorescence; C, *P. verticillata*: flowering shoot and leaf; D, *P. fruticosa*: leaflet; E and F, leaflets of two other *Polyscias* species.

Peekel (1984: 421–422) describes the first three. *P. cumingiana* (syn. *P. pinnata*, *P. rumphiana*) and *P. scutellaria* (syn. *Nothopanax scutellarium*, *Crassula scutellaria*) are tree-like shrubs respectively 2–5 m and 3–6 m in height, the leaves of which are used for packing fish for cooking and as a green vegetable. Hviding (2005: 122) notes that in Marovo the large green and yellow leaves of *P. cumingiana* are used as ingredient in stews. *P. fruticosum* (syn. *Panax fruticosum*, *Nothopanax fruticosum*), is a smaller shrub, 0.8–3 m high, with smaller leaves. According to Gardner & Pawley (2006), on Waya juice extracted from the leaves of *Polyscias* was dropped into the nostrils as a cure for earache or headache.

No POC term is unambiguously reconstructable, but it is possible that the reflexes below of PSOC **(la)lawis* ‘*Polyscias* sp.’ may be cognate with Muyuw (PT) *(a)lawiluw* (Damon 2004) and Lau (SES) *lausi*, both denoting ‘*Celtis nymanii*’, a small tree used in housebuilding and firewood, the leaves of which provide a cure for rheumatism (Fox 1974, Kwa’ioloa & Burt 2001: 157–158). If so, then POC **lawis*, gloss unknown (a tree-like shrub or small tree species), would be reconstructable. Lau *lausi* presents a problem, however, as it reflects a form **lawisi* with final *-s* and echo vowel *-i*: this is a canonic NW Solomonian form, and we are forced to postulate borrowing into Lau, where such borrowings do not usually occur.

PSOC **(la)lawis* ‘*Polyscias* sp.’

NCV: Neve’ei	<i>(nana)lelav</i>	‘ <i>Polyscias</i> sp.’
NCV: Tape	<i>a-lap</i>	‘ <i>Polyscias</i> sp.’
NCV: Larëvat	<i>ne-lav</i>	‘ <i>Polyscias</i> sp.’
SV: Sye	<i>(i)lawih</i>	‘ <i>Polyscias</i> sp.’
SV: Anejom̃	<i>(na-p^w)jev</i>	‘ <i>Polyscias</i> sp.’

PNCV **bei* ‘*Polyscias scutellaria*’ (Lynch 2004a)

NCV: NE Ambae	<i>bei</i>	‘ <i>Polyscias</i> sp.’
NCV: Araki	<i>p^we-p^wei</i>	‘ <i>Polyscias scutellaria</i> ’
NCV: Raga	<i>bei</i>	‘ <i>Polyscias</i> sp.’ (Walsh 2004)
NCV: Uripiv	<i>na-bi</i>	‘ <i>Polyscias scutellaria</i> ’

The items reflecting PNCV **lalaso* ‘*Polyscias scutellaria*’ (?) below appear to be cognate with Lau, Kwa’ae (SES) *lalato* ‘*Xylocarpus granatum*’ (ch.6, §4.6). However, they are not cognate in the strict sense. Each set of items reflects an independent innovation entailing reduplication of a reflex of POC **lasoR* ‘testicles’. In the case of *Xylocarpus granatum* the comparison is with rounded fruit that hang heavily (Kwa’ioloa & Burt 2001: 122). Explaining PNCV **lalaso* is more problematic. Lynch (2004a) glosses the reconstruction ‘*Polyscias scutellaria*’ on the basis of the gloss of its reflexes in Paamese, Lewo, Apma, Nguna and S Efate. However, its denotation in Mota seems to be the aerial yam, *Dioscorea bulbifera* (ch.9, §2.1.3), and it is easy to infer a perceived resemblance between testicles and tubers on the vine. If this inference is correct, then *D. bulbifera* may have been the PNCV sense of **lalaso*, rather than *P. scutellaria*.

PNCV **lalaso* ‘*Polyscias scutellaria*’ (?) (Clark 1996a; gloss from Lynch 2004a)

NCV: Mota	<i>lalaso</i>	‘a kind of half-wild yam, with tubers on the vine’
NCV: Paamese	<i>lelaso</i>	‘ <i>Polyscias scutellaria</i> ’
NCV: Lewo	<i>(puru)le</i>	‘ <i>Polyscias scutellaria</i> ’

NCV: Apma	<i>lalah</i>	‘ <i>Polyscias scutellaria</i> ’
NCV: Namakir	<i>lalah</i>	‘yellow hedge around houses’
NCV: Nguna	<i>na-lalaso</i>	‘ <i>Polyscias scutellaria</i> ’
NCV: S Efate	<i>na-ulalas</i>	‘ <i>Polyscias scutellaria</i> ’

3 Other green vegetables

3.1 *Cyathea* spp., *B blakpam* (Cyatheaceae)

Among the many ferns eaten in Melanesia, there is just one tree-fern genus for which a putative POc term has been reconstructed. This is PROc **b^(w)ala* ‘*Cyathea*’. POc **b^(w)ala* is also reconstructed below, but only one cognate has been found outside Remote Oceania: Kove *va-vala* ‘cycad’. This means that we can be reasonably certain that POc **b^(w)ala* denoted a tree fern, but we as yet have no way of knowing for certain whether this was a *Cycas* or a *Cyathea*. The most widespread tree-fern in the Bismarcks *Cyathea contaminans* (syn. *Alsophila latebrosa*), with a stem 5–8 m tall (Peekel 1984: 9), is a good candidate for the denotation of **b^(w)ala*, but a better distributed cognate set is needed in order to confirm this. The Nakanai of New Britain ate the fronds of *Cyathea* spp. and used the trunks to make fishing spears (Floyd 1954). On Waya Island (western Fiji) the sap of the young parts of this tree-fern was applied externally to cure headaches, and the scales were used to stuff pillows. The pith of the trunk was eaten as famine food (Gardner & Pawley 2006).

POc **b^(w)ala* ‘tree fern, *Cycas* or *Cyathea* sp.’

NNG: Kove	<i>va-vala</i>	‘cycad’
PROc <i>*b^(w)ala</i> ‘ <i>Cyathea</i> sp.’		
NCV: Nguna	<i>na-p^wala</i>	‘a fern’
SV: Sye	<i>ni-val</i>	‘wild coconut, Montgomery palm, <i>Veitchia arecina</i> ’
Fij: Bauan	<i>bala-bala</i>	‘ <i>Cyathea</i> spp.’ (Keppel et al. 2005)
Fij: Wayan	<i>bala-bala</i>	‘ <i>Cyathea lunulata</i> ’
Fij: Yasawa	<i>bala-bala</i>	‘tree fern, <i>Cyathea</i> sp.’
Pn: Niuean	<i>pala</i>	‘fern sp.’
	<i>pala-tao</i>	‘fern with huge fronds, <i>Angiopteris evecta</i> ’
Pn: E Futunan	<i>pala-pala</i>	‘a tree fern’
Pn: W Futunan	<i>para-fara</i>	‘a tree fern’
Pn: Tikopia	<i>para-para</i>	‘a tree fern, <i>Cyathea</i> sp.’
Pn: Emae	<i>bala-bala</i>	‘a tree fern’
Pn: Tahitian	<i>para</i>	‘a root eaten in times of scarcity’
Pn: Hawaiian	<i>pala</i>	‘tree fern sp., <i>Marattia douglasii</i> ’
Pn: Rarotongan	<i>para</i>	‘a large mountain fern, <i>Marattia fraxinea</i> ; potato fern <i>Marattia salicina</i> ’
Pn: Māori	<i>para</i>	‘King fern, <i>Marattia salicina</i> ’

3.2 *Saccharum edule*, 'coastal *pitpit*' (in Papua New Guinea), TP, P *pitpit*, B *naviso* (Poaceae)

Saccharum edule is a tall grass related to sugarcane (*Saccharum officinarum*). Henderson & Hancock (1988: 101) write, 'It grows in a variety of locations, but seems best adapted to low altitude, where it can form quite dense stands sometimes attaining heights of four metres or more.' It is cultivated for the unopened inflorescence (flower) at the tip of the cane, harvested as an important seasonal vegetable which is either roasted in its leafy sheath or cooked in coconut cream with other vegetables (Figure 10.5).

S. edule was apparently domesticated long ago, and its several varieties are propagated only by cultivation (Barrau 1962: 157–158). It is grown from cuttings consisting of three or four nodes of the cane, i.e. 30–40 cm long, and usually grows in clumps up to two or three metres in height. In Papua New Guinea it is cultivated in gardens up to an altitude of 1800 m. It is also grown in the Solomons, Vanuatu and Fiji.

It is possible that Far East Manggarai, Kepo, Waerana, Razong, Rembong (all CMP) *tebor* '*Saccharum* sp.' (Verheijen 1990: 240) are cognate with the items below. If it is, then PCEMP **tabuqaR* is reconstructable and the reconstruction below is elevated to POC.

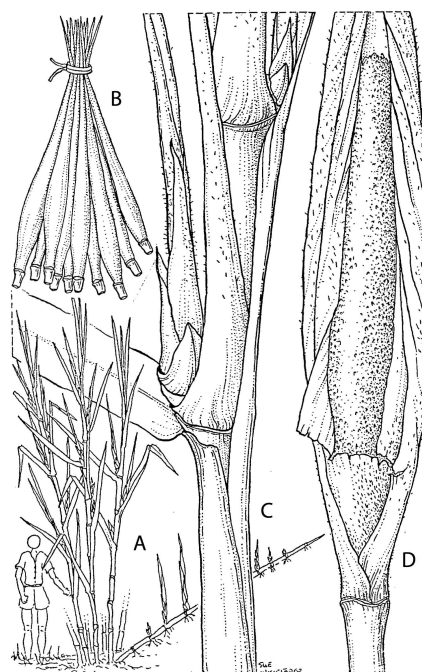


Figure 10.5 *Saccharum edule*: A, stand of plants; B, swollen tips ready for market (ca 50 cm long); C, stem with suckers; D, semi-mature edible inflorescence.

PWOC **tabuqaR* '*Saccharum edule*' (Pawley 1978: **tabukal*)

NNG:	Kove	<i>tavuhai</i>	' <i>Saccharum edule</i> ' (A. Chowning, pers. comm.) ²
NNG:	Malai	<i>taboyar</i>	' <i>Saccharum edule</i> ' (Lincoln 1976)
NNG:	Gitua	<i>tabuar</i>	' <i>Saccharum edule</i> '
NNG:	Takia	<i>tabu</i>	' <i>Saccharum edule</i> '
NNG:	Mapos Buang	<i>abuɣk</i>	' <i>Saccharum edule</i> '
PT:	Molima	<i>tabuʔala</i>	' <i>Saccharum edule</i> '
PT:	Roro	<i>kapua</i>	' <i>Saccharum edule</i> '
MM:	Vitu	<i>tabuyare</i>	' <i>Saccharum edule</i> '
MM:	Nakanai	<i>tabua</i>	' <i>Saccharum edule</i> '
MM:	Teop	<i>tabuana</i>	' <i>Saccharum edule</i> '
MM:	Mono-Alu	<i>tavuala</i>	' <i>Saccharum edule</i> ' (W. McClatchey, pers. comm.)
MM:	Kia	<i>tavolohi</i>	' <i>Saccharum edule</i> ' (W. McClatchey, pers. comm.)

cf. also:

PT:	Motu	<i>tabogana</i>	'wild <i>pitpit</i> ' (for † <i>tabu(y)a</i> : apparently borrowed)
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² In her publications Chowning cites the alternant *tavuahi*.

4 *Ficus* spp., banyans, figs (Moraceae)

4.1 Terms for classes of *Ficus*

Worldwide there are about a thousand species of *Ficus*, including the common fig, *F. carica*. Over 500 species occur in the Asia–Pacific region. Many of them have a limited distribution. *F. granatum*, for example, is limited to Vanuatu, *F. scabra* to Vanuatu, New Caledonia, Fiji, Tonga and Samoa (Walter & Sam 2002: 164, 166). As a consequence, it is difficult to gloss reconstructed terms with their species, as the same term was apparently applied to similar species at different locations. The one distinction that is more easily made is between independently growing species and stranglers.

Independently growing *Ficus* species are usually of medium size, up to about 15 m tall, and often have edible leaves. Strangler figs, however, sometimes grow to 40 m and form part of the forest canopy. A strangler starts its life as an epiphyte high in a tree where a tiny sticky seed has been deposited in animal droppings. The new seedling grows slowly at first, getting nutrients from leaf litter. It sends out thin roots that snake down the trunk of the host tree or dangle as aerial roots from its branches. When the roots reach the ground they dig in and grow aggressively, competing with the host tree for water and nutrients. The roots form a network that encircles the host and fuses together. As the roots grow thicker they squeeze the host's trunk, cutting off its nutrient supply. In the canopy the strangler's leaves grow more densely than the host's, depriving it of sunlight. Eventually the host dies from strangulation, insufficient sunlight and root competition, and the strangler fig stands on its own. If the host rots away, a hollow centre remains.

A salient feature of the genus *Ficus* is its figs, which technically are not fruits. A fig is a 'false fruit' or multiple fruit, in which the flowers and seeds grow together to form a single mass. What is commonly called the 'fruit' of a fig is a syconium, an almost closed receptacle with many small male and female flowers arranged on the inner surface. Technically, the fruit of a fig is one of the many seed-bearing flowers inside the syconium. The syconium typically has a bulbous shape with a small opening at the distal end that gives access to tiny wasps (*Agaoninae* spp.) that pollinate the flowers in the process of laying their eggs within the syconium, thus enjoying a symbiotic relationship with the fig tree.

The literature reports numerous instances of the bark, the latex or the leaves of one or other *Ficus* species being used for medicinal purposes. On Vanua Lava (Banks Islands, Vanuatu) latex from *Artocarpus altilis* and *Ficus adenosperma* is mixed as a potion against excessive menstrual discharge (Bourdy & Walter 1994). On Chuuk the bark of *Ficus prolixa* is used as medicine against evil spirits, its fruits and leaves used as medicine, and its roots are used to flavor a special breadfruit pudding (Goodenough & Sugita 1980). On Lihir the leaves are heated and rubbed on painful joints, bones, muscles. They can also be used to heal sickness after eating the wrong kind of fish. They also have ritual power, and are used to make parcels containing several other types of medicinal leaves (S. Foale 2001).

The inner bark of *Ficus* species is used in New Britain for male garments, and old pieces of these are used to bind the heads of children in order to elongate the skull, and for wrapping food for cooking in a stone oven (Arentz et al. 1989: 94, A. Chowning, pers. comm.). However, Mahdi (1999) shows that strangler figs have sacred and ceremonial significance across much of the Austronesian speaking region, including in Oceania at least southern Vanuatu and New Caledonia.

Three POc terms for apparently superordinate *Ficus* taxa are reconstructable: **nunuk*, **qayawan* and **ba[k,g]a*.

POc **nunuk* denoted either a taxon including all *Ficus* species known to POc speakers or a taxon including just small freestanding species; it is unclear which. The fact that Peekel does not give Tolai *nunu* as the name for any of the 16 species for which he provides vernacular names implies that it is a generic term for all *Ficus*. On the other hand, the fact that the more carefully specified glosses other than Lou denote small freestanding species (*F. aspera*, *F. subulata* and *F. vitiensis*) suggests the latter.

Mahdi (1999) suggests either that **nunuk* reflects the same root as that in POc *[*qa*]*nunu* ‘shadow’ or that some Oceanic terms for *Ficus* species reflect *[*qa*]*nunu* rather than **nunuk*, but I see no evidence for either proposal.

PMP **nunuk* ‘banyan, *Ficus benjamina*’ (ACD, Mahdi 1999)

POc **nunuk* ‘fig trees, *Ficus* taxon’ (Ross 1996c)

Adm: Lou	<i>nun</i>	‘tree with numerous aerial roots, the banyan’
Adm: Lenkau	<i>nun</i>	‘banyan’
PT: Sudest	<i>nunu</i>	‘edible nut’
MM: Kara (E)	<i>nunui</i>	‘cycad’ (-i < POc *-k)
MM: Tolai	<i>nunu</i>	‘banyan tree’
MM: Ramoaaina	<i>nunu</i>	‘banyan tree’
MM: Nehan	<i>nun</i>	‘ <i>Ficus</i> sp.’
MM: Varisi	<i>nunu(ra)</i>	‘ <i>Ficus copiosa</i> ’ (W. McClatchey, pers. comm.)
NCV: Maewo	<i>nunue</i>	‘ <i>Ficus aspera</i> ’ (Walter & Sam 2002: 293) ³
SV: Sye	(<i>novo</i>) <i>nuy</i>	‘ <i>Ficus subulata</i> ’
Fij: Bauan	<i>nunu</i>	‘fig tree taxon, including <i>Ficus vitiensis</i> and other freestanding species’ (J. Parham 1972: 137–139)

It is probable that **qayawan* denoted a strangler fig taxon. The Gedaged, Kara, Tolai and Patpatar reflexes each denote a taxon of strangler figs: *Ficus benjamina* (‘weeping fig, Java fig, Java willow’), *F. katabibi* and *F. rebareba* are described by Peekel (1984: 139) as stranglers.⁴ The Micronesian and Niuean reflexes denote *F. prolixa*, also a strangler. Kara, Tolai and Patpatar are located in New Ireland, i.e. in the Oceanic heartland of the Bismarcks, and I assume that they are likely to retain the original sense of **qayawan*, whereas *F. tinctoria* (Muyuw, Wayan) and *F. pritchardii* (Wayan), neither of them stranglers, are more likely to reflect shifts in denotation. Whether POc **qayawan* denoted a taxon which included all strangler fig species or just a subset, we cannot tell.

PEMP **qayawan* ‘banyan tree, *Ficus* sp.’ (Blust 1978a: **ayawan*)

POc **qayawan* ‘*Ficus* strangler fig taxon’ (Ross 1996c)

PAdm **qaiwa* ‘banyan, *Ficus* spp.’ (Blust 1996b)

Adm: Wuvulu	<i>aiwa</i>	‘banyan tree’
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³ Walter and Sam gloss this as ‘*F. adenosperma*’ in their appendix of vernacular names. This seems to be an editorial error, as *F. aspera* is the species described in the body of the book (161–162).

⁴ *F. katabibi* and *F. rebareba* are Peekel’s temporary names: I have found them nowhere else in the literature.

Adm:	Nauna	<i>kew</i>	‘banyan’
Adm:	Titan	<i>yew</i>	‘banyan’
SJ:	Sobei	<i>eya</i>	‘banyan’
NNG:	Amara	<i>(a)kao</i>	‘ <i>Ficus</i> sp.’
NNG:	Gitua	<i>aiowan</i>	‘ <i>Ficus</i> sp. with short leaf; sometimes chewed with <i>poapoa</i> bark in lieu of betel’
NNG:	Gedaged	<i>aiau</i>	‘several spp. of strangler fig, <i>Ficus</i> ’
NNG:	Takia	<i>ayao</i>	‘ <i>Ficus</i> sp.’
NNG:	Numbami	<i>aiyowana</i>	‘banyan’
NNG:	Wogeo	<i>vaiawa</i>	‘banyan tree’
NNG:	Kairiru	<i>ayou</i>	‘figus tree’
PT:	Muyuw	<i>(a)gi-gaway</i>	‘ <i>Ficus tinctoria</i> (metathesis < * <i>gayaw</i>)’
PT:	Tawala	<i>kiyaha</i>	‘tree type, edible fig’
MM:	Kara (E)	<i>iuan</i>	‘ <i>Ficus benjamina</i> , <i>F. katabibi</i> and <i>F. rebareba</i> ’
MM:	Tolai	<i>kiau, kuiau</i>	‘ <i>Ficus benjamina</i> , <i>F. katabibi</i> , <i>F. rebareba</i> , <i>F. prolixa</i> ’ (Record 1945: <i>kuiau</i> ‘ <i>F. indica</i> ’)
MM:	Patpatar	<i>kiaua</i>	‘ <i>Ficus benjamina</i> , <i>F. katabibi</i> and <i>F. rebareba</i> ’
MM:	Babatana	<i>kanava (pitalata)</i>	‘ <i>Ficus copiosa</i> ’ (W. McClatchey, pers. comm.)
MM:	Nduke	<i>eana</i>	‘ <i>Ficus</i> spp.’
SV:	Kwamera	<i>(nəsu-)aio</i>	‘banyan sp., bark used for tapa cloth’
Mic:	Nauruan	<i>eaeo</i>	‘ <i>Ficus prolixa</i> ’
Mic:	Kiribati	<i>aiao</i>	‘ <i>Ficus prolixa</i> ’
Mic:	Ponapean	<i>aiaw</i>	‘ <i>Ficus prolixa</i> var. <i>carolinensis</i> ’ ⁵
Mic:	Chuukese	<i>āw</i>	‘ <i>Ficus prolixa</i> var. <i>carolinensis</i> ’
Mic:	Carolinian	<i>ao</i>	‘banyan tree’ (Christian 1899: 350)
PCP * <i>qayawa</i> ‘ <i>Ficus</i> spp.’			
Fij:	Bauan	<i>yaḏawa</i>	‘banyan tree, <i>Ficus</i> sp.’
Fij:	Wayan	<i>āwa</i>	‘ <i>Ficus pritchardii</i> , <i>Ficus tinctoria</i> ’
Fij:	Rotuman	<i>äeva</i>	‘banyan tree’
PPn * <i>qāwa</i> ‘banyan tree, <i>Ficus prolixa</i> (?)’			
Pn:	Tongan	<i>?ovava</i>	‘banyan tree, <i>Ficus prolixa</i> and <i>F. obliqua</i> ’ (Whistler 1991b: 99–100)
Pn:	Niuean	<i>ovava</i>	‘banyan tree, <i>Ficus prolixa</i> ’
Pn:	Emae	<i>raoa</i>	‘banyan’
Pn:	Rennellese	<i>?aoa</i>	‘banyan, <i>Ficus benjamini</i> ’
Pn:	Tikopia	<i>āoa</i>	‘banyan tree, <i>Ficus</i> sp.’
Pn:	Samoan	<i>āoa</i>	‘banyan tree, <i>Ficus prolixa</i> and <i>F. obliqua</i> ’ (Whistler 2000: 157)
Pn:	Rarotongan	<i>aoa</i>	‘banyan tree’

POc **qayawan* also seems to have a second set of reflexes in Micronesia. A putative PMic **kawani* ‘*Ficus* sp.’ can be reconstructed. However, the correspondences here—especially the word-final reflexes of **n*—indicate that this is an early borrowing via the Caroline Islands from a western Austronesian language.

⁵ Bender et al. (1983) use the gloss *F. carolinensis*, but Defilipps et al. (1988) list this as a variety of *F. prolixa*.

Mic:	Kosraean	<i>kən(-yɛ)</i>	‘banyan tree’
Mic:	Chuukese	<i>əwār</i>	‘ <i>Ficus tinctoria</i> ’
Mic:	Puluwatese	<i>yawann</i>	‘banyan’
Mic:	Satawalese	<i>awal</i>	‘banyan’
Mic:	Woleaian	<i>gewann</i>	‘banyan’
Mic:	Ulithian	<i>howel</i>	‘banyan’

POc **ba[k,g]a* denoted a taxon of freestanding, medium-sized *Ficus* species. Denotata of reflexes include *F. nodosa*, *F. wassa*, *F. prolixa*, *F. obliqua*, *F. mutabilis* and *F. tinctoria*, none of them stranglers.⁶

The items under ‘cf. also’ are probably not cognate. Three of them point to a term for a nut tree, a species of either *Canarium* or *Terminalia*, but data are insufficient to reconstruct this term. Mahdi (1999) suggests that this term is cognate with Western Malayo-Polynesian terms reflecting a putative **pakat* ‘root’.

POc **ba(k,g)a* ‘banyan tree, medium-sized *Ficus* spp., not stranglers’ (Biggs 1965: **baka*; Ross 1996c)

MM:	Sursurunga	<i>pak</i>	‘tree sp.’
MM:	Patpatar	<i>paka</i>	‘ <i>Ficus nodosa</i> ’
MM:	Tolai	<i>paka</i>	‘ <i>Ficus</i> sp. (Record 1945)’
MM:	Roviana	<i>pako-pako</i>	‘ <i>Ficus wassa</i> ’ (Henderson & Hancock 1988: 125)

PROc **baga* ‘*Ficus* spp.; generic for *Ficus*?’

NCV:	Mota	<i>paka</i>	‘banyan, various spp.’
NCV:	Araki	<i>(vi)ʔaka</i>	‘banyan spp.’
NCV:	Nduindui	<i>(vi)v-voye</i>	‘ <i>Ficus wassa</i> ’ (Walter & Sam 2002: 293)
NCV:	Raga	<i>baga</i>	‘ <i>Ficus</i> sp.’ (Walsh 2004)
NCV:	Lonwolwol	<i>bak</i>	‘banyan’
NCV:	Port Sandwich	<i>na-mbaŋ</i>	‘banyan, <i>Ficus bengalensis</i> ’
NCV:	SE Ambrym	<i>veak</i>	‘ <i>Ficus wassa</i> ’ (Walter & Sam 2002: 293)
NCV:	Paamese	<i>a-veka</i>	‘ <i>Ficus</i> sp.’
NCV:	Nguna	<i>na-paga</i>	‘banyan, <i>Ficus bengalensis</i> ’
NCV:	Namakir	<i>bag</i>	‘banyan, <i>Ficus bengalensis</i> ’
NCV:	S Efate	<i>mpak</i>	‘ <i>Ficus</i> spp.’
SV:	Sye	<i>n-paŋ</i>	‘banyan, generic’
SV:	Lenakel	<i>nə-pək</i>	‘banyan, generic’
SV:	Kwamera	<i>nə-pek</i>	‘banyan, generic’
SV:	Anejoñ	<i>(n)pak</i>	‘banyan’
NCal:	Nemi	<i>(ce)baŋ</i>	‘ <i>Ficus mutabilis</i> ’
NCal:	Jawe	<i>(ce)baŋ</i>	‘ <i>Ficus mutabilis</i> ’
NCal:	Iaai	<i>bik</i>	‘ <i>Ficus prolixa</i> ’
Fij:	Wayan	<i>baka</i>	‘banyan taxon, including <i>Ficus obliqua</i> , <i>F. prolixa</i> and <i>F. tinctoria</i> ’
Fij:	Bauan	<i>baka</i>	‘ <i>Ficus obliqua</i> ’

⁶ *F. obliqua* may be freestanding or a strangler. *F. bengalensis* (if it is correctly identified), is a recent introduction.

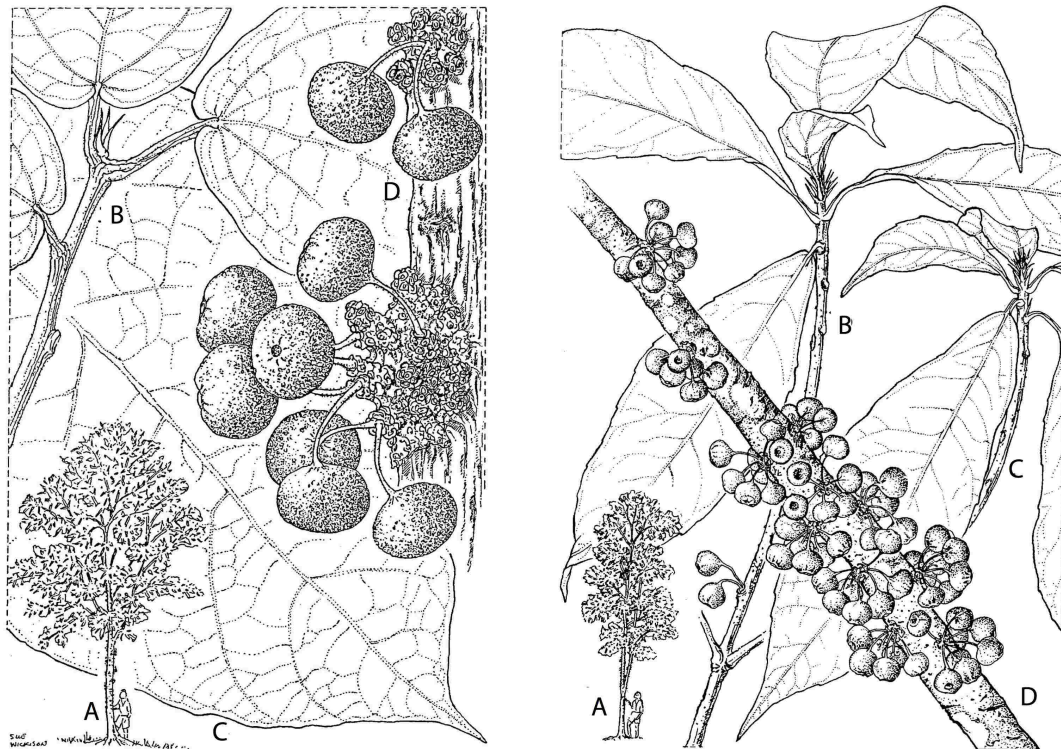


Figure 10.6 Left *Ficus copiosa*: A, tree; B, shoot with leaves; C, leaf; D, figs on trunk. Right *Ficus wassa*: A, tree; B, shoot showing leaf arrangement and figs on stem; C, young shoot with edible leaves; D, fruit on lower branch.

cf. also:

Adm: Mussau	<i>paka</i>	' <i>Terminalia catappa</i> '
Adm: Mussau	<i>baga(laim)</i>	'large variety of Malay apple, <i>Syzygium gomata</i> '
Adm: Titan	<i>baga-bak</i>	'tree sp. with nut-like fruit'
MM: Tolai	<i>baga</i>	' <i>Canarium mehenbethene</i> (Record 1945)'

4.2 *Ficus copiosa* and *F. wassa*, sandpaper cabbage, sandpaper fig, TP *kumu musong* (Moraceae)

Bourke (n.d.) names three lowland indigenous *Ficus* species in Papua New Guinea that have edible figs: *F. copiosa* (TP *kumu musong*), *F. wassa* and *F. tinctoria*. They are small free-standing trees or shrubs and grow both in the highlands and in the lowlands. The three species are self-sown and there is no evidence of cultivation in Papua New Guinea. The figs of the three species are eaten, particularly those of *F. copiosa*, which are eaten raw. However, the main food product of these species in Papua New Guinea, and again especially of *F. copiosa*, is their young leaves, which are used as a green vegetable (in Papua New Guinea by about

one-third of the rural population; Bourke & Allen forthcoming). The Tok Pisin term *kumu musong* means ‘hairy greens’.

F. copiosa and *F. wassa* are similar (Figure 10.6). Both rejoice in the name ‘sandpaper cabbage’ in the Solomons because of their coarse texture (even when cooked). The leaves of *F. wassa* are more abrasive than those of *F. copiosa*, and therefore somewhat less popular as food (Henderson & Hancock 1988: 123, 125)

F. copiosa (syn. *F. longipedunculata*, *F. acanthrophylla*) has twigs covered in bristles (Peekel 1984: 141). It grows widely in New Guinea, the Bismarcks and the Solomons. In Marovo *F. copiosa* is traditionally an important leaf vegetable, and young leaves and shoots are either cooked in coconut cream or mixed with crushed smoked *Canarium* nuts (Hviding 2005: 138).

F. wassa (syn. *F. portus-finschii*, *F. papus* (Peekel), *F. uauasie* (Peekel)) is a tree 5–20 m tall with twigs that are hairy and pungent and figs that turn red when ripe (Peekel 1984: 141). It is found from eastern Indonesia through New Guinea, the Bismarcks and the Solomons to Vanuatu (Walter & Sam 2002: 168). The leaves of the wild trees are cooked as a vegetable in Papua New Guinea, the Solomons and Vanuatu (Henderson & Hancock 1988: 125, Wheatley 1992: 170–172). In Vanuatu green figs are eaten cooked. Figs ripen quickly, and must be eaten immediately. Lactating women regularly eat the leaves, which are said to stimulate milk production (Walter & Sam 2002: 168–169).

There is enough agreement among the meanings of reflexes of POc **iguRa* to suggest that it had sandpapery leaves and denoted either *F. copiosa* or *F. wassa* or both.

POc **iguRa* ‘*Ficus* species with sandpapery leaves, either *F. copiosa* or *F. wassa* or both’ (Chowning 2001)

MM:	Nakanai	<i>igura</i>	‘ <i>Ficus</i> sp. with sandpapery leaves’
MM:	Patpatar	<i>ikur-kur</i>	‘ <i>Ficus gul</i> ’
PT:	Bwaidoga	(<i>a</i>) <i>ikula</i>	‘banyan’
PT:	Motu	<i>igula(ra)</i>	‘ <i>Ficus</i> sp.’
SES:	Bugotu	<i>igula</i>	‘sandpaper cabbage, <i>Ficus wassa</i> ’ (Henderson & Hancock 1988: 125)
SES:	Kwaio	<i>igula</i>	‘tree sp., leaves of which are used to polish wood’

POc **p^wabosi* is the most likely candidate for a term denoting *F. wassa*. All named reflexes denote a small or medium-sized freestanding *Ficus* sp. The set below, from which I tentatively reconstruct POc **p^wabosi*, contains some doublets and a number of phonological irregularities, especially in regard to the bilabials. I infer that the two POc bilabials were not identical, but that assimilation has operated to make them so in several reflexes. Doublets are probably the outcomes of local borrowings. An interstage ancestral to Solos, Petats and probably Teop replaced the initial bilabial obstruent with **u-*.

POc **p^wabosi* ‘freestanding small or medium-sized *Ficus* sp., probably *F. wassa*’

NNG:	Bing	<i>bubōs</i>	‘wild fig tree (poor quality wood)’
MM:	Nakanai	<i>vovosi</i>	‘ <i>Ficus</i> sp., with edible leaves’ (- <i>v-</i> for †- <i>b-</i>)
MM:	Kara (E)	[<i>ka</i>]pavus	‘small <i>Ficus</i> sp., <i>F. wassa</i> ’ (Peekel 1984: 141)
MM:	Patpatar ⁷	<i>habos</i>	‘ <i>Ficus pachystemon</i> ’

⁷ One of these forms, probably *papus*, is presumably a borrowing.

	<i>papus</i>	' <i>Ficus wassa</i> '
MM: Tolai	<i>papu(-kubar)</i>	' <i>Ficus wassa</i> '
	<i>uauai(na)</i>	' <i>Ficus pachystemon</i> ' (Holdsworth 1975b)
MM: Nehan	<i>boh</i>	' <i>Ficus</i> spp.'
MM: Solos	<i>uabos</i>	' <i>Ficus</i> sp.' (Holdsworth 1977: Noupan village)
MM: Petats	<i>uabos</i>	' <i>Ficus</i> sp.'
MM: Teop	<i>ivoi</i>	' <i>Ficus</i> sp.'
	<i>poi</i>	' <i>Ficus</i> sp.'
PSOc <i>*(b(a,o))bosi</i> ' <i>Ficus</i> sp.' (Lynch 2004a)		
NCV: Mwotlap	<i>no-woh</i>	' <i>Ficus aspera</i> '
NCV: Apma	<i>wowos</i>	' <i>Ficus wassa</i> '
PSV <i>*na-bVbosi</i> ' <i>Ficus</i> sp.' (Lynch 2004a)		
SV: Kwamera	<i>nu-k^wesi</i>	'fig sp.'
SV: Anejoñ	<i>ne-ppaθ</i>	' <i>Ficus</i> sp.'
NCal: Nemi	<i>bo</i>	'banyan sp. without aerial roots'
NCal: Jawe	<i>bo</i>	'banyan sp. without aerial roots'

POc **qa(l,R)a* may have been another term for *Ficus copiosa* (§4.2).

PMP **qaRa?* '*Ficus* spp.' (Blust 1986)

POc **qa(l,R)a* '*Ficus* sp.'

NNG: Gedaged	<i>ala</i>	'tree sp.'
MM: Nakanai	<i>kaloli</i>	' <i>Ficus</i> sp., probably <i>F. copiosa</i> ' (A. Chowning, pers. comm.)
MM: Tolai	<i>kala-kala, kaka</i>	' <i>Ficus copiosa</i> '
MM: Patpatar	<i>kala-kala</i>	' <i>Ficus copiosa</i> '
MM: Roviana	<i>kala-la</i>	'banyan, <i>Ficus</i> sp.'
MM: Marovo	<i>kala-la</i>	'banyan, <i>Ficus</i> spp.'
SES: To'aba'ita	<i>θala</i>	' <i>Ficus variegata</i> '

4.3 *Ficus tinctoria*, dye fig (Moraceae)

Ficus tinctoria is an erect shrub 2–4 m tall with yellow-orange or red edible figs, found on coral rocks and cliffs on the foreshore or inland in coral soil. It is distributed from India and China through SE Asia, New Guinea and right through the islands as far as western Polynesia, but is absent from New Caledonia (Peekel 1984: 147, Walter & Sam 2002: 169). Its leaves are a green vegetable in Papua New Guinea (Bourke n.d.).

POc **taŋa* appears to have denoted *F. tinctoria*. This is its meaning in New Ireland. In southern Vanuatu it denotes *F. granatum*, another medium-sized freestanding species with edible figs, limited in its distribution to Vanuatu (Walter & Sam 2002: 163–164).

POc **taŋa* '*Ficus tinctoria*'

MM: Kara (E)	<i>taŋa</i>	' <i>Ficus tinctoria</i> '
MM: Patpatar	<i>(saŋa)taŋa</i>	' <i>Ficus tinctoria</i> '
MM: Tolai	<i>taŋa(tata)</i>	' <i>Ficus tinctoria</i> '

PSV **na-təŋ* ‘*Ficus* sp.’ (Lynch 2004a)

SV:	Sye	<i>na-toŋ</i>	‘ <i>Ficus granatum</i> ’
SV:	Lenakel	<i>na-reŋ</i>	‘ <i>Ficus granatum</i> ’
SV:	Kwamera	<i>ne-rəŋ</i>	‘k.o. tree with stinging leaves’
SV:	Anejoñ	<i>na-teŋ</i>	‘ <i>Ficus adenosperma</i> ’

POc *(*c,j*)*api* appears to have denoted a species with edible leaves, possibly *F. tinctoria*.

PMP **jabi* ‘*Ficus* sp.’ (Blust 1972b)

POc *(*c,j*)*api* ‘*Ficus* sp.’ (Ross 1996c)

NNG:	Mapos Buang	<i>dēv</i>	‘ <i>Ficus</i> sp.; the leaf tips are eaten’
Fij:	Bauan	<i>savi(rewa)</i>	‘ <i>Ficus tinctoria</i> ’

4.4 Other names for *Ficus* species

The reconstructions below denote *Ficus* species, but it is not usually certain which one(s).

It is possible that POc **seRa* denoted *Ficus adenosperma*, a freestanding tree 5–15 m tall with green or yellow figs that are eaten in times of food shortage in some communities (Peekel 1984: 147; Walter & Sam 2002: 169).

POc **seRa* ‘*Ficus* sp., perhaps *F. adenosperma*’

Adm:	Mussau	<i>si</i>	‘ <i>Ficus</i> sp.’
MM:	Patpatar	<i>sera</i>	‘ <i>Ficus adenosperma</i> ’
MM:	Tolai	<i>ere</i>	‘ <i>Ficus adenosperma</i> ’
MM:	Nehan	<i>her</i>	‘ <i>Ficus</i> sp.’

POc **bauRa* may have denoted a species of strangler fig.

POc **bauRa* ‘*Ficus* sp.’, perhaps a strangler fig

NNG:	Mapos Buang	<i>báuk</i>	‘ <i>Ficus</i> sp.’
SES:	Lau	<i>baola</i>	‘banyan’
SES:	Kwara’ae	<i>baola</i>	‘strangler fig, <i>Ficus microcarpa</i> ’

The glosses give no real clue to the denotatum of POc **ka(m^wa)-kam^wa*, other than that it was perhaps a freestanding species.

POc **ka(m^wa)-kam^wa* ‘*Ficus* sp., perhaps *Ficus nodosa*’

PT:	Misima	<i>ka-kam^wa</i>	‘k.o. tree, with small, rounded, light green leathery leaves and white and motley-coloured bark and small, fig-shaped fruit.’
MM:	Madak	<i>kem-kem</i>	‘ <i>Ficus nodosa</i> ’
SES:	Santa Ana	<i>kam^wa-kam^wa</i>	‘sandpaper cabbage, <i>Ficus wassa</i> ’

The gloss of PNCV **buliva* is clearly *Ficus scabra* (a species found only in central and souther Vanuatu, New Caledonia, Fiji and western Polynesia; Walter & Sam 2002: 166), but the denotation of PEOc **bulipa* remains unclear.

PEOc **bulipa* ‘*Ficus* sp.’ (Clark 1996a: PNCV **buliva*)

SES: Kwara’ae *bu-bulia* ‘*Ficus austrina*’

PNCV **buliva* ‘*Ficus scabra*’

NCV: Mota *puliva* ‘a climbing *Ficus*; the leaves cooked and eaten’
 NCV: Apma *b^wilip* ‘*Ficus scabra*’ (Walter & Sam 2002)
 NCV: Maewo *g^wiliva* ‘*Ficus scabra*’ (Walter & Sam 2002)
 NCV: Raga *buliva* ‘*Ficus* sp.’
 NCV: Uripiv *b^wiliw* ‘*Ficus scabra*, *Ficus septica*’
 NCV: Lonwolwol *bulva* ‘wild cotton, *burau* tree’
 NCV: Lewo *(puru)piliva* ‘*Ficus scabra*’ (Walter & Sam 2002)
 NCV: Nguna *na-puliva* ‘sycamore’
 NCV: Namakir *na-biliv* ‘*Ficus scabra*’ (Walter & Sam 2002)
 NCV: S Efate *na-plip* ‘*Ficus granatum*’

PSOc **rivu-rivu* ‘small or medium-sized freestanding *Ficus* sp.’ (Lynch 2004a)

NCV: NE Ambae *(va)rivu* ‘*nambalanggo*’, i.e. ‘*Ficus wassa*’
 NCV: Raga *revrevo* ‘*Ficus obliqua*’ (Walsh 2004)
 NCV: Uripiv *awraw* ‘*Ficus tinctoria*’
 SV: Sye *na-revrep* ‘*Ficus obliqua*’
 SV: Kwamera *(k^w)ruviru* ‘*Ficus* sp.’
 SV: Anejoñ *ne-rere* ‘*Ficus obliqua*’

11 *Nut and fruit trees*

MALCOLM ROSS

1 Introduction

Arboriculture apparently played a role in Bismarck's food production long before the arrival of Austronesian speakers and the latter quite possibly acquired some of their arboriculture practices from Papuan speaking neighbours (chapter 2, §4). With the introduction of agriculture, garden and forest tended to overlap. Sometimes the garden would include food-bearing trees that survived from the primary forest, and sometimes food-bearing species would be planted in a garden or orchard or near to the village. At the same time, forest trees continued to be tended *in situ* and came to be owned by particular families.

Kennedy & Clarke (2004) and others have emphasised the cline that ranges from trees which grow wild in the bush to trees that are cultivated in orchards, with various degrees of tree-tending between the two extremes. Continuous cultivation entails domestication, i.e. ongoing control of reproduction and selection of varieties through the planting of ripe fruits or germinated seeds or through the transplanting of vigorous seedlings (Yen 1991). The resulting cultivars often have separate local names, whereas forest varieties generally do not. Walter & Sam (2002: 73–74) suggest that the geographic distribution of domesticated tree species reflects human settlement in the Pacific. As domesticated species they list the following: canarium nuts, *Canarium* spp., the Tahitian chestnut, *Inocarpus fagifer*, cutnuts, *Barringtonia edulis*, *B. novae-hiberniae* and *B. procera*, the Polynesian plum, alias golden apple, *Spondias cytherea*, the island lychee, *Pometia pinnata*, and the Malay apple, *Syzygium malaccense*. To this list Mueller-Dombois & Fosberg (1998: 56–57) add the dragon plum, *Dracontomelon vitiense* and Yen (1991) adds *Burckella obovata*. Paijmans (1976: 123–124) notes that in the New Guinea region *Terminalia catappa* and *T. kaernbachii* are also often planted.

All are actively cultivated close to villages and have been subject to continuous selection. Often they grow interspersed with coconut palms and breadfruit trees (themselves both domesticated species) on a piece of land close to the village, along with recently introduced citrus species. Actual tending is minimal; young seedlings are protected from the sun, weeds are removed, dead or damaged branches are cut off and the tree is sometimes pruned to reduce its height (Walter & Sam 2002: 74–76).

The remainder of this chapter is organised as follows. First, domesticated nut trees are treated (§2), then domesticated fruit trees (§3), and finally trees that are regularly exploited

for their fruit but are generally not domesticated (§4). The boundary around this last category is somewhat arbitrary. It includes trees which are often mentioned in the literature as sources of edible fruit. It excludes trees that are more often mentioned as having other uses: these include *Morinda citrifolia*, and various species of *Diospyros*, *Macaranga* and *Garcinia*, the fruits of which are all mentioned by Paijmans (1976: 124) as occasionally consumed. It also excludes those species of *Ficus* which have edible figs, as these are treated in ch.10, §4.

The trees investigated by Kennedy & Clarke (2004) in their examination of arboriculture include three that are considered among the staple foods in chapter 9: the banana plant (ch.9, §3), the breadfruit tree (ch.9, §4), and the sago palm (ch.9, §5.1). Another cultivated tree is *Gnetum gnemon*, the leaves of which serve as a green vegetable, treated in chapter 10, §2.3. These trees and plants are not considered further here, nor is the coconut palm, which is discussed in some detail in chapter 12. Instead, the focus of this chapter is nut- and fruit-bearing species that loom large in Bismarck's arboriculture.

2 Domesticated nut trees

Ironically none of the genera considered in this section is a true nut, but agriculturalists writing about Pacific plants (Bourke 1996, Evans 1999) call them nuts and it is convenient to retain this usage. Botanically nuts are single-seed dry fruits in which the seed remains separate from its hard enveloping pericarp. Examples are the hazelnut, *Corylus americana*, and the chestnut, *Castanea dentata*. Many 'nuts' in popular parlance are botanically drupes rather than nuts. In a drupe the pericarp consists of an outer skin or exocarp, a middle layer or mesocarp and a very hard inner layer or endocarp surrounding the seed. 'False nuts' consist of the endocarp and seed of a drupe. They include the first five genera discussed here—canarium almonds, *Canarium* spp. (§2.1), the sea almond and the okari nut, *Terminalia* spp. (§2.4), cut-nuts, *Barringtonia* spp. (§2.3), and the various species of *Pandanus*—as well as the coconut (see ch.12, figure 12.1), the candlenut, *Aleurites moluccana* (ch.13, §3.2), the macadamia, *Macadamia integrifolia*, and the almond proper, *Prunus dulcis*. Fleshy fruits like the peach, *P. persica*, the plum, *P. domestica*, the apricot, *P. armeniaca*, the ocean lychee, *Pometia pinnata* (§3.5) and mangoes, *Mangifera* spp. (§3.4), are also drupes, but the fleshy mesocarp is eaten, not the endocarp and seed. Some 'nuts', like the Brazil nut, *Bertholletia excelsa*, and the canarium nut, *Canarium indicum*, are simply seeds.

2.1 *Canarium* spp. (Burseraceae)

Canarium is one of a suite of plants that were domesticated in the rain forests of northern New Guinea during the early Holocene. Other members of the suite were the breadfruit (*Artocarpus altilis*) and the two fruit trees *Pometia pinnata* and *Burckella obovata* (Yen 1996). *Canarium* is the most important nut-bearing genus in Papua New Guinea, cultivated by almost a third of the rural population (Bourke & Allen forthcoming).

A number of *Canarium* species occur today in northwest island Melanesia (eight have been recorded in the Solomons) but only three cultivated species are common within their respective ranges: *C. indicum* (P ngali), *C. salomonense* (P andoa) and *C. harveyi* (Evans

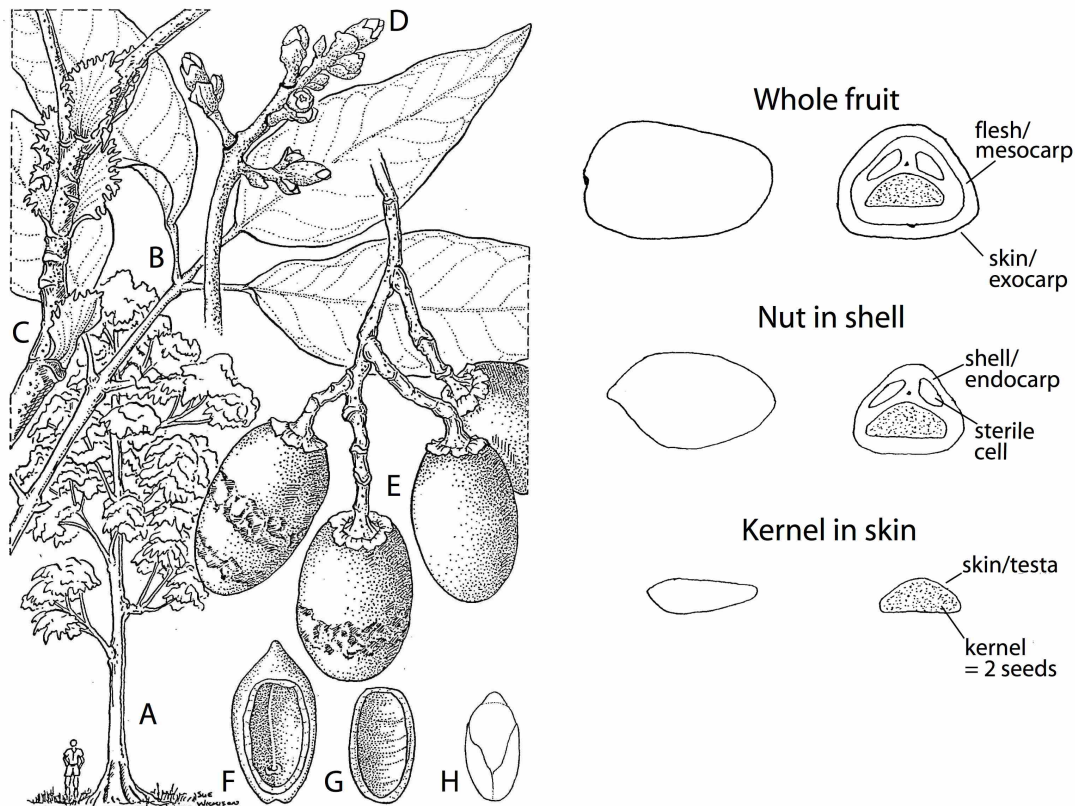


Figure 11.1 Left *Canarium indicum*: A, tree; B, portion of leaf showing terminal four leaflets; C, portion of branch showing large stipules (leaflike appendages at base of leaf stalk); D, immature inflorescence; E, cluster of fruit.; F, opened pericarp (exocarp + mesocarp + endocarp); G, opened shell/endocarp; H, edible kernel. Right Parts of the *Canarium indicum* fruit

1999: 3).¹ Of these, only *C. indicum* occurs in New Guinea and the Bismarcks (Bourke 1996), and was presumably the only common species known to POc speakers before they reached the Solomons. Its range extends from Halmahera to Vanuatu. *C. salomonense* is found in Bougainville and the Solomons and in New Guinea, but not in the Bismarcks. *C. harveyi* apparently originated on Santa Cruz Island as the result of selection and has spread eastward to Tikopia, Anuta, Fiji, Samoa, Tonga and Niue (Leenhouts 1959, Yen 1996).²

C. indicum grows to a height of 15–30 m and in the wild is one of the smaller trees of the rain forest canopy. The fruit is a drupe with an oily edible kernel. The skin (exocarp) of the fruit is green when unripe, black when ripe. The ripe flesh (mesocarp) is edible but astringent and deteriorates rapidly. Inside the flesh is the shell (endocarp) and inside the shell

¹ Two other nut-bearing species are cultivated in NW Melanesia: *C. lamii* along the north coast of New Guinea and the species with the largest trees and largest nuts, *C. decumanum*, in the Admiralties (Yen 1996). Their ranges are too narrow for them to be relevant here.

² Wild specimens with inedible nuts occur westward from Santa Cruz (Yen 1985: 320, Kwa'ioloa & Burt 2001: 104).

is the edible kernel consisting usually of two seeds, each enclosed in its own skin (testa), which is peeled off before the seeds are eaten (Evans 1999: 6; see Figure 11.1).

Particular tree species display considerable variation in their forms, and this variation reflects the time depth of cultivation and domestication. Thus round fruit predominate in Vanuatu, oval fruit in the Solomons. Nuts may contain one kernel or two, which may be white or yellow. The rhythm of flowering, which can be altered by vigorous pruning, varies so that trees can be harvested at different times. *C. indicum* trees are usually individually owned and in some areas are tended where they have grown naturally in the forest. In the Solomons most are planted near villages. *C. salomonense* is usually a cultivated tree. Solomon Islanders consider *C. indicum* to require more light than *C. salomonense*, and hence more attention has to be paid to clearing other trees around it (Evans 1999: 40). Walter & Sam (2002: 153) report that in Vanuatu spontaneously germinated seedlings or fully ripened fruits are sometimes planted in gardens or villages.

C. indicum and *C. salomonense* are especially valued for their oily nuts and there is evidence that this was already true in POc times (ch.2, §4). Canarium nuts are broken open with a stone. Along the northeast coast of New Guinea, in the Bismarcks, in Bougainville and in the Solomons, their kernels are eaten raw or smoked, or the smoked nuts are pounded with sago, bananas or a root crop³ to make an oily pudding (POc **puro-ŋ*, ch.12, §4.2) (Paijmans 1976: 123–124, Peekel 1984: 281, Bourke 1996, Kwa’ioloa & Burt 2001: 102). A Takia speaker once described the pudding to me as ‘pork when there is no pig’: it is presented to honoured guests. Hviding (2005: 128, 133) says it is ‘a very important food, as much now as in the old days’ in Marovo, where traditionally the first puddings were presented to spirits. Similarly on Small Malaita and Ulawa there were ceremonies associated with the first nuts: on Small Malaita this occurred with the first harvest in early August, on Ulawa when the first smoked nuts are ready. In both cases a priest sacrificed nuts and pudding to the ancestors (Ivens 1927: 367–369). On Choiseul *C. salomonense* has been elevated to a high level of spiritual significance manifested in a variety of practices (McClatchey et al. 2006a). The cultural importance of *Canarium* is seen in the Marovo term *buruburu* ‘*Canarium* spp. (generic)’, which is also used for ‘year’, the interval between two ripenings of canarium nuts (Hviding 2005: 107).

Among the Kwara’ae *Canarium* wood is regarded as unsuitable for building, as it becomes worm-eaten (Kwa’ioloa & Burt 2001: 103), but Powell (1976) reports that the Bola use it for canoe hulls and building materials. The Kwara’ae use its resin for caulking cracks in canoes.

C. harveyi is almost identical in appearance to *C. salomonense* and was earlier thought to be a variety of the latter. *C. salomonense* is dioecious, whereas *C. harveyi* is polygamodioecious, presumably as a result of selection (Evans 1999: 59). Both are similar in appearance to *C. indicum*.⁴ The shell of a *C. salomonense* nut cracks into two halves when it is hammered, whereas the shell of *C. indicum* shatters. Both are processed and eaten in much the same ways (Record 1945; Kwa’ioloa & Burt 2001: 104).

³ For example among Takia and Kwara’ae speakers and on Small Malaita the pudding is made with taro (*Colocasia esculenta*), on Ulawa with yams (*Dioscorea esculenta*) (personal observation, Kwa’ioloa & Burt 2001: 102, Ivens 1927: 367–369).

⁴ According to Record (1945) *C. salomonense* is shorter than *C. indicum*, around 15 m. tall, but Evans’ (1999: 40) survey of Solomons *Canarium* species found that the two had similar average heights, around 20 m, both 7 m taller than *C. harveyi*.

Of the three terms reconstructed below, POc **[ka]ŋaRi* was almost certainly the term for *C. indicum* as well as the generic term for *Canarium* species.⁵

Note that the initial syllable of **[ka]ŋaRi* is reflected only in Admiralties, North New Guinea and Papuan Tip languages (and perhaps in Raga and Namakir), whereas Meso-Melanesian and Eastern Oceanic reflexes point to **ŋaRi*. This distribution justifies the reconstruction of POc forms with and without initial **ka-*, which may represent or have been reanalysed as the prefix **ka-* ‘tree’ reflecting earlier **kayu* ‘tree’ (ch.2, §7.1.2). Bola *taŋari* may reflect the addition of an otherwise unknown prefix *ta-* to **ŋaRi*.

Marshallese *kaŋal* ‘*Pisonia grandis*’ looks as if it is a borrowing from a language retaining initial *ka-*, i.e. Admiralties or Western Oceanic, but on current knowledge of Oceanic settlement history it is difficult to see how this could have occurred.

PCEMP **ka(nŋ)aRi* ‘canarium almond, *Canarium* spp.’

POc **[ka]ŋaRi* ‘canarium almond, *Canarium indicum*’

Adm: Lou	<i>kane</i>	‘canarium almond’
Adm: Titan	<i>aŋei</i>	‘almond’
Adm: Baluan	<i>kanai</i>	‘canarium almond’ (Nevermann 1934)
Adm: Sori-Harengan	<i>kenai</i>	‘canarium almond’ (Nevermann 1934)
Adm: Papitalai	<i>aŋei</i>	(glossed ‘almond’ by Nevermann 1934)
NNG: Kove	<i>aŋahi</i>	‘canarium almond’ (A. Chowning, pers. comm.)
NNG: Lukep (Pono)	<i>kaŋar</i>	‘canarium almond’
NNG: Maenge	<i>kaŋali</i>	‘canarium almond’
NNG: Takia	<i>aŋar</i>	‘canarium almond’
NNG: Manam	<i>kaŋari</i>	‘canarium almond’
PT: Muyuw	<i>kinay</i>	‘canarium almond’
MM: Bola	<i>taŋari</i>	‘canarium almond, <i>Canarium indicum</i> ’ (<i>t-</i> for expected † <i>k-</i>)
MM: Kara (E)	<i>ŋai</i>	‘canarium almond, <i>Canarium indicum</i> ’
MM: Patpatar	<i>ŋar</i>	‘canarium almond, <i>Canarium indicum</i> ’
MM: Uruava	<i>nari</i>	‘canarium almond’
MM: Vagunu	<i>ŋari</i>	‘canarium almond’
MM: Kusaghe	<i>ŋari</i>	‘ <i>Canarium indicum</i> ’ (Evans 1999:39)

PEOc **[qa]ŋaRi* ‘canarium almond, *Canarium* spp.’

SES: Bugotu	<i>ŋali</i>	‘canarium almond’ (W. McClatchey, pers. comm.)
SES: Gela	<i>ŋali</i>	‘canarium almond’
SES: Kwara’ae	<i>ŋali</i>	‘canarium almond’
SES: Lau	<i>ŋali</i>	‘canarium almond’
NCV: Mwotlap	<i>na-ŋey</i>	‘canarium almond’
NCV: Mota	<i>ŋai</i>	‘canarium almond’
NCV: NE Ambae	<i>ŋai</i>	‘canarium almond’
NCV: Araki	<i>ŋa-ŋa</i>	‘canarium almond’
NCV: Raga	<i>aŋai</i>	‘native almond; kidney’
NCV: Naman	<i>n-eŋe</i>	‘canarium almond’

⁵ PCEMP **ka(nŋ)aRi* is reconstructed on the basis of the Oceanic data here and of Bima *kanari*, Far East Manggarai (Toring *kenari*, Solorese *kenari* (all CMP) (Verheijen 1990: 197).

NCV: Nese	<i>n-eŋa</i>	‘canarium almond’
NCV: Port Sandwich	<i>ni-ŋai</i>	‘canarium almond’
NCV: Paamese	<i>iŋā</i>	‘canarium almond’
NCV: Lewo	<i>(pur)ŋi</i>	‘canarium almond’
NCV: Namakir	<i>?aŋa</i>	‘canarium almond’
NCV: Nguna	<i>na-ŋai</i>	‘canarium almond’
NCV: S Efate	<i>na-ŋe</i>	‘canarium almond’
SV: Sye	<i>na-ŋai</i>	‘canarium almond’
SV: Lenakel	<i>na-ŋe</i>	‘canarium almond’
SV: Anejoñ	<i>na-ŋai</i>	‘canarium almond’
SV: Sye	<i>na-ŋai</i>	‘canarium almond’

cf. also:

Mic	Marshallese	<i>kaŋal</i>	‘ <i>Pisonia grandis</i> ’
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The denotatum of PWOC **pinuaq* is not clear, as the one Papuan Tip witness is glossed ‘*Terminalia catappa*’, the Meso-Melanesian witnesses all ‘canarium almond’, presumably *C. indicum*. It is possible—but not probable—that the items listed below reflect POC **pinu(q)an* ‘*Macaranga* spp.’ (§2.5) with a change in denotatum.

PWOC **pinuaq* ‘a nut tree, perhaps *Canarium* sp. (?)’

PT: Lala	<i>viŋu</i>	‘ <i>Terminalia catappa</i> ’
MM: Paṭpatar	<i>hinuai</i>	‘canarium almond, <i>Canarium indicum</i> ’
MM: Bilur	<i>inuai</i>	‘canarium almond’
MM: Kandas	<i>nui</i>	‘canarium almond’
MM: Tinputz	<i>winoa</i>	‘canarium almond’
MM: Kia	<i>finua</i>	‘ <i>Canarium salomonensis</i> ’ (W. McClatchey, pers. comm.)

The POC reconstructions **(q)alipa* and **lalipa* are problematic both semantically and formally. The nut described in the Drehet gloss is not readily recognisable; the Mangap reflex is glossed *Terminalia catappa*, the Kwara’ae *Inocarpus fagifer*, and the rest, all NNG or MM, ‘canarium almond’. The principal formal difficulty is the initial consonant. Drehet has accreted *n-*, reflecting the PAdm article **na*, and points to POC initial **q-* or the absence of an initial consonant (Ross 1988: 340–341), i.e. **(q)alip*, as do the Tami and Numbami reflexes. The other North New Guinea forms and Kwara’ae (SES) reflect a variant **lalip*. The Minigir and Tolai reflexes reflect a variant in *g-*, rather than expected *†k-* reflecting **q-*. Finally, the Drehet, Mangap and Tolai forms point to the presence of a final vowel, and Tolai attests to *-a*,⁶ but Kwara’ae unexpectedly lacks the final syllable. If this term did indeed denote the canarium nut, then it may be that cultivars of this culturally significant item have been propagated from one location to another, and the term for them has been borrowed at the same time.

⁶ The Drehet final consonant points to loss of a following vowel. In Mangap a final vowel is regularly assimilated to the penultimate vowel. In Numbami *-a* is added after the reflex of a POC final consonant, and so final *-a* is not diagnostic of a POC final vowel.

POc **(q)alipa, *lalipa* ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?)

Adm:	Drehet	<i>n-elip</i>	‘k tree: nut, grows wild, very hard skin, oval, about one centimetre long, dark green’ (perhaps <i>Canarium chinare</i> ; J. Kennedy, pers. comm.)
NNG:	Mangap	<i>lelivii</i>	‘ <i>Terminalia catappa</i> ’
NNG:	Dami	<i>lali</i>	‘canarium almond’
NNG:	Tami	<i>yalip</i>	‘canarium almond’
NNG:	Numbami	<i>yalipa</i>	‘canarium almond’
NNG:	Yabem	<i>lanip</i>	‘canarium almond’
NNG:	Kaiwa	<i>lalip</i>	‘canarium almond’
NNG:	Kairiru	<i>laliu</i>	‘big, red canarium almond’
NNG:	Ulau-Suain	<i>lilii</i>	‘canarium almond’
MM:	Minigir	<i>galip</i>	‘canarium almond’
MM:	Tolai	<i>galipa</i>	‘canarium almond’
SES:	Kwara’ae	<i>(?ai)lali</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’ (lit. ‘kidney tree’)

Kwa’ioloa and Burt (2001:119) note that Kwara’ae *lali* is also used for ‘kidney’. However, the semantic extension is from ‘nut’ to ‘kidney’, not vice versa, as the use of ‘nut’ words for kidneys is quite common, e.g. Arosi *kora i mab^we* ‘kidneys’ (lit. ‘fruit of Tahitian chestnut’), Niuean *fua-ifi* ‘kidney’ (lit. ‘fruit of Tahitian chestnut’).

2.2 *Inocarpus fagifer* (syn. *I. fagiferus*, *I. edulis*), Tahitian chestnut, Pacific chestnut, Polynesian chestnut, TP *aila*, B *namambe* (Fabaceae)

Inocarpus fagifer is a common second storey tree of the foreshore or lowland forest, reaching 15–30 m in height in the Bismarcks but shorter on islands further east. Its trunk is straight and fluted (Figure 11.2). Its fruit is a pod about 8 cm long which does not release its single white seed, which must be cooked to be palatable. The enormous variety of its forms reflects the fact that it has long been cultivated (Bourke & Allen (forthcoming) report that it is cultivated by a sixth of Papua New Guinea’s rural population). Leaves may be elongated and narrow or oblong and wide. The fruit may be rounded, crescent-shaped or elongated-oval and green, brown or yellow (Walter & Sam 2002: 183–184). Right across Oceania it is either boiled or roasted like a chestnut (Paijmans 1976: 124, Evans 1999: 19–21, S. Foale 2001, Walter & Sam 2002: 183, Gardner & Pawley 2006). Hence the English term ‘Tahitian chestnut’. It is then either eaten without further treatment, or in the Solomons and Fiji grated on coral and made into bread or pudding (Capell 1941, Peekel 1984: 245, Evans 1999: 19, Walter & Sam 2002: 185). In parts of

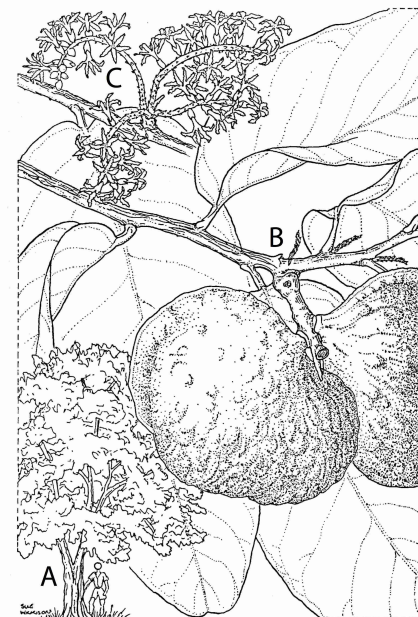


Figure 11.2 *Inocarpus fagifer*, Tahitian chestnut: A, tree; B, portion of branch bearing fruit; C, inflorescence.

Vanuatu it is a major alternative food between the two yam seasons, and the nuts are stored in various ways (Walter & Sam 2002: 185).

The cooked seed varies in taste and villagers choose trees according to the taste of their seeds. The tree spreads naturally and prolifically and is then often carefully protected. Seedlings that grow around the base of the trunk are left in place if the tree is little used, but removed from others so that fallen fruit can be harvested more easily. In Vanuatu seedlings of trees bearing fruit preferred by villagers are transplanted close to the village, but this seems to occur less commonly in the Solomons (Walter & Sam 2002: 184–185).

On Lihir the leaves of *Inocarpus fagifer* are used to parcel up food for cooking in a stone oven (S. Foale 2001). The wood is brittle and susceptible to borers and in general little used, but in Fiji and Tonga tool handles are made from the flutes of its trunk (Walter & Sam 2002: 186, Gardner & Pawley 2006).

Blust (ACD) argues that Dempwolff (1938) confused reflexes of POc *qipil ‘ironwood, *Intsia bijuga*’ (ch.7, 4.9) with those of POc *ipi ‘Tahitian chestnut, *Inocarpus fagifer*’. The difference between the two denotata, he suggests, justifies separate reconstructions. He is certainly right, as Marovo has distinct reflexes of the two terms, respectively *kivili* and *ivi*.⁷

POc *ipi ‘Tahitian chestnut, *Inocarpus fagifer*’

Adm:	Mussau	<i>ii</i>	‘Tahitian chestnut’
NNG:	Amara	<i>(e)ip</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’
NNG:	Lukep (Pono)	<i>ip</i>	‘nut-bearing tree’
NNG:	Gitua	<i>ipi</i>	‘Tahitian chestnut’
NNG:	Bing	<i>yip</i>	‘Tahitian chestnut’
NNG:	Takia	<i>ip</i>	‘Tahitian chestnut’
PT:	Bwaidoga	<i>yivi</i>	‘wild chestnut’
MM:	Simbo	<i>ivi</i>	‘Tahitian chestnut’
MM:	Nduke	<i>ivi</i>	‘Tahitian chestnut’
MM:	Marovo	<i>ivi</i>	‘Tahitian chestnut’
MM:	Gao	<i>na-efi</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’ (W. McClatchey, pers. comm.)
MM:	Maringe	<i>na-ifi</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’ (W. McClatchey, pers. comm.)

PEOc *ipi ‘Tahitian chestnut, *Inocarpus fagifer*’

Mic:	Kiribati	<i>ibi</i>	‘Tahitian chestnut’
Fij:	Bauan	<i>ivi</i>	‘Tahitian chestnut’
Fij:	Wayan	<i>ivi</i>	‘Tahitian chestnut’
Fij:	Rotuman	<i>?ifi</i>	‘Tahitian chestnut’
Pn:	Tongan	<i>ifi</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’
Pn:	Anutan	<i>ipi</i>	‘Tahitian chestnut’
Pn:	Samoan	<i>ifi</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’
Pn:	Rarotongan	<i>iʔi</i>	‘Tahitian chestnut’

⁷ Reasons for the confusion are (i) that Rotuman *?ifi* ‘*Inocarpus fagifer*’ has an unexpected initial ?- (this is probably an outcome of borrowing), and (ii) that Samoan—as a result of regular sound changes—reflects both as *ifi*, and disambiguates them by adding an extra morpheme when the term denotes the ironwood: *ifi-lele* ‘a large timber tree, *Intsia* sp.’ and *ifi-fatu* ‘a hard-grained *ifi-lele*’ as opposed to *ifi* ‘*Inocarpus* sp.’. Bwaidoga *y*-reflects an unpredictable accretion.

PEOc **mab*^w*e* ‘Tahitian chestnut, *Inocarpus fagifer*’ (Lynch 2004a; Chowning 2001:

**m*^(w)*ap*^(w)*e*)

SES:	Sa’a	<i>map</i> ^w <i>e</i>	‘Tahitian chestnut’
SES:	Santa Ana	<i>m</i> ^w <i>ap</i> ^w <i>e</i>	‘Tahitian chestnut’
SES:	Kahua	<i>mabe</i>	‘Tahitian chestnut’ (Henderson & Hancock 1988)
NCV:	Mota	<i>mab</i> ^w <i>e</i>	‘tree sp.’
NCV:	NE Ambae	<i>mag</i> ^w <i>e</i>	‘Tahitian chestnut’
NCV:	Nokuku	<i>mape</i>	‘Tahitian chestnut’
NCV:	Kiai	<i>mape</i>	‘Tahitian chestnut’
NCV:	Tamambo	(<i>vu</i>) <i>mabue</i>	‘Tahitian chestnut’
NCV:	Araki	<i>ueŋe</i>	‘Tahitian chestnut’
NCV:	Raga	<i>m</i> ^w <i>ab</i> ^w <i>e</i>	‘tree sp.’
NCV:	Nese	<i>na-mab</i>	‘Tahitian chestnut’
NCV:	Port Sandwich	<i>na-mb</i> ^w <i>e</i>	‘Tahitian chestnut’
NCV:	Namakir	<i>m</i> ^w <i>am</i> ^w	‘Tahitian chestnut’
NCV:	Nguna	<i>na-m</i> ^w <i>ap</i> ^w <i>e</i>	‘Tahitian chestnut’
SV:	Anejoñ	<i>n-map</i> ^w	‘Tahitian chestnut’ (Wheatley 1992: 143)
Pn:	Rapanui	<i>mape</i>	‘kidney’
Pn:	Mangarevan	<i>mape</i>	‘local chestnut’
Pn:	Pukapukan	<i>mape</i>	‘ovary’
Pn:	Tahitian	<i>māpē</i>	‘kidney; <i>Inocarpus fagifer</i> ’

Ivens (1929) assumes that Sa’a (SES) *map*^w*e* ‘*Inocarpus fagifer*’ is a borrowing from Mota, but this supposition seems unnecessary.

The Tahitian reflex above is glossed ‘kidney’ as well as ‘*Inocarpus fagifer*’, and the Rapanui reflex denotes only ‘kidney’. As noted in §2.1, there is a tendency for names of nuts also to be used as (or as part of) the term for the kidney.

2.3 *Barringtonia* spp. other than *B. asiatica*, cutnut, bush nut, TP *pao*, B *navele* (Lecythidaceae)

The genus *Barringtonia* has a number of species (see also ch.5, §5.2), but only three have edible nuts: *B. novae-hiberniae* (syn. *B. oblongifolia*, *B. brosimos*), *B. procera* (syn. *B. magnifica*, *B. excelsa*, *B. schuchardtiana*, *B. guppyana*) and *B. edulis* (syn. *B. calyprata*, *B. excelsa*, *B. samoensis*, *B. seaturae*). They are small trees, growing to between 7 and 20 m, which fruit 2–3 times a year, producing a fruit with a fleshy exocarp, a thin fibrous mesocarp and a thin, hard endocarp, within which is a large oily seed with a thin, minutely hairy skin (Figure 11.3).⁸ The seed is edible raw or cooked (Evans 1999: 12–17, 31, 44, Gardner & Pawley 2006). *Barringtonia* species with edible nuts grow today in villages on northeast mainland New Guinea and in the Bismarcks, the Solomons and in Vanuatu.

Peekel 1984: 397 says that the seeds of *B. novae-hiberniae* are superior to those of *B. procera*. Otherwise the three species are very similar and are sometimes confused in botanical reports. Jebb (1992) provides a careful and relatively recent study of the edible species, and

⁸ In view of the discussion in this section, a figure showing *B. novae-hiberniae* would be preferable, but none could be found.

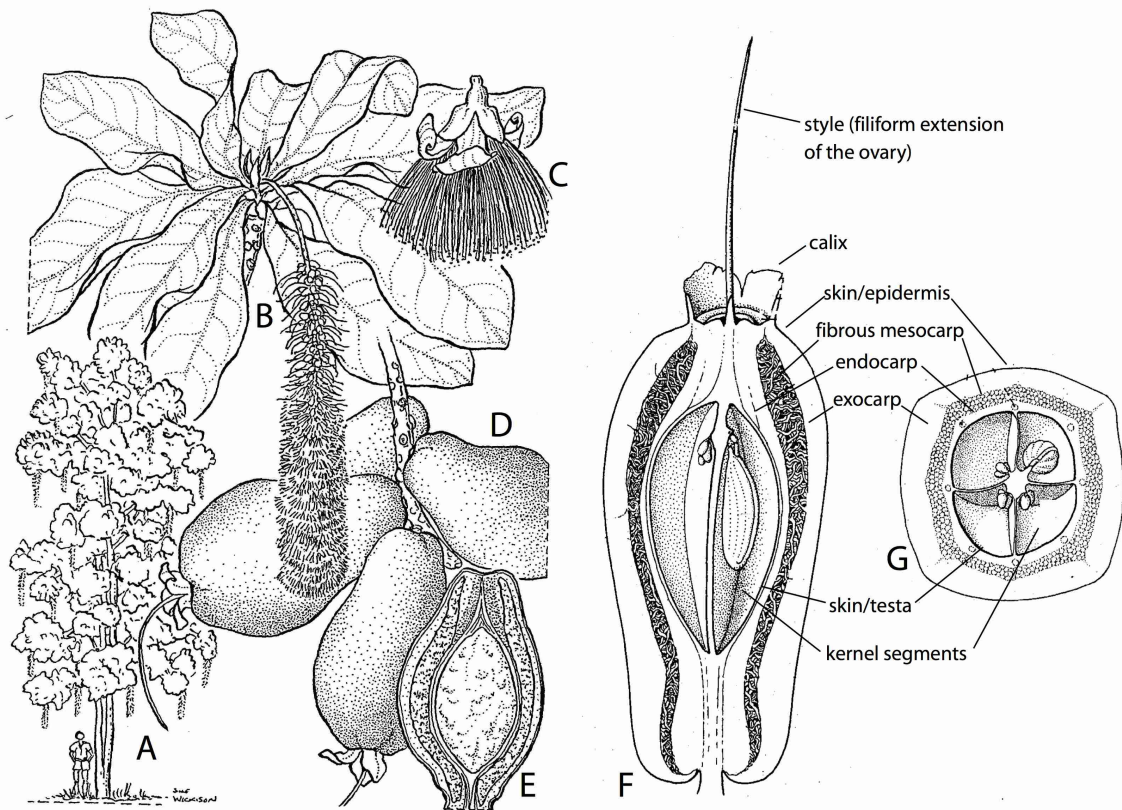


Figure 11.3 *Barringtonia edulis*, cut nut: A, tree; B, flowering shoot; C, flower; D, portion of string of fruit; E, longitudinal section of ripe fruit and edible kernel (from Henderson & Hancock 1988: 62), F, detailed longitudinal section of fruit; G, transverse section of fruit.

the synonyms above are based on his listing. There are numerous cultivars, and this has led to the proliferation of synonyms as well as confusions about which species a given cultivar represents. Evans (1999: 38) comments that in indigenous Solomons taxonomies *B. edulis* is often classified with *B. novae-hiberniae*.

Of the three species, it seems probable that only *B. novae-hiberniae* was present in the Bismarcks in early Oceanic times, although, like *B. edulis*, it is only a minor food source in present-day Papua New Guinea. It is the only species of the three which grows wild in the forests of Papua New Guinea (Jebb 1992), and it is also the species which Peekel (1984: 397) reports as being tended or planted in gardens and around villages in New Ireland for its edible seeds.

All three species grow wild in the forests of the Solomon Islands, often in wet places. *B. novae-hiberniae* is more likely to grow wild (it is considered to be the most shade-tolerant of the three species), whilst *B. procera* and *B. edulis* are more likely to grow near villages where they are often transplanted to groves along with *Canarium* trees (Evans 1999: 40–41, Hviding 2005: 146).

Jebb (1992) reports that wild specimens of *B. procera* have only been found in the Solomons. Cultivated varieties of *B. procera* abound in the Solomons and Vanuatu, suggesting that it has long been domesticated there (Walter & Sam 2002: 118). Indeed, local informants

told Yen (1996) that *B. procera* originated on Santa Cruz Island in the extreme east of the Solomons, and he appears to entertain this possibility. Thus it seems to have been transported from the Solomons and Bougainville to New Ireland and thence to the Gazelle Peninsula of New Britain and the Admiralties (Bourke 1996), perhaps in the last thousand years. The fact that it had not spread to the rest of New Britain or to New Guinea by 1870 suggests that its spread occurred later rather than earlier.⁹ J. Kennedy's (pers. comm.) informants in the Admiralties regard *B. procera* as old there, and Bourke (forthcoming) regards it as a pre-contact introduction. If this reconstruction of events is correct, then it may be that *B. procera* displaced earlier *B. novae-hiberniae* cultivation in the Bismarcks.¹⁰

Peekel apparently did not find *B. edulis* in New Ireland during his work, which predated the second World War. On the other hand, in Fiji it is the only edible *Barringtonia* species and grows wild in both open and dense forest (it is rarely cultivated there; Jebb 1992). It also grows in the wild and occurs in many varieties in the Solomons and Vanuatu, indicating a long cultivation history (Walter & Sam 2002: 112–113). These facts suggest that *B. edulis* may have been brought to the Bismarcks very recently.

These considerations influence the interpretation and glossing of the reconstructions below. Only one POC term, **pala(ŋ)*, can be convincingly reconstructed for edible *Barringtonia*, and it is a reasonable inference that it denoted *B. novae-hiberniae*. Peekel reports two varieties in New Ireland: the more desirable variety has fruit 'blackish-purple to wine-red', the other pale green. In Patpatar, the red variety is called *paua kubar*, the green *paua pala*.¹¹ It is thus possible that POC **pala(ŋ)* denoted the green variety.

The final **(ŋ)* is added on the basis of Kara *falaŋ*. However, the absence of a reflex in other Meso-Melanesian languages, where a final-consonant reflex is expected, makes its reconstruction doubtful.

POC **pala(ŋ)* 'cut nut, bush nut, *Barringtonia novae-hiberniae* (green variety?)'

MM:	Kara (E)	<i>falaŋ</i>	' <i>Barringtonia novae-hiberniae</i> '
MM:	Patpatar	<i>(paua) pala</i>	' <i>Barringtonia novae-hiberniae</i> , variety with pale green fruit'
MM:	Kokota	<i>fala</i>	'cut nut'
MM:	Gao	<i>fala</i>	' <i>Barringtonia edulis</i> ' (W. McClatchey, pers. comm.)
MM:	Maringe	<i>fala</i>	' <i>Barringtonia procera</i> , cut nut' (Evans 1999:39)
TM:	Tanabili	<i>no-volo</i>	'cut nut'
TM:	Tanema	<i>vara</i>	'cut nut' (-r- for †-l-)

⁹ Its spread to locations elsewhere in Papua New Guinea is a post-contact phenomenon (R.M. Bourke, pers. comm.).

¹⁰ In Kara, Patpatar and Tolai of New Ireland the name of *B. procera* is a compound (e.g. *paua-hutun* in Patpatar) of the names of *B. novae-hiberniae* (*paua*) and *B. asiatica* (*hutun*) (Peekel 1984: 397). Jebb (1992) suggests that this is evidence for a recent introduction of *B. procera* into the Bismarck Archipelago (he cites Bourke's research). This is only weak circumstantial evidence, however, as a glance through Peekel shows that such compound plant names are common, and Evans (1999) reports that such a compound is used in S Malaitan to denote *B. edulis* because the nut is eaten but fish poison is extracted from the bark.

¹¹ Predictably, *kubar* means 'red'. However, *pala* means 'coconut husk', perhaps alluding to the green pericarp of an unhusked young coconut. However, this term does not reflect either of the POC terms reconstructed for 'coconut husk' (ch.12, §4.4.)

PEOc **pala* ‘cut nut, bush nut, *Barringtonia* sp.’

SES:	Talise	<i>vala</i>	‘cut nut’
SES:	Kwara’ae	<i>fala</i>	‘ <i>B. procera</i> , <i>B. edulis</i> , <i>B. novae-hiberniae</i> ’ (W. McClatchey, pers. comm.)
SES:	Arosi	<i>hara</i>	‘ <i>Barringtonia edulis</i> ’
SES:	Bauro	<i>hara</i>	‘cut nut’
SES:	Kahua	<i>hara</i>	‘cut nut’
NCal:	Nyelâyu	<i>pālac</i>	‘ <i>Barringtonia neocaledonica</i> ’
Fij:	Wayan	<i>(kutu)vala</i>	‘ <i>Barringtonia edulis</i> , with large seed edible raw or cooked’

Also seemingly reconstructable on the basis of the cognate set below is POC **pele*, but the fact that it differs from POC **pala(ŋ)* only in its vowels suggests that some or all of the terms in the set reflect borrowings associated with the westward expansion of either *B. procera* or *B. edulis*. Additionally problematic are the fact that the two terms found in New Britain (Nakanai, Meramera *uele*) denote other nut trees and not a *Barringtonia* sp., and the fact that they reflect POC initial **w-* rather than **p-*.

MM:	Nakanai	<i>uele</i>	‘ <i>Canarium mehenbethane</i> ’ (Floyd 1954)
MM:	Meramera	<i>uele</i>	‘Tahitian chestnut’
MM:	Vaghua	<i>vele</i>	‘cut nut’
MM:	Babatana	<i>vele</i>	‘ <i>B. procera</i> , <i>B. edulis</i> , <i>B. novae-hiberniae</i> ’ (W. McClatchey, pers. comm.)
NCV:	Mota	<i>vele</i>	‘ <i>Barringtonia edulis</i> ’
NCV:	Tamambo	<i>(vu)vale</i>	‘ <i>Barringtonia edulis</i> ’
NCV:	Raga	<i>vele</i>	‘ <i>Barringtonia edulis</i> ’
NCV:	Apma	<i>v^wel</i>	‘ <i>Barringtonia edulis</i> ’
NCV:	Lonwolwol	<i>woleh</i>	‘a common edible nut’
NCV:	Namakir	<i>vil</i>	‘ <i>Barringtonia edulis</i> ’
NCV:	Nguna	<i>na-vīla</i>	‘ <i>Barringtonia edulis</i> ’
SV:	Sye	<i>vel(ŋah)</i>	‘ <i>Barringtonia edulis</i> ’
SV:	Ura	<i>ni-ver(ŋi)</i>	‘ <i>Barringtonia edulis</i> ’

Although **kinu* ‘edible *Barringtonia* species’ has reflexes in both Meso-Melanesian and SE Solomonic languages, the members of the set are spread across the border between Western and Eastern Oceanic, so borrowing is more probable than shared inheritance from POC.

MM:	Roviana	<i>kinu</i>	‘ <i>Barringtonia</i> sp., with edible nut’
MM:	Nduke	<i>kino</i>	‘cut nut’
MM:	Hoava	<i>kinu</i>	‘cut nut’
MM:	Kusaghe	<i>kinu</i>	‘ <i>Barringtonia procera</i> , cut nut’ (Evans 1999:39)
SES:	Gela	<i>kinu</i>	‘k shore tree with ed. fruit’
SES:	Lau	<i>kinu</i>	‘cut nut, <i>Barringtonia edulis</i> ’
SES:	Kwaio	<i>kinu</i>	‘cut nut’
SES:	Kwara’ae	<i>kiun-kinu</i>	‘cut nut, <i>Barringtonia edulis</i> ’ (Evans 1999:39)

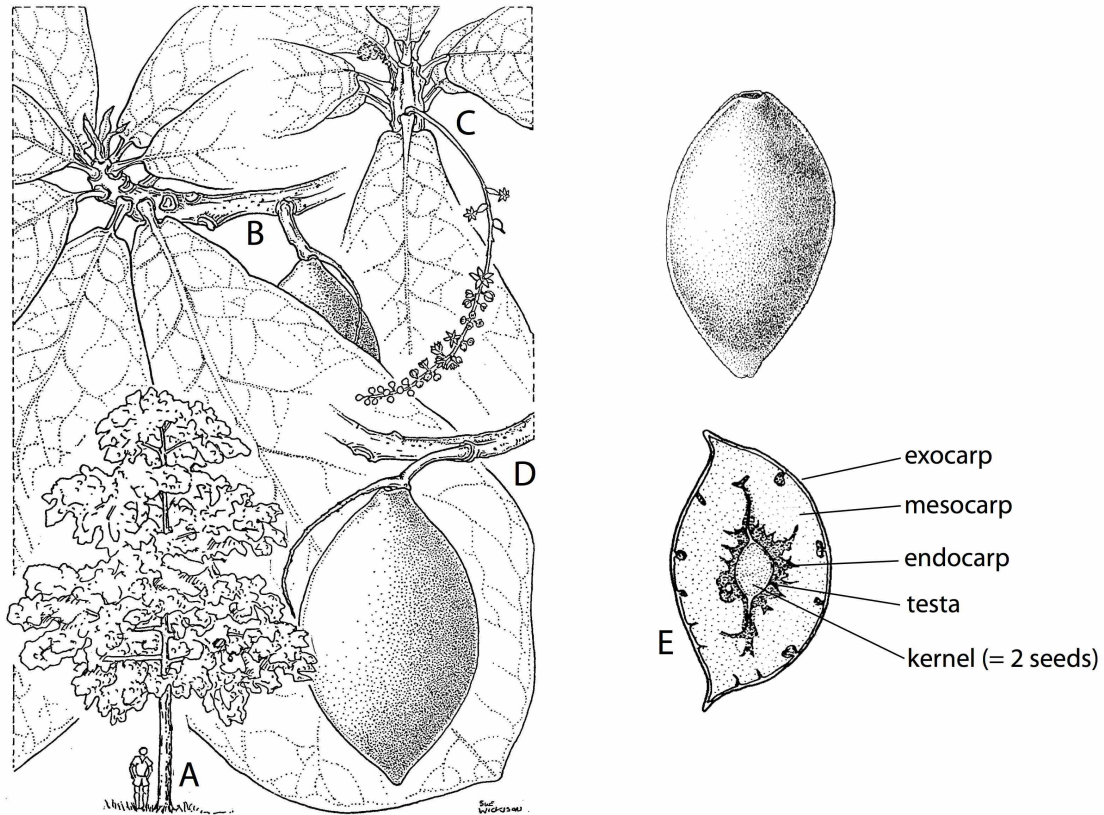


Figure 11.4 *Terminalia catappa*, sea almond: **Left** A, tree; B, shoot bearing fruit; C, flowering shoot; D, fruit with edible kernel (from Henderson & Hancock 1988: 71). **Right** Parts of fruit: E, longitudinal section.

2.4 *Terminalia* spp. (Combretaceae)

A number of *Terminalia* species have edible ‘nuts’, but only two are reported to be planted in NW Island Melanesia. They are *T. catappa* (sea almond, Indian almond, Java almond, TP *talis*, P *alite*, B *natavoa*) and *T. kaernbachii* (okari nut, B *natalie*).¹² *T. catappa* is distributed from southern India to Polynesia, but *T. kaernbachii* occurs indigenously only in New Guinea and the Bismarck Archipelago (Bourke 1996, Walter & Sam 2002: 260). Several other species with edible nuts occur in NW Island Melanesia but are only harvested from the wild (*T. copelandii*, *T. impediens*; Paijmans 1976: 123–124), and yet other species have fruits with edible flesh (*T. megalocarpa*, syn. *T. solomonensis*, *T. lapalagon*). Several *Terminalia* species found indigenously in the Solomons provide good timber: *T. brassii*, *T. calamansanai* and *T. sepicana* (Evans 1999: 10–11).

Terminalia catappa is a stout broad tree growing to 10–25 m, with a short, often twisted, easily climbed bole. It prefers moister environments, is a common foreshore tree in New

¹² In Hiri Motu, the *lingua franca* of parts of southern Papua New Guinea, the term *okari* denotes *T. kaernbachii*; in Tok Pisin it denotes *T. impediens*, cultivated on the coasts of the Madang, East Sepik and Sandaun Provinces of mainland Papua New Guinea; (Bourke & Allen forthcoming).

Guinea and the Bismarcks, and grows along the coastal strip up to an altitude of 300 m. It also grows in the floodplain forests and streambanks of Bougainville (Peekel 1984: 403, Mueller-Dombois & Fosberg 1998: 60, Bourke & Allen forthcoming). Its leaves turn red and fall about four times a year, providing a calendrical marker in lagoon environments in Fiji. The fruit of *T. catappa* has a thin, fleshy exocarp covering a fibrous mesocarp fused with a thick, hard, irregular endocarp (the stone), within which is an edible seed with an almond-like taste enclosed in a red skin (testa) (Figure 11.4), eaten raw or roasted (Evans 1999: 12–13).

Terminalia kaernbachii is more slender and has thinner branches than *T. catappa*. It is also taller, growing to 20–40 m (Peekel 1984: 403, Evans 1999: 41). Its fruit is the largest known among the Combretaceae and contains a large edible seed which ranges in weight from 1.5 to 10 g. Its distribution is quite different from the coastal *T. catappa*. It prefers instead inland environments up to an altitude of 1100 m with a greater diurnal temperature range. Until recently its distribution in the Bismarcks was limited to the extreme west of New Britain and to Manus Island in the Admiralties (Walter & Sam 2002: 260, Bourke & Allen forthcoming, pers. comm.). Unfortunately, *T. kaernbachii* has received relatively little attention in the literature, partly perhaps because of its restricted distribution and partly because it is overshadowed by the better known and far more widespread *T. catappa*.

The literature also attributes little importance to *T. catappa*, but this reflects a decline in its consumption since European contact. In the Solomons and Fiji the nuts tend to be eaten raw as snacks and collected by children, but they are not (or no longer?) used in cooking. Pajmans (1976: 123–124) and R.M. Bourke (pers. comm.) report that it is often planted and is a common village shade tree in New Guinea and the Bismarcks. Walter & Sam (2002: 255) say that *T. catappa* nuts are sometimes preserved by smoking in New Britain and Bougainville. The situation in Vanuatu is ambiguous. Walter & Sam (2002: 255) report that *T. catappa* is largely spread by birds and bats, and little cultivated, but the fact that there are many varieties there may point to past selection through planting.

In Vanuatu and on Waya (Fiji) the wood of *T. catappa* was carved. In Vanuatu it is also used for canoes and for the frameworks of buildings (Walter & Sam 2002: 255–256, Gardner & Pawley 2006). In Marovo juice squeezed from the leaves makes a medicine against various pains including toothache. Bark scrapings wrapped in leaves and heated over a fire are squeezed to produce a liquid given to children who have a sore throat, cough or diarrhoea, and it has similar uses in Vanuatu (Walter & Sam 2002: 256, Hviding 2005: 145).

Comments in the agronomic literature about the relative insignificance of *T. catappa* are belied by the fact that there is a term with very widespread reflexes, namely POC **talise*. The denotatum of reflexes from New Guinea and the Bismarcks is usually noted simply as '*Terminalia* sp.', but it is a reasonable inference that reflexes from coastal locations in New Guinea, from New Britain and New Ireland and from small islands all denote *T. catappa* (R.M. Bourke, pers. comm.) and that this was the denotatum of POC **talise*. If this interpretation is correct, then no term for *T. kaernbachii* is reconstructable on the basis of the available data.

PMP **talisay* '*Terminalia catappa*' (Dempwolff 1938)

POC **talise* '*Terminalia catappa*' (Milke 1961)

Adm: Seimat	<i>talil</i>	' <i>Terminalia</i> sp.' (Sorensen 1950)
Adm: Lou	<i>telit</i>	' <i>Terminalia</i> sp.'
Adm: Loni	<i>telus</i>	' <i>Terminalia</i> sp.'

Adm:	Titan	<i>drilis</i>	' <i>Terminalia</i> sp.'
NNG:	Maenge	<i>talisi</i>	' <i>Terminalia catappa</i> '
NNG:	Kove	<i>talize</i>	' <i>Terminalia</i> sp.'
NNG:	Tami	<i>talit</i>	' <i>Terminalia</i> sp.'
NNG:	Kela	<i>tarik</i>	' <i>Terminalia</i> sp.'
NNG:	Takia	<i>tali</i>	' <i>Terminalia</i> sp.'
NNG:	Kairiru	<i>talīs</i>	' <i>Terminalia</i> sp.'
MM:	Vitu	<i>taðile</i>	' <i>Terminalia</i> sp.' (metathesis)
MM:	Bola	<i>tarile</i>	' <i>Terminalia</i> sp.' (metathesis)
MM:	Lavongai	<i>talisa</i>	' <i>Terminalia</i> sp.'
MM:	Madak	<i>ralis</i>	'tree sp.'
MM:	Sursurunga	<i>talīs</i>	'Indian chestnut'
MM:	Tolai	<i>tali</i>	' <i>Terminalia</i> sp.'
MM:	Ramoaaina	<i>taliā</i>	' <i>Terminalia</i> sp.'
MM:	Babatana	<i>talike</i>	' <i>Terminalia catappa</i> ' (-k- for †-Ø-)
MM:	Nduke	<i>ta-talise</i>	' <i>Terminalia catappa</i> '
MM:	Roviana	<i>ta-talise</i>	' <i>Terminalia catappa</i> '
MM:	Marovo	<i>talise</i>	' <i>Terminalia catappa</i> '
MM:	Kia	<i>(na)klihe</i>	' <i>Terminalia catappa</i> ' (W. McClatchey, pers. comm.)
MM:	Maringe	<i>(na)klise</i>	' <i>Terminalia catappa</i> '
PEOc * <i>talise</i> ' <i>Terminalia catappa</i> '			
SES:	Gela	<i>talihe</i>	' <i>Terminalia catappa</i> '
SES:	Lau	<i>alite</i>	' <i>Terminalia catappa</i> '
SES:	Kwara'ae	<i>alita</i>	' <i>Terminalia catappa</i> '
NCV:	Mwotlap	<i>t[ɪ]lis</i>	' <i>Terminalia catappa</i> '
NCV:	Mota	<i>salite</i>	' <i>Terminalia catappa</i> ' (metathesis)
NCV:	Tolomako	<i>na-talise</i>	' <i>Inocarpus fagifer</i> '
NCV:	Apma	<i>telis</i>	' <i>Terminalia catappa</i> '
NCV:	Nguna	<i>na-talie</i>	' <i>Terminalia catappa</i> '
NCV:	S Efate	<i>n-tali</i>	' <i>Terminalia catappa</i> '
PSV * <i>nə-talis</i> ' <i>Terminalia catappa</i> ' (Lynch 2001c)			
SV:	Sye	<i>nteli</i>	' <i>Terminalia catappa</i> '
SV:	Lenakel	<i>telh</i>	'k.o. tree with flattish oval brown fruit which is cracked open and eaten'
SV:	Anejoñ	<i>n-tejeθ</i>	' <i>Terminalia catappa</i> '
PCP * <i>talise</i> ' <i>Terminalia catappa</i> '			
Fij:	Bauan	<i>daliði</i>	' <i>Terminalia catappa</i> '
Pn:	Tongan	<i>telie</i>	' <i>Terminalia catappa</i> '
Pn:	Niuean	<i>telie</i>	' <i>Terminalia catappa</i> '
Pn:	E Futunan	<i>talie</i>	' <i>Terminalia catappa</i> '
Pn:	Samoaan	<i>talie</i>	' <i>Terminalia catappa</i> '
Pn:	Luangiua	<i>talie</i>	'tree sp. with big yellow berries'
Pn:	Marquesan	<i>taʔie</i>	' <i>Terminalia catappa</i> '
Pn:	Rarotongan	<i>taria</i>	' <i>Terminalia catappa</i> '

Pn:	Rennellese	<i>tagie</i>	‘ <i>Terminalia catappa</i> ’
Pn:	Tokelauan	<i>talie</i>	‘ <i>Terminalia catappa</i> ’

Two other POC terms possibly denoted *Terminalia* species: **tapoRa* and **qatV*. The POC denotatum of **tapoRa* is unclear. In PEOc it evidently denoted a species of *Terminalia*, possibly *T. catappa*,¹³ but the glosses of the Takia and Nehan reflexes make it impossible to determine its POC denotation.

POc **tapoRa* ‘a nut-bearing tree sp.’ (Geraghty 1990)

NNG:	Takia	<i>tapal</i>	‘nut tree, like <i>Canarium</i> , but less oily’ ¹⁴
MM:	Nehan	<i>tauol</i>	‘ <i>Inocarpus fagifer</i> ’ (Glennon & Glennon 2005)

PEOc **tapoRa* ‘*Terminalia* spp.’ (Geraghty 1990)

SES:	Kwara’ae	<i>dafo</i>	‘ <i>Terminalia brassii</i> ’
NCV:	Mwotlap	<i>na-twoy</i>	‘ <i>Albizia saman</i> ’
NCV:	Mota	<i>tawora</i>	‘ <i>Albizia saman</i> ’
NCV:	NE Ambae	<i>tavoa</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Tamambo	<i>(vu)tavoa</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Maewo	<i>tavoa</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Raga	<i>tavoa</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Uripiv	<i>dawo</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Nese	<i>tavo</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Port Sandwich	<i>ravo</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Lonwolwol	<i>tavoro</i>	‘a fruit’
NCV:	Paamese	<i>hoai</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Lewo	<i>(puru)tawo</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Baki	<i>(bur)tavu</i>	‘ <i>Terminalia catappa</i> ’
NCV:	Namakir	<i>tauwo, tawo</i>	‘ <i>Terminalia catappa</i> ’
Fij:	Bauan	<i>tāvola</i>	‘ <i>Terminalia catappa</i> ’ ¹⁵

The set below appears to reflect a POC **qatV*. Superficially Nehan *kasasas* appears cognate, but it is at best a borrowed reflex. The expected Nehan reflex would be **ata*: Nehan *k-* and *-s-* reflect POC **k* and **s* respectively. *T. complanata* and *T. sepicana* are both uncultivated edible species, the nuts of which are occasionally consumed as snacks, and so the gloss ‘*Terminalia* sp. with edible nut’ is well enough supported.

POc **qatV* ‘*Terminalia* sp. with edible nut’

MM:	Madak	<i>(var)?a</i>	‘ <i>Terminalia complanata</i> ’
NCV:	S Efate	<i>n-at</i>	‘ <i>Terminalia sepicana</i> (eaten only by fruit bat)’
Mic:	Chuukese	<i>asas</i>	‘ <i>Terminalia catappa</i> ’

¹³ The gloss of the Mwotlap and Mota terms, *Albizia saman*, can be ignored for reconstructive purposes, as the latter is an introduced tree (ch.7, §3.2), and was certainly not a POC denotatum of **tapoRa*.

¹⁴ This term was recorded only in the inland dialect in which coastal Takia *l* and *r* are merged as *l*, i.e. *tapal* is a regular reflex of **tapoRa*.

¹⁵ E Fijian *l* usually reflects POC/PEOc **l*, but Geraghty (1990) shows that it sometimes reflects **R*. Geraghty (2004: 80), however, thinks it is a borrowing from an unidentified Solomons source.

Mic: Carolinian *asas* 'Terminalia catappa'

cf. also:

MM: Nehan *kasasas* 'Terminalia samoensis'

2.5 *Pandanus* spp., screw pines (Pandanaceae)

Pandanus trees are an easily recognised feature in the forests of NW Island Melanesia. All species have aerial roots and very large thick leaves. The leaves of some species serve on canoes as sails, awnings, deck-houses, bailers and in houses as roofing, mats and wall lining. Sewn leaves are used for rain capes. POc **qebal* 'pandanus mat' is reconstructed in vol. 1, ch.4, §3.1. The fruits of all species are syncarps, compound fruits with many segments, each a drupe, arranged around a core, and the fruits and/or seeds of various species are a source of food. Recognition of the various species, however, is much more difficult, partly because of intra-species variability which is at least partly the result of cultivation. Barrau (1962: 161–163) remarks that there is much confusion in the Linnaean naming of *Pandanus* species, and Henderson & Hancock (1988: 80, 232–236) do not provide names for the Solomons species they describe. Our sources are also often vague in their glosses of terms for pandanus types. Consequently it is possible that there are inaccuracies here. The four species for which POc terms can be reconstructed with reasonable certainty are:¹⁶

- *P. tectorius*, the coastal pandanus: the most widespread and most exploited species throughout Oceania; its leaves are used for making mats;
- *P. dubius*: it is widely distributed and remarkable for the size and strength of its leaves.
- *P. conoideus*, with its long red or yellow fruit (Tok Pisin *marita*), a salient species in New Guinea but not common in the Bismarcks;
- *P. lamekotensis*: seemingly restricted to the Admiralties and to northern and central New Ireland, but a POc term for it is reconstructable.

All except *P. dubius* are sources of food, and the third and fourth are cultivated. Although *P. dubius* is not a food source, I have included it here in order to keep the genus together.

2.5.1 *Pandanus tectorius* (syn. *P. odoratissimus*), coastal pandanus (Pandanaceae)

Pandanus tectorius usually grows just behind the shore line to a height of 5–10 m. Its leaves are 1–2 m long, flat sheets tapering to a point. The orange fruit is made up of 'fingers' 6–8 cm long, 4–5 cm wide, each consisting of 8–17 parallel nuts (Figure 11.5, left). The species shows considerable variability, consistent with having been cultivated over a long period of time, and is often found near villages and old village sites (Peekel 1984: 38, Walter & Sam 2002: 216–217). In NW Island Melanesia its use is patchy: it is used in Manus, the south coast of New Britain, in New Ireland and in Bougainville (Bourke n.d.).¹⁷

¹⁶ There are a number of other *Pandanus* species in New Guinea and the Bismarcks (Kennedy & Clarke 2004), including *P. julianettii*, *P. antarensis* and *P. brosimos*, all with fruit known as *karuka* in Tok Pisin and a major nutritional source in highlands areas, but they do not grow in the lowlands and do not concern us here.

¹⁷ Its use elsewhere in the Solomons is unclear because Henderson & Hancock 1988 provide no species identifications for the pandanus types they describe.

Selection has resulted in cultivars with thick but pliable leaves with edges free from spines, which serve as rain hoods and are used for making mats and baskets. In Vanuatu baskets are made from leaves softened in the fire, cut into narrow strips, steeped in water, then bleached and dried in the sun (Walter & Sam 2002: 216–217).

The alimentary use of *P. tectorius* is less significant than uses of its leaves, but it is reported from Papua New Guinea, Vanuatu, Tonga and Samoa. The ripe globular fruit are sucked to obtain a sweet juice, perhaps more by children than by adults. This practice may have been far more common in the past, before the arrival of sweetened soft drinks (Walter & Sam 2002: 217, Bourke n.d.). On Waya (Fiji) the juice was famine food (Gardner & Pawley 2006). Barrau (1962: 88) reports that the ends of the aerial roots are baked and eaten in some Micronesian and Polynesian societies, especially in atoll communities, where its fruits are also an important food source.

On Waya the trunks are used for house rafters and leaves for thatching (Gardner & Pawley 2006).

POc **padran* appears to have specifically denoted *Pandanus tectorius*, but was evidently also used as a generic for pandanus species. POc **kiRe* and **poipoi* probably denoted only *P. tectorius* or perhaps certain cultivars of *P. tectorius*.

PAn **paŋudaL* ‘pandanus’ (Blust 1982)

PMP **pandan* ‘pandanus’ (Dempwolff 1938)

POc **padran* ‘coastal pandanus, *Pandanus tectorius*; pandanus (generic)’ (Biggs 1965: **para*)

Adm: Mussau	<i>arana</i>	‘littoral pandanus the leaves of which are used in plaiting mats and baskets, <i>P. tectorius</i> ’
Adm: Leipon	<i>padr</i>	‘kind of pandanus with narrow light-green leaves, used in plaiting mats’
Adm: Lou	<i>par</i>	‘pandanus’
Adm: Titan	<i>par</i>	‘pandanus fruit’ (Bowern 1999)
NNG: Amara	<i>(a)pada-pada</i>	‘pandanus sp. with succulent fruit’
NNG: Mangap	<i>pāⁿda</i>	‘pandanus tree’
NNG: Lukep (Pono)	<i>pada</i>	‘pandanus sp.’
NNG: Malai	<i>padan</i>	‘pandanus’
MM: Lavongai	<i>aran</i>	‘pandanus’
MM: Kara (E)	<i>foran</i>	‘ <i>Pandanus tectorius</i> ’
MM: Kokota	<i>(i)fra</i>	‘pandanus variety, small, used for making mats’
TM: Tanema	<i>vadane</i>	‘pandanus’
SES: Lau	<i>fada-da</i>	‘pandanus’
NCV: Mota	<i>vana</i>	‘a pandanus, inedible variety of female <i>P. odoratissimus</i> ’
NCV: Lakon	<i>vac</i>	‘ <i>Pandanus tectorius</i> ’ (François 2004)
NCV: Vera’a	<i>vada</i>	‘ <i>Pandanus tectorius</i> ’ (François 2004)
NCV: Sakao	<i>ne-vor</i>	‘ <i>Pandanus cominsii</i> ’
SV: Kwamera	<i>nə-fara</i>	‘pandanus’
NCal: Jawe	<i>wan</i>	‘coastal pandanus’
NCal: Nyelâyu	<i>pān</i>	‘coastal pandanus’
Mic: Puluwat	<i>fār</i>	‘pandanus, used for mats and thatch’

Mic:	Carolinian	<i>fāša</i>	‘pandanus (generic)’
Fij:	Wayan	<i>vadra</i>	‘ <i>Pandanus tectorius</i> ’
Pn:	Tongan	<i>fā</i>	‘taxon of several <i>Pandanus</i> spp.’ (Whistler 1991b: 24)
Pn:	Hawaiian	<i>hala</i>	‘ <i>Pandanus tectorius</i> ’

PMP **kiRay* ‘*Pandanus* sp.’¹⁸POc **kiRe* ‘coastal *Pandanus* sp., probably *Pandanus tectorius*’ (French-Wright 1983)

PT:	Gapapaiwa	<i>kire</i>	‘mat made of sewn pandanus leaves’
PT:	Motu	<i>gere-gere</i>	‘ <i>Pandanus tectorius</i> ’
SES:	Arosi	<i>gire</i>	‘ <i>Pandanus tectorius</i> ’
NCV:	Mota	<i>gire</i>	‘ <i>Pandanus tectorius</i> ’
NCV:	Mwotlap	<i>ne-gey</i>	‘ <i>Pandanus tectorius</i> ’ (François 2004)
NCV:	Mwesen	<i>ger</i>	‘ <i>Pandanus tectorius</i> ’ (Walter & Sam 2002)
NCV:	Vurës	<i>(wö)gær</i>	‘ <i>Pandanus tectorius</i> ’ (François 2004)
NCV:	Raga	<i>gire</i>	‘native tree with fruit like pineapple; pandanus’
NCV:	Tamambo	<i>hire-hire</i>	‘woven container from coconut leaf’
NCV:	Big Nambas	<i>na-hei</i>	‘mat’
NCV:	Nguna	<i>na-kie</i>	‘mat pandanus’
Fij:	Bauan	<i>kie-kie</i>	‘ <i>Pandanus</i> sp.’
Pn:	Tongan	<i>kie</i>	‘a sterile variety of pandanus used for weaving mats’ (Whistler 1991b: 56)
Pn:	Pukapukan	<i>kie</i>	‘specially made mat sometimes used as sail’

POc **poipoi* ‘*Pandanus* sp., perhaps *P. tectorius*’

MM:	Nakanai	<i>voivoi</i>	‘ <i>Pandanus</i> sp.’
SES:	W Guadalcanal	<i>voivoi</i>	‘pandanus’
NCV:	Mwotlap	<i>wow</i>	‘ <i>Pandanus</i> sp.’
NCV:	Araki	<i>ðeðe</i>	‘ <i>Pandanus tectorius</i> ’
NCV:	Apma	<i>wip</i>	‘ <i>Pandanus tectorius</i> ’
NCV:	Uripiv	<i>waiw</i>	‘general word for pandanus’
		<i>weiw(bur)</i>	‘shore pandanus, has big leaves, unusable’
NCV:	Port Sandwich	<i>vaiv</i>	‘pandanus; skirt’
NCV:	Paamese	<i>heiho</i>	‘ <i>Pandanus</i> sp.’
NCV:	Lewo	<i>(puru)vava</i>	‘pandanus’
		<i>vava</i>	‘pandanus’
NCV:	Namakir	<i>vaiv</i>	‘smooth pandanus’
SV:	Lenakel	<i>nu-vie</i>	‘pandanus sp.’
Fij:	Bauan	<i>voivoi</i>	‘ <i>Pandanus thurstoni</i> ’
Fij:	Wayan	<i>voivoi</i>	‘cultivars of <i>P. tectorius</i> and possibly of <i>P. dubius</i> or <i>P. whitmeeanus</i> ’

¹⁸ The reconstruction of PMP **kiRay* is supported by the Oceanic data and by Manobo, Tboli (both Philippines) *kilay* ‘*Pandanus* sp.’ (Madulid 2001a: 373).

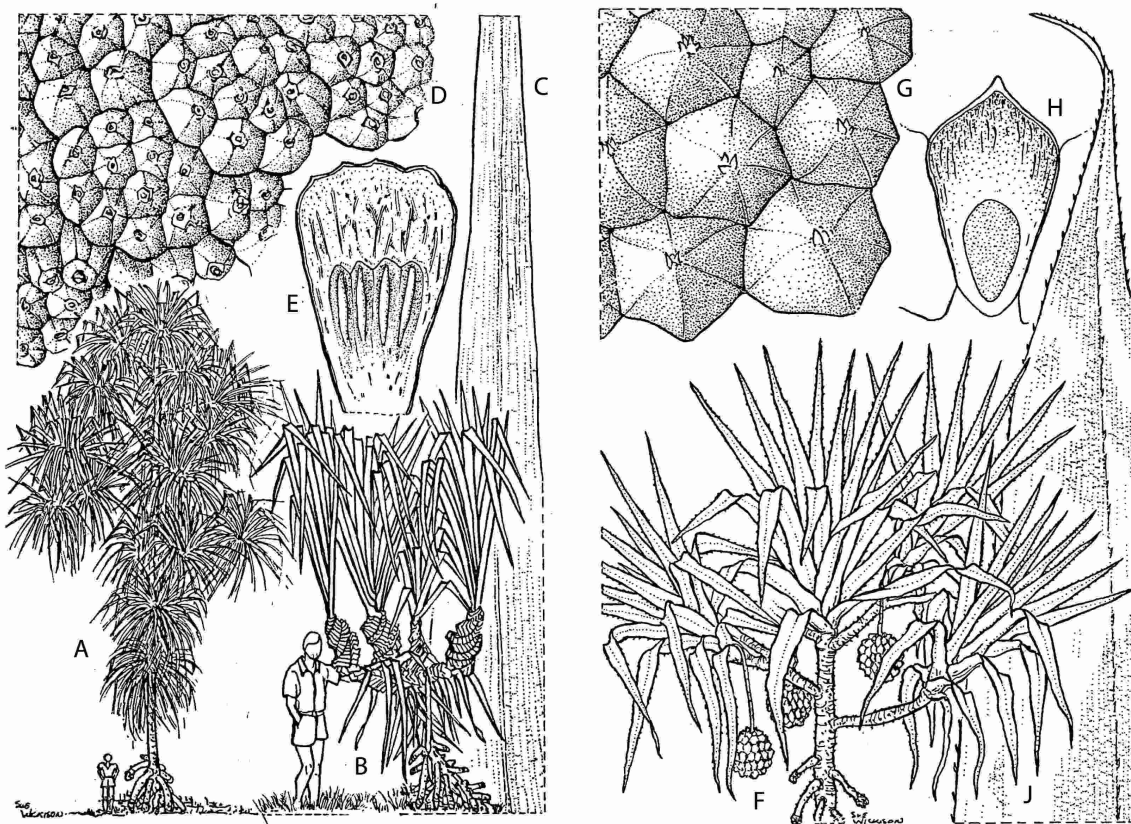


Figure 11.5 Left *Pandanus tectorius*: A, tree at its tallest; B, young plant when leaves harvested; C, end portion of leaf (no thorns); D, portion of surface of syncarp; E, longitudinal section of fruit segment. Right *Pandanus dubius*: F, tree, height 3 m; G, syncarp from above; H, longitudinal section of fruit segment with edible kernel; J, leaf tip showing curved spike.

Lynch (2004a) suggests that the following set may also reflect POc **poipoi*.

PSOc **va(i,y)u* ‘*Pandanus* sp.’

NCV: NE Ambae	<i>ve-veo</i>	‘ <i>Pandanus</i> sp.’
NCV: Tape	<i>na-viu</i>	‘ <i>Pandanus</i> sp.’
NCV: Big Nambas	<i>ǫiu</i>	‘ <i>Pandanus</i> sp.’
NCV: Nese	<i>na-ǫau</i>	‘ <i>Pandanus</i> sp.’
NCV: Baki	<i>(buru)vewo</i>	‘ <i>Pandanus</i> sp.’

PSV **na-va(i,y)u* ‘*Pandanus* sp.’ (Lynch 2004a)

SV: Sye	<i>na-(ri)vyyu</i>	‘ <i>Pandanus tectorius</i> ’
	<i>n-(or)vyyu</i>	‘bush pandanus’
SV: Lenakel	<i>nu-vie</i>	

2.5.2 *Pandanus dubius* (syn. *P. compressus*) (Pandaceae)

Pandanus dubius is a coastal species distributed from the Philippines southeastward as far as Vanuatu, where it is sometimes cultivated. It is the pandanus species with the broadest and

stiffest leaves in the Bismarcks, 2 m or more in length and up to 16 cm wide. The syncarps are made up of fingers 10–13 cm long, 5–9 cm wide, angular, but unlike other species not grooved (Figure 11.5, right)¹⁹ (Peekel 1984: 41, Walter & Sam 2002: 212–213).

The fruiting spike is edible but rarely eaten, Sorensen (1950) reports for the Ninigos and Walter & Sam (2002: 212) for Vanuatu. The leaves are used for thatching, and with the spiny parts removed dried leaves are sewn together as mats and large baskets (Sorensen 1950, Peekel 1984: 41).

The POC term for *P. dubius* was *pakum.²⁰

POc *pakum ‘*Pandanus dubius*’ (Peekel 1984: 41)

Adm: Mussau	<i>aum</i>	‘broad-leafed pandanus, <i>P. dubius</i> ’
Adm: Lou	<i>pək</i>	‘pandanus’
Adm: Titan	<i>pek</i>	‘pandanus’
NNG: Malai	<i>paum</i>	‘pandanus’
NNG: Takia	<i>wak</i>	‘pandanus’
NNG: Manam	<i>aku</i>	‘pandanus (big leaf); used to make grass skirt’
NNG: Bam	<i>wak</i>	‘pandanus’
NNG: Kairiru	<i>vʷak</i>	‘ <i>Pandanus dubius</i> ’
MM: Kara (E)	<i>faum</i>	‘ <i>Pandanus dubius</i> ’
MM: Patpatar	<i>hau</i>	‘pandanus’
MM: Tolai	<i>vaum</i>	‘ <i>Pandanus dubius</i> ’
MM: Sursurunga	<i>aum</i>	‘tree type similiar to pandanus’
SES: Kwara’ae	<i>faʔu</i>	‘pandanus (generic); mat’
SES: Kwaio	<i>faʔu</i>	‘pandanus’
NCV: Mota	<i>vau</i>	‘a pandanus’
NCV: Mwesen	<i>(wo)vag</i>	‘ <i>Pandanus dubius</i> ’ (Walter & Sam 2002: 295)
NCV: Namakir	<i>na-vak</i>	‘ <i>Pandanus dubius</i> ’ (Walter & Sam 2002: 295)
NCV: Nguna	<i>na-vaku</i>	‘pandanus sp.’
NCV: S Efate	<i>n-fak</i>	‘ <i>Pandanus dubius</i> ’
Pn: Tikopia	<i>fao</i>	‘broad-leafed <i>Pandanus</i> , <i>Pandanus dubius</i> ’ (possibly a borrowing from a SES language)

2.5.3 *Pandanus conoideus*, red fruit pandanus, TP *marita* (Pandanaceae)

Pandanus conoideus is a small tree, 4–7 m high, found in New Guinea, from the coasts up to an altitude of 2000 m. It is less common in the Bismarcks. It grows in damp, shady places around villages and on old village sites, and displays the variability typical of cultivation. Its trunk is covered in short sharp spikes, and the long leaves have spiked edges. Its syncarps are typically 20–40 cm long, and sometimes reach 1 m and weigh as much as 10 kg. The fruit are bright red or occasionally yellow, and get their colour from the oil in the pericarp (Figure 11.6) (French 1986: 210, Walter & Sam 2002: 210–211.)

¹⁹ Henderson & Hancock (1988) do not identify the species of the right-hand drawing in Figure 11.5, but comparison with Barrau’s (1962: 160) picture of *P. tectorius* confirms its identification.

²⁰ It is possible that Far East Manggarai *wako*, Ngadha *waku* ‘broad-leafed *Pandanus* sp.’ and their cognates listed by Verheijen (1990: 232) are cognate with POC *pakum. If so, it is a PCEMP etymon.

The fruit are prized as a foodstuff and widely consumed. They are typically split, wrapped in leaves and cooked in an earth oven or roasted over a fire. The pulp and seeds are removed from the core, mashed with water and strained to produce a thick, rich red sauce with which other foods are seasoned (Sorensen 1950, Barrau 1962: 163, May 1984, Bourke in preparation).

POc **m^waña* apparently denoted *Pandanus conoideus*.²¹ This reconstruction is open to doubt, as there are no reflexes from New Ireland or New Britain, where the species is rare, and only one from mainland New Guinea. It is possible that Maisin *mongi* ‘*Pandanus* sp.’ and PMic **maŋu* ‘pandanus leaf’ are also cognate. If so, they reflect a POc form in which **-ñ-* has been replaced by **-ŋ-*.

Another interpretation of the data is also possible, namely that the items listed below, other than Arosi *m^wa-m^wana*, reflect POc **moñak* ‘fat, oil, coconut cream; tasty’ (ch.12, §4.2), since the fruit of *Pandanus conoideus* are both oily and tasty. If this were so, then Arosi *m^wa-m^wana* and the items listed under ‘cf. also’ would probably reflect a PEOc **m^waŋV* ‘pandanus leaf’.

POc **m^waña* ‘*Pandanus* sp., perhaps *Pandanus conoideus*’

PAdm **moña* ‘pandanus with long red or yellow fruit, probably *Pandanus conoideus*’ (Blust 1996b)

Adm: Seimat	<i>maun</i>	‘ <i>Pandanus conoideus</i> ’ (Sorensen 1950) (<i>*-o-</i> > Seimat <i>-au-</i>)
Adm: Lou	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Wuvulu	<i>mona</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Likum	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Nali	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Pak	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Lou	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Leipon	<i>moñ</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Loniu	<i>moñ</i>	‘ <i>Pandanus conoideus</i> ’
Adm: Bipi	<i>moy</i>	‘ <i>Pandanus conoideus</i> ’

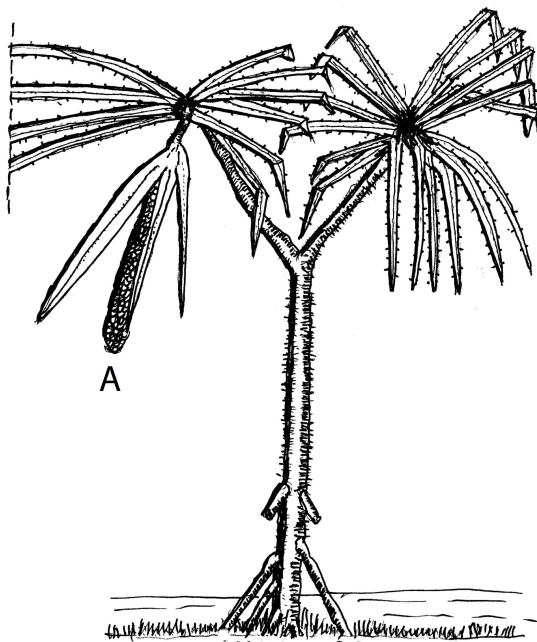


Figure 11.6 *Pandanus conoideus*, marita:
A, syncarp.

²¹ Blust (1996b) cites the Admiralties forms as representing a PAdm lexical innovation, but the Mapos Buang and Arosi forms in this set show that the form is reconstructable to POc. In Ross (1996c) I reconstructed this form as **m^waŋa* on the basis of the forms listed under ‘cf. also’ below: this was perhaps an error, but see the discussion in the text.

Adm:	Kele	<i>moy</i>	‘ <i>Pandanus conoideus</i> ’
Adm:	Lenkau	<i>moy</i>	‘ <i>Pandanus conoideus</i> ’
Adm:	Nauna	<i>moy</i>	‘ <i>Pandanus conoideus</i> ’
Adm:	Drehet	<i>muŋ</i>	‘ <i>Pandanus conoideus</i> ’
NNG:	Mapos Buang	<i>mon</i>	‘ <i>Pandanus conoideus</i> ’
SES:	Arosi	<i>m^wa-m^wana</i>	‘ <i>Pandanus</i> sp., leaves plaited’

cf. also:

PT:	Maisin ²²	<i>moŋgi</i>	‘ <i>Pandanus</i> sp.’
Mic:	Kosraean	<i>m^ueŋ</i>	‘pandanus’
Mic:	Marshallese	<i>māŋ</i>	‘pandanus leaves’
Mic:	Chuukese	<i>māŋ</i>	‘pandanus leaf, especially when softened by a shell’
Mic:	Woleai	<i>māŋü</i>	‘pandanus leaf’

2.5.4 *Pandanus lamekotensis* (Pandaceae)

Peekel (1984: 41) remarks that *Pandanus lamekotensis* is readily distinguished from other species. However, I have otherwise found it mentioned only by Kennedy & Clarke (2004), who provide no additional information, and it is possible that its distribution is limited to New Ireland. Indeed, Peekel did not find it in the south of New Ireland or on the Gazelle Peninsula of New Britain. It grows only on swampy creek banks, 4–7 m high with from 5 to 8 leaves, and its fruit clusters are oval, not ‘fingers’. The ripe fruits, like those of *P. tectorius* are sometimes sucked by New Ireland villagers.

POc **kaRi(q)ana* ‘*Pandanus lamekotensis*’

Adm:	Baluan	<i>kayaŋ</i>	‘pandanus sp. similar to <i>Pandanus lamekotensis</i> ’
Adm:	Nyindrou	<i>kayaŋ</i>	‘ <i>Pandanus</i> sp.’
Adm:	Bipi	<i>kaihan</i>	‘ <i>Pandanus</i> sp.’
MM:	Kara (E)	<i>kaiat</i>	‘ <i>Pandanus lamekotensis</i> ’ (- <i>t</i> for †- <i>n</i>)
MM:	Nalik	<i>kariat</i>	‘ <i>Pandanus lamekotensis</i> ’ (- <i>t</i> for †- <i>n</i>) (Peekel 1984:41)
MM:	Madak	<i>[va]keiŋ</i>	‘ <i>Pandanus lamekotensis</i> ’
Mic:	Kiribati	<i>kaina</i>	‘ <i>Pandanus tectorius</i> ’

2.5.5 Other names for *Pandanus* species

The four reconstructions below each denoted a species or a variety of *Pandanus*, but the glosses do not allow us to determine which.

PCEMP **ima* ‘*Pandanus* sp. with leaves useful for plaiting’ (ACD)

POc **ima* ‘*Pandanus* sp. with useful leaves’

NNG:	Gedaged	<i>im</i>	‘ <i>Pandanus</i> sp.; has aerial roots, and its leaves are used to make rain capes’
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²² Kosirava (coastal) dialect.

NNG:	Kis	<i>im</i>	‘bush pandanus’
PT:	Gapapaiwa	<i>imo(-kara)</i>	‘bush pandanus’
MM:	Tangga	<i>im</i>	‘tall shrub with many stalks, the leaves of which provide wrapping material for a corpse prior to burial’

POc **p*^(w)*asa(r,R)* ‘large *Pandanus* sp.’

Adm:	Drehet	<i>p^wāh</i>	‘large pandanus’
PT:	Misima	<i>pala</i>	‘mat made of pandanus’
MM:	Babatana	<i>(poro) basa</i>	‘ <i>Pandanus</i> sp.’
MM:	Maringe	<i>vahara</i>	‘ <i>Pandanus conoideus</i> ’ (W. McClatchey, pers. comm.)
SES:	Bugotu	<i>vaha</i>	‘ <i>Pandanus</i> aff. <i>compressus martalli</i> ’ (W. McClatchey, pers. comm.)
Pn:	E Uvean	<i>faha</i>	‘ <i>Pandanus</i> sp.’
Pn:	Samoaan	<i>fasa</i>	‘ <i>Pandanus tectorius</i> ’

PWOc *(*s,j*)*a(q,k)umu* ‘*Pandanus* sp.’

NNG:	Sio	<i>samu</i>	‘pandanus’
NNG:	Tami	<i>saŋ</i>	‘pandanus’
NNG:	Misim	<i>sej</i>	‘pandanus’
PT:	Suau (Saliba)	<i>dam</i>	‘indigenous <i>Pandanus</i> sp.’
MM:	Varisi	<i>sayumu</i>	‘pandanus’ (Record 1945)
MM:	Babatana	<i>samu</i>	‘ <i>Pandanus dubius</i> ’

PWOc **moke* ‘*Pandanus* sp.’ (Peekel 1984: 41-42)

NNG:	Kove	<i>moe</i>	‘ <i>Pandanus</i> sp., used for sleeping mats, raincoats and sails’ (A. Chowning, pers. comm.)
NNG:	Gitua	<i>moge</i>	‘pandanus’
MM:	Bulu	<i>moke</i>	‘ <i>Pandanus</i> sp., inedible’
MM:	Bola	<i>moke</i>	‘pandanus umbrella’
MM:	Nakanai	<i>moe</i>	‘ <i>Pandanus</i> sp.; sleeping mat and rain cape made of pandanus; used for house walls’ (Arentz 1989:93)
MM:	Sursurunga	<i>mo</i>	‘tree sp. similar to pandanus with edible fruit; leaves used for making shelters’
MM:	Patpatar	<i>moh</i>	‘pandanus shrub, <i>Pandanus dankelmannianus</i> ’

2.6 *Sterculia vitiensis* (syn. *S. tannaensis*) (Sterculiaceae)

In a sense *Sterculia vitiensis* does not belong here, as it was not known to POc speakers. There are a number of small species of *Sterculia* in the Bismarcks and Solomons, but *S. vitiensis* is a large canopy tree, up to 30 m tall. It is found in the central and especially the southern islands of Vanuatu and in Fiji.

It is planted for its edible seeds (its wood is soft and not durable). The fruit is a large (9 x 7 cm) hollow capsule, light yellowish green when it is ripe, with a groove down one side which splits open to reveal a vermilion interior and a row of elongate (1–2 cm) glossy black seeds along the split edges. *S. vitiensis* is not particularly abundant, and tends to be found in locations associated with human activity. The ripe seeds are grilled either in their shells or separately (Wheatley 1992: 230, 232, Walter & Sam 2002: 247–248).

Although the seeds of other species are sometimes eaten in the Bismarcks (Floyd 1954, Powell 1976), the only reconstructable name for a *Sterculia* species is, as one might expect, a PROc etymon, *wasi-wasi ‘*Sterculia vitiensis*’. There is a formally identical POc etymon, POc *wasi-wasi ‘*Abroma augusta*’. *A. augusta* is a small shrub (ch.7, §6.1.1) and *S. vitiensis* a large tree, so it is not clear whether the two terms were innovated independently or have a common origin.

PROc *wasi-wasi ‘*Sterculia vitiensis*’ (from data in Wheatley 1992, Lynch 2004a)

NCV:	NE Ambae	wah-wah	
NCV:	Tangoa	(vitu)vaha	
NCV:	Raga	wahi-wahi	
NCV:	Apma	wah-wah	
NCV:	Tape	(vən)woso-wos	‘whitewood’
SV:	Sye	wo-wo	
SV:	Lenakel	nə-vha-vha	²³
SV:	Anejoñ	n-woθ-waθ	
Fij:	Buca Bay	wādi-wādi	(J. Parham 1972)

2.7 *Pangium edule*, pangi, ankle-rattle tree, TP sis, solomon, B navangge, nalake (Flacourtiaceae)

Pangium edule is included in this section because it is a cultivated tree (Peekel 1984: 384, Kennedy & Clarke 2004) and produces a fruit the flesh of which is eaten in some places. It is not a major food source.

The tree grows 25–30 m tall, with 3–5 triangular buttresses up to 1 m in height. Leaves are arranged in spirals at the ends of branches. The fruit of wild trees contains cyanogenic glucosides and is poisonous, but the fruit of cultivated trees is edible (Peekel 1984: 384). The fruit, up to 15 cm long with a rough brown skin, is enclosed in a bright yellow mesocarp and green skin. It contains a number of red-brown seeds, each in its own very hard case, surrounded by a soft yellow strong-smelling pulp (French 1986: 193, Evans 1999: 19).

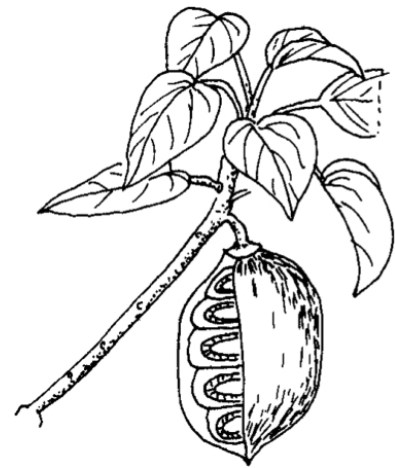


Figure 11.7 *Pangium edule*

²³ The spelling nə-vha-vha represents an attempt to interpret Wheatley’s (1992) *nawhawha* and is not necessarily accurate.

The seed is buried for 2–3 weeks in beach sand or soaked in fresh or salt water to make it edible, then roasted and fermented (Peekel 1984: 384, Hviding 2005: 121, Bourke & Allen forthcoming). The Sengseng of New Britain trade it as a delicacy (A. Chowning, pers. comm.). The practice of eating the seeds extends eastward as far as Marovo (Evans 1999:21), but Hviding does not mention their consumption. The seeds are a famine food in Vanuatu (Walter & Sam 2002: 47).

A well known use of *P. edule* seed cases in the Bismarcks, the Solomons and Vanuatu is in the manufacture of bangles and rattles for traditional dances. In the Solomons the leaves are heated in the fire and used to kill headlice. The wood is generally not regarded as suitable for construction (Henderson & Hancock 1988: 246, Hviding 2005: 121).

The only reconstructable term for *P. edule* is PEOc **paRage*. Given that the tree is present in the Bismarcks, it seems odd that no POc or PWOC term can be reconstructed, but this may be due to the absence of relevant data from the sources.

PEOc **paRage* ‘*Pangium edule*’

SES: Tolo	<i>valage</i>	‘k.o. larger seed pod worn to make noise while dancing’
SES: Kwara’ae	<i>falake</i>	‘ <i>Pangium edule</i> ’
SES: Lau	<i>falake</i>	‘tree sp.; its seeds tied to legs in dancing’
SES: Kwaio	<i>falage</i>	‘rattle’
SES: Arosi	<i>harage</i>	‘sacred tree, has power to kill dogs’
NCV: Mwotlap	<i>(wo)pyak</i>	‘ <i>Pangium edule</i> ’
NCV: Mota	<i>varake</i>	‘tree sp.; its shells tied on the ankles as rattles in dancing’
NCV: Araki	<i>lahe</i>	‘ <i>Pangium edule</i> ’
NCV: Tamambo	<i>varaje</i>	‘ <i>Pangium edule</i> ’
NCV: Nduindui	<i>vaje</i>	‘ <i>Pangium edule</i> ’
NCV: NE Ambae	<i>vake</i>	‘ <i>Pangium edule</i> ’
NCV: Raga	<i>vaje</i>	‘ <i>Pangium edule</i> ’
NCV: Sakao	<i>ne-vay</i>	‘ <i>Pangium edule</i> ’
NCV: Sa	<i>wak</i>	‘ <i>Pangium edule</i> ’
NCV: Nati	<i>ne-vanj</i>	‘ <i>Pangium edule</i> ’
NCV: Port Sandwich	<i>(vi)vang</i>	‘dance rattles’

3 Domesticated fruit trees

3.1 *Burckella obovata* (syn. *Bassia erskineana*, *Payena mentzelii*, *Illipe bollrungii*), red silkwood, TP *bukabuk*, B *naduldule*, *nandunde* (Sapotaceae)

Burckella obovata tends to grow on smaller islands. It occurs on the small islands west of Manus in the Admiralties, in New Ireland, in the island groups north and east of New Ireland, on the Duke of York Islands between New Britain and New Ireland, and on Buka and nearby small islands in Bougainville Province. It is also found in the Solomons on Malaita and in the Temotu Islands (and Hviding 2005: 111 reports its presence at Marovo) and in Vanuatu (Paijmans 1976: 124, Bourke n.d.). It is a tree of medium size, about 20–30 m. tall, with a

massive trunk 1–3 m in diameter at the base and white flowers that have a strong, somewhat sickening scent. It has large edible fruit that has a rose-petal-like smell and is consumed uncooked. In Vanuatu there are two main types of fruit: a more common elongated type, reputed to be sweeter, and a round, sometimes very large type. The latter has two subtypes, wrinkled and smooth. The smooth subtype is apparently the outcome of selection, and is always cultivated. In the Solomons and Vanuatu the fruit is harvested before it is ripe in order to beat the fruit bats (Walter & Sam 2002: 125). Two varieties grow in Marovo, wild and planted. Coconut crabs eat the fruit of the wild variety (Hviding 2005: 111).

In the Solomons and Vanuatu the wood is used for crossbeams in houses, for outrigger booms and for canoe paddles (Record 1945, Henderson & Hancock 1988: 55, Walter & Sam 2002: 125). In Marovo it was formerly used for the keels of war canoes and is still sometimes used for making dugouts (Hviding 2005: 111).

The POc form **ñatu* was first reconstructed by Blust (1978*b*) as an unnamed but described tree type. Further reflexes indicate that this is *Burckella obovata*, to which Gowers (1976: 38) gives the English designation ‘red silkwood’. Evidence for POc **-q* is provided by Sye *yetu* and Ura *ni-yere* (John Lynch, pers. comm.), where preservation of the final vowel reflects the earlier presence of **-q*.

The gloss of PMP **ñatuq* below, ‘a hardwood tree taxon, including at least *Palaquium* spp.’, is inferred from the glosses of Blust’s supporting data. Species of *Burckella* and *Palaquium* and perhaps other genera seem to have been included in a single taxon throughout Oceanic history (see the discussion associated with PCP **bau* ‘hardwood taxon’ in ch.7, §4.10).

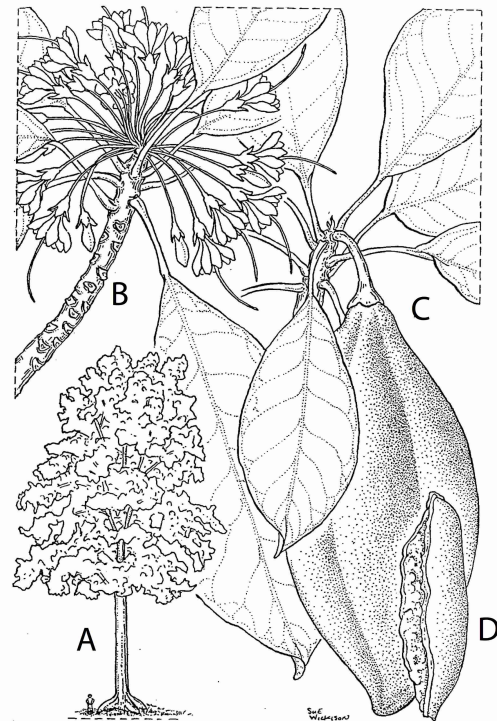


Figure 11.8 *Burckella obovata*: A, tree; B, flowering shoot; C, shoot bearing fruit; D, old seed.

PMP **ñatuq* ‘a hardwood tree taxon, including at least *Palaquium* spp.’ (Blust 1978*b*: 38–39)

POc **ñatuq* ‘*Burckella obovata*’ (Blust 1978*b*: 38–39: **ñatu*; Ross 1996*c*)

Adm: Mussau	<i>natu</i>	‘ <i>Burckella obovata</i> ’
Adm: Nauna	<i>ñot</i>	‘tall timber tree with large sweet green fruit’
Adm: Titan	<i>ñat</i>	‘tall timber tree with large sweet green fruit’
Adm: Lindrou	<i>ñek</i>	‘tall timber tree with large sweet green fruit’
Adm: Bipi	<i>ñak</i>	‘tall timber tree with large sweet green fruit’
Adm: Loniu	<i>ñat</i>	‘tall timber tree with large sweet green fruit’
Adm: Baluan	<i>nout</i>	‘ <i>Burckella obovata</i> ’
NNG: Takia	<i>nat</i>	‘tree (with edible nuts or fruit, also used for timber)’

NNG:	Gedaged	<i>nat</i>	‘tree, Sapotaceae’
PT:	Kilivila	<i>natu</i>	‘sp. of fruit tree’
PT:	Muyuw	<i>a-ntu-nat</i>	‘ <i>Palaquium</i> sp.’
PT:	Wedau	<i>natu</i>	‘Malay apple, <i>Eugenia megacarpa</i> ’
MM:	Kara (E)	<i>nətu</i>	‘ <i>Burckella obovata</i> ’
MM:	Sursurunga	<i>nat</i>	‘tree sp. with avocado-type fruit’
MM:	Ramoaina	<i>natu</i>	‘tree sp. with a large pulpy fruit like an apple’
MM:	Nehan	<i>not</i>	‘ <i>Palaquium</i> sp.; <i>Burckella obovata</i> ’
MM:	Babatana	<i>natu</i>	‘ <i>Burckella obovata</i> ’
MM:	Nduke	<i>natu</i>	‘tree sp.’
MM:	Kubukota	<i>ñatu</i>	‘ <i>Burckella obovata</i> ’
TM:	Äiwoo	<i>ñi-nou</i>	‘ <i>Burckella obovata</i> ’
TM:	Natügu	<i>no-neu</i>	‘ <i>Burckella obovata</i> ’
PEOc * <i>ñatuq</i> ‘ <i>Burckella obovata</i> ’			
SES:	Sa’a	<i>nau</i>	‘a fruit tree, teak’
SES:	Arosi	<i>nau</i>	‘tree sp., fruit is eaten’
NCV:	Mwotlap	<i>net</i>	‘ <i>Burckella obovata</i> ’
NCV:	Mota	<i>natu</i>	‘a fruit tree’
NCV:	Araki	(<i>vi</i>) <i>naru</i>	‘ <i>Burckella obovata</i> ’
NCV:	Uripiv	<i>nor</i>	‘ <i>Burckella obovata</i> ’
NCV:	Paamese	<i>a-natu</i>	‘ <i>Burckella obovata</i> ’
NCV:	Lewo	<i>nar</i>	‘ <i>Burckella obovata</i> ’
NCV:	Nguna	<i>na-natu</i>	‘ <i>Burckella obovata</i> ’
PSV * <i>nə-yatuq</i> ‘ <i>Burckella obovata</i> ’ (Lynch 2001c)			
SV:	Sye	<i>yetu</i>	‘ <i>Burckella obovata</i> ’
SV:	Anejoñ	<i>n-yat</i>	‘ <i>Burckella obovata</i> ’
SV:	Ura	<i>ni-yere</i>	‘ <i>Burckella obovata</i> ’
Pn:	Rennellese	<i>natu</i>	‘ <i>Burckella obovata</i> ’
Pn:	Tikopia	<i>natu</i>	‘ <i>Burckella obovata</i> ’
Pn:	Anutan	<i>natu</i>	‘ <i>Burckella obovata</i> ’

3.2 *Clymenia polyandra* and *Citrus* spp. (Rutaceae)

Barrau (1955: 85) considers that all edible species of the genus *Citrus* were introduced to Melanesia by Europeans, and R. M. Bourke’s (pers. comm.) research confirms this. We would not therefore expect to find a reconstructable POC term meaning ‘citrus’. But the reconstruction of POC **molis* ‘citrus fruit’ is well-supported (Lynch 1984), and its reflexes are today used in many languages for several citrus species.

How are we to explain this? There are two possible answers.

One is that **molis* referred not to *Citrus* species but to citrus-like fruit indigenous to western Melanesia. Aburu (1982) reports on two indigenous citrus-like genera, *Clymenia* and *Microcitrus* in Papua New Guinea. French (1986: 232) describes *Clymenia polyandra* as a ‘*Citrus* relative’ whose fruit is yellow, the size of a large lime, and in some cases ‘sweet and pleasant-tasting’. The tree is 5–8 m tall. It is cultivated in Manus and New Ireland (where it was also recorded by Peekel (1984: 272)) and does not occur outside Papua New Guinea.

The alternative answer is that there were inedible or barely edible *Citrus* species in Melanesia before European contact, which have been largely replaced by imported edible species. A bush lemon, *Citrus hystrix*, with almost no edible flesh (French 1986: 226) may be one of these. We can only infer that POc **molis* designated either citrus-like genera or inedible species of *Citrus*, or both.²⁴

POc **molis* ‘citrus fruit or citrus-like fruit, perhaps *Clymenia polyandra*’ (Lynch 1984)

Adm:	Mussau	<i>muli</i>	‘citrus fruit’
Adm:	Drehet	<i>m^wili</i>	‘citrus fruit: pomelo’
NNG:	Atui	<i>molis</i>	‘citrus fruit’
NNG:	Mangseng	<i>mōlis</i>	‘citrus fruit’
MM:	Vitu	<i>moli</i>	‘citrus fruit’
MM:	Patpatar	<i>mulis</i>	‘citrus fruit’
MM:	Nehan	<i>molih</i>	‘ <i>Clymenia polyandra</i> ’
MM:	Halia (Haku)	<i>molih</i>	‘citrus fruit’
MM:	Kia	<i>mholi</i>	‘ <i>Citrus</i> sp.’
SES:	Bugotu	<i>moli</i>	‘ <i>Citrus sinensis</i> (W. McClatchey, pers. comm.)’
SES:	Lau	<i>moli</i>	‘introduced citrus fruit’
SES:	Arosi	<i>mori</i>	‘wild orange’
NCV:	Mwotlap	<i>ni-m^wil</i>	‘ <i>Citrus medica</i> ’
NCV:	Mota	<i>m^wol</i>	‘ <i>Citrus medica</i> ’
NCV:	Tamambo	<i>moli</i>	‘orange’
NCV:	Tape	<i>m^wələs</i>	‘citrus fruit’
NCV:	Uripiv	<i>na-mul</i>	‘citrus fruit’
NCV:	Port Sandwich	<i>vi-mor</i>	‘orange’
NCV:	Lonwolwol	<i>wo-mul</i>	‘citrus fruit’
NCV:	Paamese	<i>a-moli</i>	‘citrus fruit’
NCV:	Lewo	<i>m^wolu</i>	‘citrus fruit’
NCV:	Namakir	<i>mol</i>	‘citrus fruit’
NCV:	Nguna	<i>na-m^woli</i>	‘citrus fruit’

PSV **ne-molis* ‘citrus fruit’ (Lynch 2001c)

SV:	Sye	<i>ne-mli</i>	‘citrus fruit’
SV:	Lenakel	<i>nə-məl^h</i>	‘citrus fruit’
SV:	SW Tanna	<i>(k^wa)n-məl^h</i>	‘citrus fruit’
SV:	Kwamera	<i>nə-mər^hi</i>	‘citrus fruit’
SV:	Anejoñ	<i>ne-pceθ</i>	‘citrus fruit’ (p unexplained)
Fij:	Wayan	<i>moli</i>	‘citrus fruit (generic)’

²⁴ Barrau (1962: 179) suggests that one edible citrus species, *Citrus macroptera*, is indigenous to Melanesia, but there is no clear evidence of this. May (1984: 79) applies the term *Citrus papuana* to the green-skinned bush orange, but this name properly applies as a synonym to the almost inedible *Citrus hystrix*, whilst the green-skinned bush orange is *Citrus sinensis*, which, as its name implies, is an import to Melanesia (French 1986: 226, 231).

3.3 *Corynocarpus cribbianus* (syn. *C. australasicus*, *C. cribbiana*, *Helicia cribbiana*)
(Corynocarpaceae)

A small fruit tree which was apparently cultivated in the past, *Corynocarpus cribbianus* is reported from the Admiralties, from offshore islands around Madang (north coast of New Guinea), from Tangga Island (east of New Ireland) and in the Solomons from Guadalcanal and Malaita, but apparently not in New Britain or New Ireland.²⁵ It grows to a height of 7–10 m on Tangga Island, but sometimes to 20 m elsewhere in Papua New Guinea. The mango-shaped fruit, 10–12 cm long and 8–10 cm in diameter, grow in clusters at the ends of branches. They are sweet but not juicy, and eaten raw or boiled. Two varieties are reported from Tangga and Kwara'ae: one has red, pear-shaped fruit, the other white and more ovoid. *C. cribbianus* continues to be grown from seed in some places but has become rare in the Solomons, where it was apparently more widely cultivated in the past. Today it is only a snack food for hunters in the forest (French 1986: 234, O'Collins & Lamothe 1989, Kwa'ioloa & Burt 2001: 168).

Yen (1974a) reports a previously domesticated species of *Corynocarpus* on Santa Cruz Island (Te Motu group, Solomon Islands). This may well have been *C. similis*, which grows wild under the forest canopy in parts of Vanuatu and is cultivated there. Indeed, Walter and Sam's (2002: 152–153) description could easily be a description of *C. cribbianus*, right down to its two varieties. Today it is regularly eaten only on the Torres Islands, where it was formerly cultivated and the fruits eaten boiled just before they became ripe, and on Tanna. Elsewhere it is a famine food. The wood is used for digging sticks or utensil handles.

POc **i(u)bu* '*Corynocarpus cribbianus*' is tentatively reconstructed—'tentatively' because the forms shown under 'cf. also' appear to be formally connected with the members of this set, suggesting a PEOc **tab^wV*, but the history of these forms or their relationship to the apparent reflexes of **i(u)bu* is unclear.

POc **i(u)bu* '*Corynocarpus cribbianus*'

Adm:	Nyindrou	<i>ñ-iubu</i>	' <i>Corynocarpus</i> sp.' (O'Collins & Lamothe 1989)
MM:	Roviana	<i>ib-ibu</i>	' <i>Cleidion spiciflorum</i> ' (Henderson & Hancock 1988)
TM:	Äiwoo	<i>(nua)dabu</i>	' <i>Corynocarpus cribbianus</i> ' (Henderson & Hancock 1988)
SES:	Kwara'ae	<i>ibo</i>	' <i>Corynocarpus cribbianus</i> ' (Henderson & Hancock 1988)
SES:	Kwaio	<i>ibo</i>	' <i>Corynocarpus cribbianus</i> ' (Henderson & Hancock 1988)

cf. also:

SES:	Lengo	<i>tebu</i>	' <i>Corynocarpus cribbianus</i> ' (Henderson & Hancock 1988)
SES:	To'aba'ita	<i>tebu</i>	' <i>Corynocarpus cribbianus</i> ' (Henderson & Hancock 1988)
NCV:	Tamambo	<i>tab^wea</i>	' <i>Corynocarpus similis</i> ' (Walter & Sam 2002)
NCV:	Apma	<i>tab^wi</i>	' <i>Corynocarpus similis</i> ' (Walter & Sam 2002)

²⁵ It is not mentioned by Peekel (1984).

3.4 *Mangifera* spp., mango (Anacardiaceae)

We cannot be completely sure of the original referents of the five mango terms reconstructed below. When Austronesian speakers arrived in the Bismarcks, they encountered the fibrous and ill-tasting indigenous mangoes *Mangifera minor* and *M. foetida*. The sweet-tasting *M. indica*, the species widely consumed today, arrived with Europeans after about 1870 (Bourke forthcoming).

It is possible that PMP **pahuq* referred to *M. indica* and PMP **wai* to other *Mangifera* species (ACD). I have found only two reflexes of PMP **pahuq* in Oceanic languages, namely Vitu *vau* and Bola *vao*. Vitu (in the French Islands, north of New Britain) is among the most conservative of Oceanic languages, and has remained quite isolated at least since early in the spread of the Western Oceanic dialect network. Bola is close by on New Britain. One may infer that **pau(q)* occurred in POc, but not with the gloss ‘*M. indica*’. It was replaced at a very early stage by **wai*, as this was the appropriate term for the indigenous (non-*indica*) species, with **wai-wai* perhaps denoting wild varieties (§7.2). The species *M. minor* was specifically designated by POc **koRa*.

M. minor, the traditional wild mango indigenous to the Bismarcks, is 10–25 m tall. The introduced *M. indica* needs a drier period each year to bear, whereas *M. minor* does not, and so the latter continues to be eaten mainly in locations where *M. indica* does not bear regularly. It is occasionally cultivated from seed. Its leaves are narrower than those of *M. indica* (Peekel 1984: 326, French 1986: 206–207, Bourke in preparation, n.d.).

PMP **pahuq* ‘mango, probably *Mangifera indica*’ (Dyen 1953)

POc **pau(q)* ‘mango, *Mangifera* sp. (not *indica*)’ (Ross 1996c)

MM:	Vitu	<i>vau</i>	‘mango’
MM:	Bola	<i>vao</i>	‘mango’ (Arentz et al. 1989: 91)

PMP **wai* ‘mango spp.’ (Blust 1986)

POc **wai, *waiwai* ‘mango (generic)’ (Ross 1996c)

Adm:	Titan	<i>we-wey</i>	‘mango’
Adm:	Baluan	<i>wie</i>	‘mango’
NNG:	Gitua	<i>wo-wai</i>	‘mango’
NNG:	Mangap	<i>we</i>	‘mango’
NNG:	Tami	<i>woa-wai</i>	‘mango’
NNG:	Gitua	<i>wo-wai</i>	‘mango’
NNG:	Mangap	<i>we</i>	‘mango’
PT:	Kilivila	<i>wei-wa</i>	‘mango’
PT:	Hula	<i>wai-wai</i>	‘mango’
SES:	Arosi	<i>wai-wai</i>	‘sp. of small tree’

POc **koRa* ‘wild mango, *Mangifera minor*’ (Ross 1996c)

NNG:	Maenge	<i>kula</i>	‘mango; has strings in it, <i>Mangifera minor</i> (?)’
PT:	Roro	<i>or-or</i>	‘mango’
MM:	Tolai	<i>ko-kor</i>	‘ <i>Mangifera minor</i> (?)’
SES:	Gela	<i>kola</i>	‘mango’

PWOc **kasuwai* ‘mango’ seems to be a compound, with an unidentified element **kasu-* and **wai* ‘mango’. The SE Solomons terms below reflect PSES **yohai*, which in turn reflects a putative POc †**koyai*. However, PSES **yohai* probably reflects the borrowing of a reflex of **kasuwai*, perhaps before the dispersal of PSES, as the terms are regular reflexes of **yohai*.

PWOc **kasuwai* ‘mango’ (Ross 1996c)

NNG:	Kove	<i>korae</i>	‘mango’ (A. Chowning, pers. comm.)
PT:	Dobu	<i>kasawe</i>	‘mango’
PT:	Tawala	<i>kasawe</i>	‘mango’
MM:	Patpatar	<i>kasaua</i>	‘mango, <i>Mangifera indica</i> ’
MM:	Bulu	<i>korae</i>	‘mango’
MM:	Tolai	<i>koai</i>	‘mango’
MM:	Siar	<i>kaswai</i>	‘mango’
MM:	Banoni	<i>dasowe</i>	‘mango’ (for † <i>zasowe</i>)
MM:	Blablanga	<i>kesu</i>	‘mango’

cf. also:

SES:	W Guadalcanal	<i>yoai</i>	‘mango’
SES:	Longgu	<i>ʔeðai</i>	‘mango’
SES:	Arosi	<i>ʔāi</i>	‘mango’
SES:	Fagani	<i>γāi</i>	‘mango’

PWOc **basi* ‘mango’ (Ross 1996c)

PT:	Tawala	<i>basi(awa)</i>	‘mango’
PT:	Sudest	<i>mbaði</i>	‘mango’
MM:	Teop	<i>bai</i>	‘mango’
MM:	Tinputz	<i>pæʔ</i>	‘mango’

3.5 *Pometia pinnata*, ocean lychee, island lychee, TP *ton*, *taun*, P *obit*, *inkori*, B *nandao* (Sapindaceae)

Pometia pinnata, an ancient New Guinea domesticate (Yen 1996), is a tall canopy hardwood tree of 20–45 m (Figure 11.9, left). Peekel (1984: 335) writes that its fruit, green or red and 4–6 cm in diameter, the sweet pulp of which similar in taste and texture to a lychee and is eaten raw, is the most valued in the Bismarck Archipelago after the Malay apple. The skin of the ripe fruit is peeled off like that of a mandarin. The pulp surrounds a seed, up to 3 cm in diameter, which is poisonous and requires extensive processing and cooking before it can be eaten. French (1986: 215) reports that there are also varieties of *P. pinnata* with inedible flesh.

P. pinnata displays considerable variety in form, especially in the New Guinea region, attesting to long cultivation. Walter & Sam (2002: 229–230) report that its better forms are often transplanted in the Bismarcks and in Vanuatu but apparently less so in the Solomons. There are also widespread reports that it makes good building timber (Floyd 1954, Gowers 1976: 118, French 1986: 215). The wood is also used for carving on Waya (Gardner & Pawley 2006), and its plank buttresses provide axe handles in Marovo (Hviding 2005: 129).

The POc term for *P. pinnata* was **tawan*, reflected in all major Oceanic subgroups except Micronesian.

PEMP **tawan* ‘*Pometia pinnata*’ (Blust 1978a)POc **tawan* ‘*Pometia pinnata*’

Adm:	Mussau	<i>taon</i>	‘ <i>Pometia pinnata</i> ’
Adm:	Lou	<i>ta</i>	‘ <i>Pometia pinnata</i> ’
NNG:	Maenge	<i>taua</i>	‘ <i>Pometia pinnata</i> ’
NNG:	Gedaged	<i>tau</i>	‘tree sp. with edible fruit; stem makes good timber.’
NNG:	Matukar	<i>ta</i>	‘ <i>Pometia pinnata</i> ’ (Kaspruś 1945)
NNG:	Megiar	<i>tau(ber)</i>	‘ <i>Pometia pinnata</i> ’ (Kaspruś 1945)
PT:	Bwaidoga	<i>tawana</i>	‘tree sp.’
MM:	Lavongai	<i>ton</i>	‘ <i>Pometia pinnata</i> ’
MM:	Kara (E)	<i>tawən</i>	‘ <i>Pometia pinnata</i> ’
MM:	Lihir	<i>ta</i>	‘ <i>Pometia pinnata</i> ’
MM:	Sursurunga	<i>tawan</i>	‘ <i>Pometia pinnata</i> ’
MM:	Patpatar	<i>tawan</i>	‘ <i>Pometia pinnata</i> ’
MM:	Tolai	<i>ton</i>	‘ <i>Pometia pinnata</i> ’
MM:	Tangga	<i>taun</i>	‘ <i>Pometia pinnata</i> ’
MM:	Sursurunga	<i>taoana</i>	‘a hardwood tree’
MM:	Petats	<i>tan</i>	‘ <i>Pometia pinnata</i> ’
MM:	Teop	<i>tauana</i>	‘ <i>Pometia pinnata</i> ’
TM:	Natügu	<i>no-dae</i>	‘ <i>Pometia pinnata</i> ’

PEOc **tawan* ‘*Pometia pinnata*’

SES:	Lengo	<i>tao</i>	‘ <i>Pometia pinnata</i> ’ (Henderson & Hancock 1988)
SES:	Arosi	<i>awa</i>	‘ <i>Pometia pinnata</i> ’
SES:	Sa’a	<i>awa</i>	‘ <i>Nephelium pinnatum</i> ’
SES:	Kwara’ae	<i>ako</i>	‘ <i>Pometia pinnata</i> ’
		<i>dawa</i>	‘ <i>Pometia pinnata</i> ’ (borrowed form)
NCV:	Mwotlap	<i>na-twen</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Mota	<i>tawan</i>	‘ <i>Pometia pinnata</i> ’
NCV:	NE Ambae	<i>dao</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Araki	<i>(vi)ca</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Raga	<i>dao</i>	‘ <i>Pometia pinnata</i> ’ (Walsh 2004)
NCV:	Big Nambas	<i>da-dau</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Port Sandwich	<i>na-ⁿrao</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Namakir	<i>to</i>	‘ <i>Pometia pinnata</i> ’
NCV:	Nguna	<i>na-dau</i>	‘ <i>Pometia pinnata</i> ’

PSV **na-ntawa(n)* ‘*Pometia pinnata*’ (Lynch 2001c)

SV:	Sye	<i>ntau</i>	‘ <i>Pometia pinnata</i> ’
SV:	Lenakel	<i>natəm</i>	‘ <i>Pometia pinnata</i> ’ (- <i>m</i> unexplained)
SV:	Kwamera	<i>nətum^{wi}</i>	‘ <i>Pometia pinnata</i> ’ (- <i>m^{wi}</i> unexplained)
SV:	Anejoñ	<i>netva</i>	‘ <i>Pometia pinnata</i> ’

PCP **tawa* ‘*Pometia pinnata*’

Fij:	Wayan	<i>tawa</i>	‘ <i>Pometia pinnata</i> ’
Fij:	Bauan	<i>dawa</i>	‘ <i>Pometia pinnata</i> ’

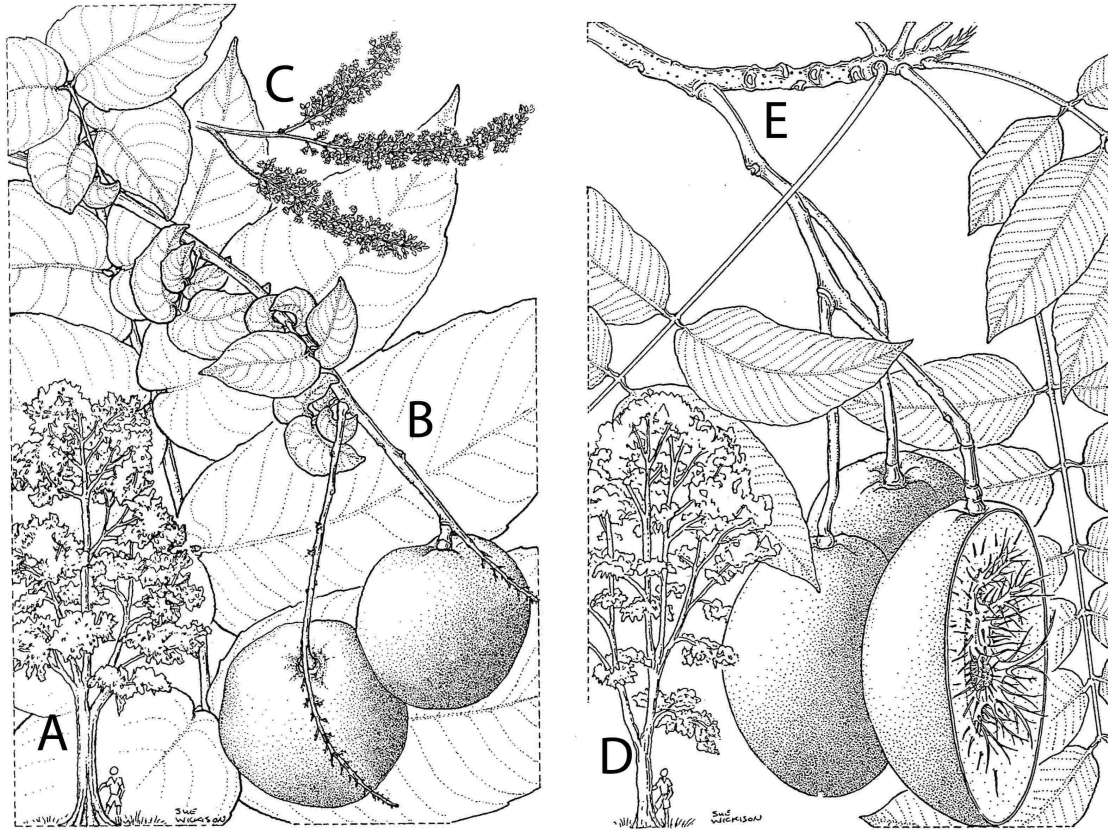


Figure 11.9 Left *Pometia pinnata*, island lychee: A, young tree; B, shoot and edible fruit; C, inflorescence. Right *Spondias cytherea*, golden apple: D, young tree; E, shoot with leaves, leaflets and a cluster of edible fruit.

Pn:	Tongan	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	Niuean	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	Samoan	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	E Futunan	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	Emae	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	Tikopia	<i>tava</i>	' <i>Pometia pinnata</i> '
Pn:	Tuamotuan	<i>tava</i>	' <i>Pandanus</i> sp.'
Pn:	Māori	<i>tawa</i>	' <i>Beilschmiedia tawa</i> '

3.6 *Spondias cytherea* (syn. *S. dulcis*, *S. mangifera*), golden apple, Polynesian plum, hog plum, Tahitian apple, *B naos* (Anacardiaceae)

Spondias cytherea is a lowland subcanopy tree of medium height, 10–25 m. tall, distributed from island SE Asia to western Polynesia, and occurring in several varieties, a probable result of domestication (Figure 11.9, right). Within the Bismarcks it occurs mainly in the Admiralties, on Mussau Island and in New Ireland (Bourke n.d.). The tree is widely cultivated near villages in the Bismarcks, the Solomons (mainly in the Reef Islands) and Vanuatu, but

is also spread by fruit bats (Henderson & Hancock 1988: 47, Walter & Sam 2002: 243–244, French 1986: 219).

The mature tree has a long trunk of up to 20 m with large buttresses up to 3 m. Its small white flowers grow in clusters, and it has yellow or orange ellipsoid fruit, up to 7 cm long. According to Henderson & Hancock (1988: 47) there are two varieties. The fruit of one are acidic and bitter, of the other slightly tart but pleasant to eat. The former are baked before eating, whilst the latter are eaten raw. Hviding (2005: 135) reports of the second variety that in Marovo the fruit are best eaten when unripe and rather sour. In Vanuatu the fruit are of better quality than in the Bismarcks and the Solomons. They are picked while still green, just before they ripen, and eaten a few days later after they have ripened inside the house.

The wood is too soft for use in buildings, but in Vanuatu it is used to make canoe outriggers. It has a variety of medicinal uses: a decoction from the leaves is used for coughs and other ailments (Henderson & Hancock 1988: 49).

There was a single widely reflected POc term, **quRis*. I have assumed below that the PCP form was **wī*, with irregular loss of **q-* from expected †**quī*. However, loss of **q-* is regular in Fijian, and so Fijian *wī* is a regular reflex of either protoform. Geraghty (2004: 87) suggests that the PCP form was indeed **quī* and that the Polynesian forms reflect borrowing from Fijian—but such a borrowing would have had to occur very early, to find its way to the extremes of Polynesia. It seems more likely that the PCP indeed had **wī*.

POc **quRis* ‘*Spondias cytherea*’ (Grace 1969 (Wilhelm Milke, pers. comm.: **quRi*); Ross 1996c)

Adm:	Loniu	<i>wi</i>	‘ <i>Spondias cytherea</i> ’
NNG:	Maenge	<i>kuli</i>	‘ <i>Spondias cytherea</i> ’
PT:	Motu	<i>uri</i>	‘ <i>Garuga</i> sp.’ (Lane-Poole 1925) ²⁶
MM:	Nakanai	<i>huri</i>	‘ <i>Spondias cytherea</i> ’
MM:	Kara (E)	<i>us</i>	‘ <i>Spondias cytherea</i> ’
MM:	Patpatar	<i>kulis</i>	‘ <i>Spondias cytherea</i> ’
MM:	Tolai	<i>kuri</i>	‘ <i>Spondias cytherea</i> ’
TM:	Natügu	<i>n-oli</i>	‘ <i>Spondias cytherea</i> ’
SES:	Lau	<i>uli</i>	‘ <i>Spondias cytherea</i> ’
SES:	Kwaio	<i>uli</i>	‘ <i>Spondias cytherea</i> ’
NCV:	Mwotlap	<i>ry</i>	‘ <i>Spondias cytherea</i> ’
NCV:	Mota	<i>ur</i>	‘ <i>Spondias cytherea</i> ’
NCV:	Vera’a	<i>n-ur</i>	‘ <i>Spondias cytherea</i> ’

PSV **na-viris* ‘*Spondias cytherea*’ (Lynch 2004a)

SV:	Sye	<i>ne-viwi</i>	
SV:	Ura	<i>(u)vasele</i>	‘ <i>Spondias cytherea</i> ’ (metathesis)
SV:	Kwamera	<i>nə-kori</i>	‘ <i>Dracontomelon vitiensis</i> ’
SV:	Anejoñ	<i>n-huri</i>	‘ <i>Dracontomelon vitiensis</i> ’

PCP **wī* ‘*Spondias cytherea*’

Fij:	Bauan	<i>wī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Tongan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Niuean	<i>vī</i>	‘ <i>Spondias cytherea</i> ’

²⁶ Note that *Garuga* (ch.7, §4.8) is said to resemble *Spondias cytherea*. See PNCV **mal-mali* below.

Pn:	E Futunan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Emae	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Rennellese	<i>bī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Tikopia	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Samoaan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Tokelauan	<i>vī</i>	‘mango species found only in Samoa’
Pn:	Rapanui	<i>bī</i>	‘Indian mango tree, <i>Mangifera indica</i> ’
Pn:	Marquesan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Mangarevan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Hawaiian	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Tahitian	<i>vī</i>	‘ <i>Spondias cytherea</i> ’
Pn:	Rarotongan	<i>vī</i>	‘ <i>Spondias cytherea</i> ’

In the Bismarcks an imported thorny shrub, *Ximenia americana* (syn. *X. elliptica*, *X. aculeata*),²⁷ is evidently perceived as resembling *S. cytherea*, to judge from the names below. The resemblance is based on the fact that *X. americana* also has edible yellow ellipsoid fruit, but no larger than a cherry (Peekel 1984: 160). E Kara combines the POc prefix **mala-* ‘resembling’ (ch.2, §7.1.4) and *ukis* ‘*S. cytherea*’. The base *ukis* is the reflex of POc **quRis* ‘*S. cytherea*’ that would be expected in Tigak, immediately to the north of Kara. Further south, in Patpatar, the term for *X. americana* is *ku-kuris*, the reduplication implying that *X. americana* is an inferior or wild version of *S. cytherea* (ch.2, §7.2).

MM:	Kara (E)	<i>mala-ukis</i>	‘ <i>Ximenia americana</i> ’ (‘false <i>Spondias cytherea</i> ’)
MM:	Patpatar	<i>ku-kuris</i>	‘ <i>Ximenia americana</i> ’ (‘small <i>Spondias cytherea</i> ’)
MM:	Tolai	<i>kuri-val</i>	‘ <i>Ximenia americana</i> ’ (<i>kuri</i> ‘ <i>Spondias cytherea</i> ’)

(Record 1945)

PNCV **usi* below appears to be an irregular reflex of POc **quRis*. Two possible explanations present themselves. First, **(q)usi* is a metathesised reflex of **quRis* (> †**uis* > **usi*). Second, although POc final consonants were regularly lost in PNCV, Clark (2008) points to a dozen or so words in which the expected CVCV form exists alongside an extended form CVCVCV, representing the full POc form with an added vowel, most often **-i*. The extended forms, for which Clark offers no explanation, are found throughout North Vanuatu and north Malakula, but without much consistency in any one language. One of these, in the form he reconstructs, is **quRisi*, which with regular deletion of POc **q-* and **-R-* gives **u(i)si*.

Some of these reflexes are (also) used to denote the pawpaw/papaya, *Carica papaya*, a recent introduction; this reflects a perception in Vanuatu that *Spondias cytherea* and papaya are similar and somehow related.

PNCV **usi* ‘*Spondias cytherea*’ (from data in Wheatley 1992)

NCV:	Nduindui	<i>uhi</i>	‘ <i>Spondias cytherea</i> ’
		<i>uhi(gai)</i>	(<i>gai</i> ‘tree’)
NCV:	NE Ambae	<i>uhi</i>	‘ <i>Carica papaya</i> ’
NCV:	Tangoa	<i>(vi)usi</i>	‘ <i>Spondias cytherea</i> ’

²⁷ Despite its name, *Ximenia americana* has an African origin.

NCV: Nokuku	<i>o-usi</i>	‘ <i>Spondias cytherea</i> ’
NCV: Tolomako	<i>na-us</i>	‘ <i>Spondias cytherea</i> ’
NCV: Kiai	<i>usi</i>	‘ <i>Spondias cytherea</i> ’
NCV: Raga	<i>uhi</i>	‘ <i>Spondias cytherea</i> , <i>Carica papaya</i> ’
NCV: Uripiv	<i>na-us</i>	‘ <i>Spondias cytherea</i> , <i>Carica papaya</i> ’
NCV: Nese	<i>na-us</i>	‘ <i>Spondias cytherea</i> ’
NCV: SW Bay	<i>ni-vus(-saruei)</i>	‘ <i>Spondias cytherea</i> ’

There are two possible external cognates of the PNCV etymon below. The first is Mussau (Adm) *malai* ‘*Spondias cytherea*’ (Lepofsky 1992). However, Mussau *-ai* does not correspond regularly with Paamese, Nguna *-i*. The second is Wayan (Fij) *māoli* ‘*Spondias cytherea*’, but Wayan *-āo-* does not correspond regularly with PNCV **-a-*. In parts of northern Vanuatu the term has been reapplied to *Dracontomelon vitiense* (ch.7, §4.4).

PNCV **mali* ‘*Spondias cytherea*’ (Clark 1996a)

NCV: Nokuku	<i>mal</i>	‘ <i>Dracontomelon vitiense</i> ’
NCV: Araki	<i>(vi)ṅali</i>	‘ <i>Dracontomelon</i> ’
NCV: Port Sandwich	<i>mar(kokoc)</i>	‘ <i>Spondias cytherea</i> ’
NCV: Lonwolwol	<i>mel</i>	‘a large tree with yellow edible fruit’
NCV: SE Ambrym	<i>mal</i>	‘ <i>Dracontomelon vitiense</i> ’
NCV: Paamese	<i>mali-mali</i>	‘ <i>Spondias cytherea</i> ’
NCV: Lewo	<i>(puru)mel-mel</i>	‘ <i>Spondias cytherea</i> ’
NCV: Baki	<i>(bur)mel-mel</i>	‘ <i>Spondias cytherea</i> ’
NCV: Namakir	<i>mali-mal</i>	‘ <i>Spondias cytherea</i> ’
NCV: Nguna	<i>na-mali</i>	‘ <i>Spondias cytherea</i> ’
NCV: S Efate	<i>n-mal</i>	‘ <i>Spondias cytherea</i> , <i>S. edulis</i> ’

Also puzzling is the connection between PNCV **mali* and the items for *Garuga floribunda* listed below. There is reason to think that this is not a chance resemblance, as the PROc term **mala-usi* ‘*Garuga* sp.’ literally meant ‘like *Spondias cytherea*’ (ch.7, §4.8), i.e. there was/is a perceived resemblance between *Garuga* and *Spondias* species. We cannot simply include the items below in the cognate set for PNCV **mali* above, however, as the Paamese, Lewo and S Efate reflexes of **mal-mali* differ from their reflexes of **mali*.

PNCV **mal-mali* ‘*Garuga floribunda*’

NCV: Mwotlap	<i>na-mal-mali (ey)</i>
NCV: Paamese	<i>e-imoumol</i>
NCV: Lewo	<i>(puru)mal-mal</i>
NCV: Baki	<i>(buru)mar-marō</i>
NCV: S Efate	<i>n(a)-mal-mil</i>

3.7 *Syzygium malaccense* (syn. *Eugenia malaccensis*, *E. jambos*, *Jambosa malaccensis*), Malay apple, rose apple, TP *laulau*, P *kabarae*, B *nakavika* (Myrtaceae)

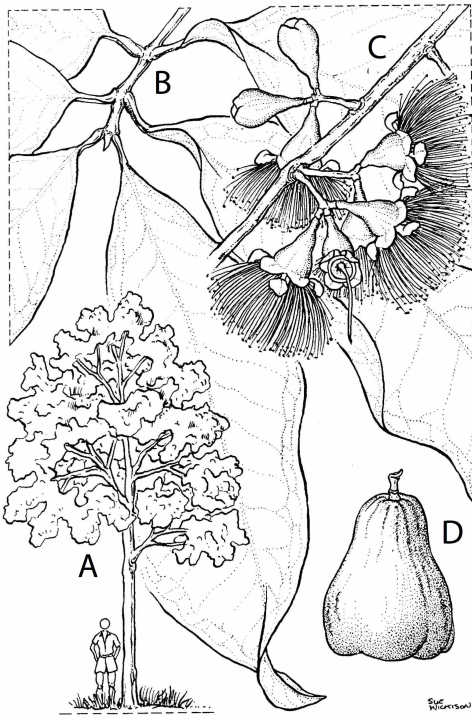


Figure 11.10 *Syzygium malaccense*: A, tree; B, shoot; C, branch with opened and unopened flowers; D, edible fruit.

Many *Syzygium* species which occur in the Pacific have edible fruit. The most important is *S. malaccense*, which is distributed from SE Asia to Polynesia, but Peekel (1984: 408–415) and Walter & Sam (2002: 251–252) list numerous species which occur in NW Island Melanesia.

S. malaccense is an erect tree of medium height, 5–25 m tall, with spectacular white or pink flowers that look like small powder puffs and ellipsoid two-seeded fruit 4–9 cm long that are white, pink or red when they are mature. The fruit approach a European apple in texture, but are often more watery in flavour. They are widely and, to quote Sorensen, ‘avidly’ consumed throughout the Pacific (Sorensen 1950, Peekel 1984: 408, Walter & Sam 2002: 250, Bourke in preparation). They are eaten fresh, soon after picking. *S. malaccense* is found around villages and in coconut groves, in gardens and old fallows, and in open forests, although it is not clear whether it is indigenous to Melanesia or whether cultivated varieties have simply propagated themselves into the wild. Transplantation of better forms to village and garden areas is widespread (Paijmans 1976: 123–124, Walter & Sam 2002: 250). The

wood is used for buildings in Vanuatu and Fiji, and for canoes in Vanuatu. Juice extracted from the leaves is used for abdominal pains, sore throats, toothache and generally for pain and fever (Henderson & Hancock 1988: 43–44, Walter & Sam 2002: 250).

The POc term for *S. malaccense* was **kapika*, reflected in all major Oceanic subgroups except Micronesian. It may also have served as a generic for *Syzygium* species in general.

POc **kapika* ‘Malay apple, rose apple, *Syzygium malaccense*’ (Milke 1968)

Adm: Mussau	<i>kaviu</i>	‘ <i>Syzygium samarangense</i> ’ (-u for †-a)
Adm: Seimat	<i>ahi</i>	‘ <i>Syzygium</i> sp.’ (Sorensen 1950)
Adm: Lou	<i>keik</i>	‘large variety of Malay apple, <i>Syzygium gomata</i> ’ ²⁸

PWoc **kapika* ‘*Syzygium malaccense*’

NNG: Maenge	<i>gaiva</i>	‘rose apple, <i>Syzygium malaccense</i> ’
NNG: Tami	<i>kapig</i>	‘rose apple, <i>Syzygium malaccense</i> ’
NNG: Yabem	<i>aiŋ</i>	‘rose apple’

²⁸ *S. gomata* is not listed in IPNI or APNI. The species label *gomata* appears to reflect Tolai *gamata* ‘*Syzygium malaccense*’, and *S. gomata* is perhaps a variety thereof.

PT:	Motu	<i>yavika</i>	‘name of tree sp., leaves of which are used as cigarette wrappers’
MM:	Nakanai	<i>gaiva</i>	‘ <i>Syzygium malaccense</i> ’ (Floyd 1954)
MM:	Bola, Bulu	<i>kavika</i>	‘ <i>Syzygium malaccense</i> ’
MM:	Babatana	<i>kapika</i>	‘ <i>Syzygium malaccense</i> ’
PEOc * <i>kapika</i> ‘ <i>Syzygium malaccense</i> ’			
SES:	Gela	<i>yaviya</i>	‘ <i>Syzygium malaccense</i> ’
SES:	Kwara’ae	<i>?afi?o</i>	‘ <i>Syzygium malaccense</i> ’
SES:	Lau	<i>afio</i>	‘ <i>Syzygium onesimum</i> ’
NCV:	Mota	<i>gaviga</i>	‘ <i>Syzygium malaccense</i> , wild inedible variety’
NCV:	Araki	<i>haviha</i>	‘ <i>Syzygium malaccense</i> ’
NCV:	Tamambo	<i>haviha</i>	‘Malay apple’
NCV:	Raga	<i>yaviya</i>	‘Malay apple (Walsh 2004)’
NCV:	Uripiv	<i>n-avi</i>	‘Malay apple’
NCV:	Port Sandwich	<i>xavik</i>	‘Malay apple’
NCV:	Paamese	<i>ahie</i>	‘Malay apple’
NCV:	Lewo	<i>kavika</i>	‘Malay apple’
NCV:	Namakir	<i>kavik</i>	‘Malay apple’
NCV:	Nguna	<i>na-kavika</i>	‘Malay apple’
NCV:	S Efate	<i>n-kafik</i>	‘Malay apple’
PSV * <i>na-yaviy</i> ‘ <i>Syzygium malaccense</i> ’ (Lynch 2001c)			
SV:	Lenakel	<i>nə-kəvək</i>	‘ <i>Syzygium malaccense</i> ’
SV:	Anejoñ	<i>n-yehey</i>	‘ <i>Syzygium malaccense</i> ’
NCal:	Pije	<i>cāk</i>	‘ <i>Syzygium malaccense</i> ’
NCal:	Iaai	<i>xəiə</i>	‘ <i>Syzygium malaccense</i> ’
NCal:	Nyelāyu	<i>cāc</i>	‘ <i>Syzygium malaccense</i> ’
NCal:	Xârâcùù	<i>klɛ̃</i>	‘ <i>Syzygium malaccense</i> ’
PCP * <i>kavika</i> ‘ <i>Syzygium malaccense</i> ’			
Fij:	Wayan	<i>kavika</i>	‘ <i>Syzygium malaccense</i> ’
Fij:	Bauan	<i>kavika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Tongan	<i>fekika</i>	‘ <i>Syzygium malaccense</i> ’ (metathesis)
Pn:	Niuean	<i>kafika</i>	‘ <i>Syzygium</i> sp.’
Pn:	Anutan	<i>kapika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	E Futunan	<i>kafika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	E Uvean	<i>kafika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Tikopia	<i>kafika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Marquesan	<i>kehika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Mangarevan	<i>ke?ika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Tahitian	<i>?ahi?a</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Hawaiian	<i>?oohia(?ai)</i>	‘ <i>Syzygium malaccense</i> ’
		<i>?oohia(lehua)</i>	‘ <i>Metrosideros</i> spp.’
Pn:	Rarotongan	<i>ka?ika</i>	‘ <i>Syzygium malaccense</i> ’
Pn:	Māori	<i>kahika</i>	‘ <i>Metrosideros fulgens</i> , <i>Dacrycarpus dacrydioides</i> ’ (R. Gardner, pers. comm.)

The three more narrowly distributed cognate sets below reflect other terms for *Syzygium* species. Whether these denoted cultivars of *S. malaccense* or other species, it is impossible to say.

POc **poka(q)* ‘variety of Malay apple’

Adm:	Mussau	<i>oā</i>	‘small variety of Malay apple, <i>Syzygium gomata</i> ’
NNG:	Bariai	<i>poi</i>	‘ <i>Syzygium</i> ’ sp. (Goulden 1996)
NNG:	Kilenge	<i>pokai</i>	‘ <i>Syzygium</i> ’ sp. (Goulden 1996)

POc **mari(a)sapa* ‘*Syzygium* sp.’

Adm:	Nyindrou	<i>marisah</i>	‘ <i>Syzygium</i> sp.’
MM:	Patpatar	<i>mariasa</i>	‘ <i>Syzygium acutanulum</i> ’ (for † <i>mariasaha</i>)

cf. also:

MM:	Nehan	<i>mariah</i>	<i>Alpinia</i> sp.
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PAdm **cay* ‘*Syzygium* sp. with large red fruit’

Adm:	Baluan	<i>sai</i>	‘ <i>Syzygium malaccense</i> ’
Adm:	Wuvulu	<i>tae</i>	‘ <i>Syzygium</i> sp. with large red fruit’
Adm:	Loni	<i>cay</i>	‘ <i>Syzygium</i> sp. with large red fruit’
Adm:	Titan	<i>cay</i>	‘ <i>Syzygium</i> sp. with large red fruit’

4 Other nut and fruit trees

This section is devoted to nut- or fruit-bearing species that are popularly eaten in at least parts of NW Island Melanesia but for which there is no evidence of arboriculture.

In several cases, the literature on plant food production describes species for which we have been unable to reconstruct a term. These are:

- *Flacourtia rukam* is a small tree with a twisted trunk and red spherical fruits of 2 cm diameter, distributed from island SE Asia to the Solomons but found cultivated further east. The fruit is occasionally eaten (Walter & Sam 2002: 173–174, Bourke n.d.).
- *Pouteria maclayana* is a common, self-sown, small, buttressed coastal tree with a bushy crown that grows in New Guinea, on offshore islands along its north coast and in the southeastern Solomon Islands. Its yellow-fleshed fruit, shaped like a flattened sphere, is occasionally eaten raw, in some places as a famine food (Henderson & Hancock 1988: 142–143, Walter & Sam 2002: 233, Bourke n.d.). Allen et al. (1994) list it among previously important foods on Karkar Island.
- *Castanopsis acuminatissima* is a tall oak-like tree whose seeds are a traditional forest food, eaten after boiling in New Guinea, New Britain and perhaps parts of the Solomons (Henty 1982, Evans 1999: 19).
- *Omphalea gageana* (syn. *O. papuana*, *O. queenslandiae*) is an uncommon large woody, high-climbing forest creeper, 20–30 m. long. Its fruit has three seeds enclosed in a thin fleshy mesocarp and a ridged undulating woody shell, which are eaten raw or cooked

around the Huon Gulf and in SE Papua (Henty 1982, Peekel 1984: 317, Henderson & Hancock 1988: 76, Evans 1999: 19).

- *Gnetum latifolium* is another large woody, high-climbing forest creeper, 5–20 m long, with yellow-red fruits, the seeds of which are eaten after roasting (Peekel 1984: 37, Henderson & Hancock 1988: 78, Evans 1999: 20).

The distributions of some of the above are such that they may have been unknown to speakers of POC, but it is also possible that our sources are not detailed enough to provide us with the data needed to support a reconstruction.

The fruits of several species of *Ficus* are eaten. Bourke (n.d.) names *F. copiosa*, *F. tinctoria* and *F. wassa*. These are treated in ch.10, §4.

4.1 *Finschia chloroxantha* (syn. *F. waterhousiana*, *F. densiflora*, *Grevillea densiflora*) (Proteaceae)

Finschia chloroxantha is a medium-sized lowland rain forest tree with a blackish trunk and stilt roots (Figure 11.11, right). When it blooms it makes a spectacular display of bright orange or light golden yellow pendulous flowers. Its seeds are edible, eaten raw as snacks in the Solomons and after cooking in New Guinea. Its red-brown wood is strong and is used for timber, furniture and drums in the Solomons. Its leaves were used to treat sores and ulcers on Santa Isabel (Henty 1982, Henderson & Hancock 1988: 74–76, Evans 1999: 19, Kwa’ioloa & Burt 2001: 124).

The cognate set below allows only a PEOc reconstruction. The one Western Oceanic item, Maringe *ylama*, is probably a borrowing from a neighbouring SE Solomonic language, especially as Maringe *yl-* typically reflects POC **l-*, not **g-*. The species is not mentioned by Peekel (1984), a major source of botanical terms from New Ireland.

MM: Maringe *ylama* ‘*Finschia chloroxantha*’ (Henderson & Hancock 1988: 74)

PEOc **gama* ‘*Finschia chloroxantha*’

SES: Kwará’ae (*a*)*kama* ‘*Finschia chloroxantha*’

SES: Lau (*a*)*kame* ‘*Finschia densiflora*’

NCV: Tamambo (*vu*)*kame* ‘*Finschia chloroxantha*’ (Walter & Sam 2002: 293)

NCV: Apma (*wa*)*gam* ‘*Finschia chloroxantha*’

PSV **na-(i)gam* ‘*Finschia chloroxantha*’ (Lynch 2001c)

SV: Sye *ne-ijkom* ‘*Finschia chloroxantha*’

SV: Anejoñ *n-ikam* ‘*Finschia chloroxantha*’

4.2 *Parartocarpus venenosa* (syn. *Parartocarpus involucrata*) (Moraceae)

Parartocarpus venenosa is a large lowland forest tree growing to about 35 m, with girths of over 1.5 m, which resembles the breadfruit (Figure 11.11, left) (ch.9, §4). Its fruit is brown or yellow and highly aromatic; it forms an irregularly shaped syncarp about 18 cm across, a compound fruit with many segments about 3 cm long arranged around the core, and is eaten raw. It is especially popular in New Britain, but there is no record of cultivation. Elsewhere in lowland New Guinea, the Bismarcks and the Solomons it is generally less significant but is

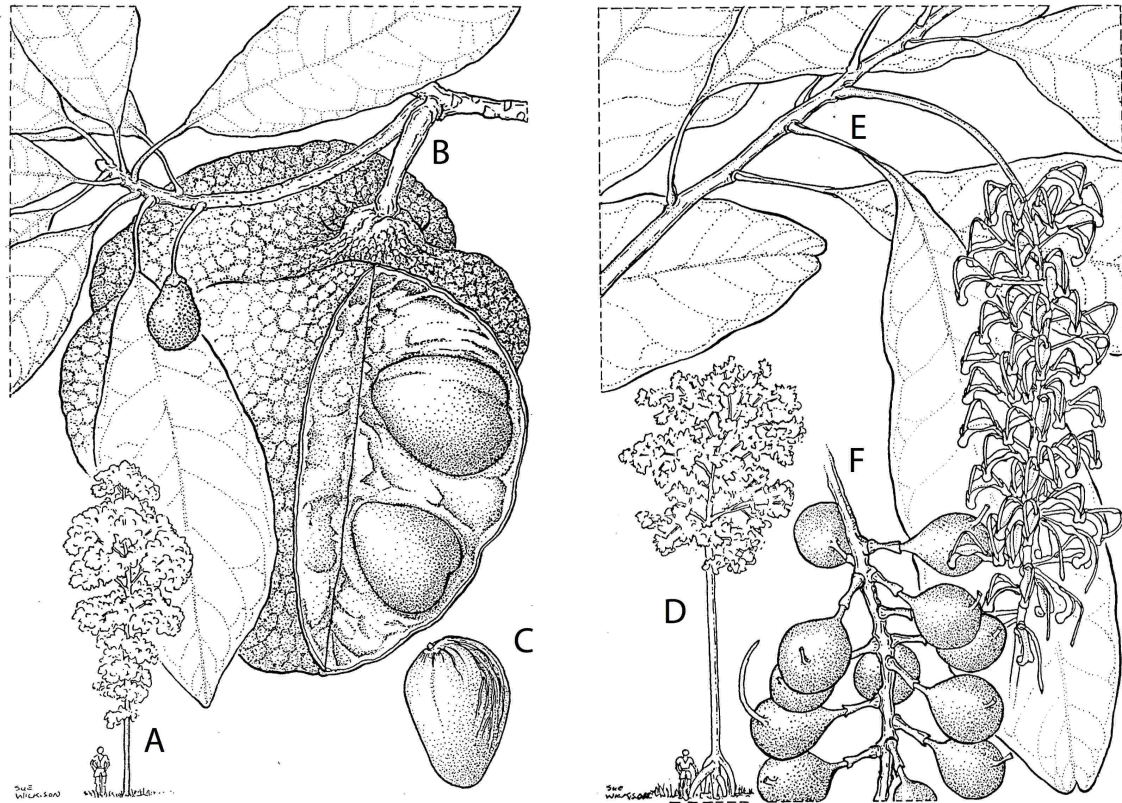


Figure 11.11 Left *Parartocarpus venenosa*: A, young tree; B, branch bearing shoot, male flower and edible fruit; C, seed. Right *Finschia chloroxantha*: D, tree with stilt roots; E, flowering shoot; F, fruit cluster.

known and consumed (Barrau 1962: 177, Paijmans 1976: 124, Peekel 1984: 132, Bourke in preparation, French 1986: 259). Henderson & Hancock (1988) report that it is not very sweet and has a powdery texture: it is filling but not succulent. Its timber is generally not regarded as useful.

Although reflexes of PWoc **lapuka* mean ‘breadfruit’ in some languages, the fact that there were at least two other POC terms for breadfruit (ch.9, §4) suggests that the reflexes glossed ‘*Parartocarpus venenosa*’ retain the POC denotation. Kwara’ae *rak^wa-na* is irregular, with initial *r-* for expected †*l-* and suffixed *-na* (medial *-k^w-* is a regular reflex of **-p^w-*). Araki *levu* is irregular with *-e-* for †*-a-*.

PWoc **lapuka* ‘k.o. tree with fruit similar to breadfruit, *Parartocarpus venenosa*’ (?)

NNG:	Takia	<i>lou</i>	‘k.o. breadfruit’
NNG:	Kaiwa	<i>lavuk</i>	‘breadfruit, <i>Artocarpus altilis</i> ’
NNG:	Medebur	<i>lapu</i>	‘breadfruit, <i>Artocarpus altilis</i> ’
PT:	Are	<i>napo</i>	‘breadfruit’
MM:	Notsi	<i>lipua</i>	‘breadfruit’
MM:	Susurunga	<i>lapu</i>	‘tree type whose fruit, similiar to a breadfruit, is yellow and sweet and is eaten raw (possibly <i>Parartocarpus venenonus</i>)’

MM: Patpatar *lapuo* ‘*Parartocarpus venenosa*’
MM: Tolai *lapua* ‘*Parartocarpus venenosa*’

cf. also:

SES: Kwara’ae *rak^wa-na* ‘*Parartocarpus venenosa*’
NCV: Araki *levu* ‘breadfruit, *Artocarpus altilis*’

12 *The coconut palm*

MALCOLM ROSS AND BETHWYN EVANS

1 Introduction

The products of the coconut palm are labelled by a complex terminology whose ancestry stretches back to Proto Oceanic (POc), a measure of their constant importance in the lives of Oceanic speakers.

2 The coconut palm

Growing to between 20 and 30 m in height, coconut palms are found in profusion along coasts and on lowlands throughout the Oceanic-speaking region. They need well drained, sandy soil, more than 1000 mm rain per year and plenty of sunlight. Because they tolerate salinity, they often grow along beaches (French 1986: 31). Coconuts appear to have spread from southeast Asia both naturally (coconuts float) and anthropogenically (carried in the canoes of early settlers).¹

Just about every part of the palm and the fruit is used in traditional societies, and many of these parts are named. Because of the salience of the coconut in Oceanic cultures and because different uses are made of it at different stages of its growth, it is common for the fruit and palm to be given different names at different growth stages. These names are reconstructed in §3. Names for the parts of the fruit are reconstructed in §4 and for the parts of the palm other than the fruit in §5.

2.1 *Cocos nucifera*, coconut, TP, B *kokonas*, P *kokonat* (Arecaceae)

POc **niuR* appears to have been used in at least two senses: the fruit at any stage of growth, and the palm. A number of the glosses below are simply ‘coconut’: in all these cases the gloss almost certainly denotes both the fruit and the palm.

¹ The English word ‘coconut’ is used here for both the palm and the fruit. The intended referent is, we hope, obvious from context.

PMP **niuR* ‘coconut, *Cocos nucifera*; ripe coconut (growth stage of *C. nucifera*)’
(Dempwolff 1938)

POc **niuR* ‘coconut palm and/or fruit, *Cocos nucifera*’

Adm: Loni	<i>niu</i>	‘coconut’ (Nevermann 1934)
Adm: Titan	<i>niw</i>	‘coconut, completely ripe’
NNG: Kove	<i>niu</i>	‘coconut’
NNG: Numbami	<i>niwila</i>	‘coconut’
NNG: Kaiwa	<i>niuk</i>	‘coconut’
NNG: Lukep (Pono)	<i>(matuk) niu</i>	‘green coconut’
PT: Gapapaiwa	<i>niura</i>	‘coconut’
PT: Iamalele	<i>niula</i>	‘coconut (tree, nut, meat)’
PT: Tawala	<i>neula</i>	‘coconut’
PT: Suau (Saliba)	<i>niu</i>	‘coconut’ (archaic)
PT: Motu	<i>niu</i>	‘coconut tree and mature fruit’
MM: Bola	<i>niu</i>	‘coconut’
MM: Nalik	<i>nur</i>	‘coconut’
MM: Tabar	<i>niu</i>	‘coconut’
MM: Mono-Alu	<i>niunu</i>	‘coconut’
TM: Buma	<i>luro</i>	‘coconut’
TM: Nebao	<i>na-nə</i>	‘coconut’
TM: Asuboa	<i>u-ñio</i>	‘coconut’
TM: Tanabili	<i>no-ñio</i>	‘coconut’
SES: Gela	<i>niu</i>	‘coconut palm, nut’
SES: Kwaio	<i>niu</i>	‘coconut’
SES: Sa’a	<i>niu</i>	‘coconut’
NCV: Nokuku	<i>niu</i>	‘coconut’
NCV: Raga	<i>niu</i>	‘coconut’
NCV: Uripiv	<i>ne-ni</i>	‘coconut’
NCV: Paamese	<i>a-nii</i>	‘green coconut w. soft flesh’
NCV: Lewo	<i>niu</i>	‘green drinking nut’
NCV: S Efate	<i>na-niu</i>	‘coconut’
NCal: Nêlêmwa	<i>nu</i>	‘coconut’
NCal: Iai	<i>(wa)nu</i>	‘coconut’
NCal: Xârâcùù	<i>nũ</i>	‘coconut’
Mic: Kiribati	<i>nii</i>	‘coconut’
Mic: Kosraean	<i>nu</i>	‘coconut’
Mic: Mokilese	<i>ni</i>	‘coconut’
Mic: Marshallese	<i>niy</i>	‘coconut’
Mic: Ponapean	<i>nī</i>	‘coconut’
Mic: Woleaian	<i>lū</i>	‘coconut’
Mic: Puluwatese	<i>nī</i>	‘coconut’
Mic: Chuukese	<i>nī</i>	‘coconut’
Fij: Wayan	<i>niu</i>	‘coconut palm, nut’
Pn: Tongan	<i>niu</i>	‘coconut palm, nut’
Pn: Tikopia	<i>niu</i>	‘coconut palm, nut’

3 Growth stages of the coconut

Right across Oceania, languages distinguish a number of growth stages of a coconut. These terminologies are often not cognate, but roughly agree on the semantic categories they distinguish.² Sometimes a term for a growth stage becomes the generic term for coconut. For example, Lukep (Pono) (NNG) *matuk* and Mota (NCV) *matig*, both ‘coconut (generic)’ and reflexes of POc **matuqu* ‘ripe coconut’, have displaced the reflex of POc **niuR* ‘coconut (generic)’.³

The growth stages are distinguished according to the states of the various parts of the fruit (Figure 12.1, p.369). At and after its drinkable stage, a coconut consists of a hollow shell (the endocarp) lined with flesh (the endosperm) and filled with coconut water. The shell is surrounded by a thick husk (the mesocarp) composed of fibres (coir) and enclosed by an outer skin (the exocarp).⁴ The shell has three germination pores that are visible on the shell once the husk is removed. It is through one of these that the radicle emerges when the embryo germinates.

3.1 Growth stage terminologies

In the Oceanic view of the coconut’s life cycle, the first stage is the formation of the tiny fruit from the bud. The fruit then acquires liquid, then soft flesh, and becomes a green drinking coconut. The main reason to pick the nut at this stage is to drink its water: a big nut contains up to one litre. As it matures, the outer skin turns from green to brown, and the flesh becomes harder and thereby suitable for scraping as a food ingredient and for wringing to produce coconut ‘milk’ or ‘cream’ (vol.1, ch.6, §5.8, and ch.9, §2.2 and §7). The liquid becomes less and less drinkable. At this stage the coconut falls from the tree, the liquid solidifies into a spongy mass (the ‘apple’) and finally, given appropriate circumstances, germination occurs and the coconut sprouts to become a new palm. This contrasts markedly with a botanist’s view of the coconut’s life cycle (e.g. M. Foale 2003: 43–50), which begins with germination, describes the stages of leaf production and culminates in flowering and fruiting. The botanist’s view focusses on the palm, the Oceanic view on the fruit.

Sample growth stage terminologies from seven well distributed Oceanic languages are listed below. The Petats terminology is from an ethnography, the others from dictionaries. The Petats, Mota, Anejoñ, Wayan and Tikopia stages are given in chronological order by their sources, whilst the Gumawana and Arosi stages were gleaned from dictionaries one term at a time and we have ordered them as best we can. The terminologies vary in size from 8 stages to 14, but we should probably not take these differences too seriously, for reasons discussed in association with Table 12.1. The number of stages seems to be about right: Glennon & Glennon (2005) list 7 for Nehan, Fox (1955) 7 for Gela, T. Crowley (1992) 11 for Paamese, Thieberger (2006*b*) 10 for S Efate, Abo et al. (1976) 8–10 for Marshallese,⁵

² This section represents a re-run of the corresponding research reported in Ross (1996*c*) based on a larger range of data.

³ In Lukep the term *matuk niu* denotes a green drinking coconut.

⁴ The outer skin and husk are removed before export, so that coconuts sold in the shops of non-tropical countries consist of just the shell and its contents.

⁵ Depending on one’s interpretation of the dictionary data.

Churchward (1959) 11 for Tongan. Waterhouse (1949) lists 18 for Roviana, in order but unfortunately not glossed.

The first three terminologies, for Gumawana, Petats and Arosi, have sets of terms that are distributed across the fairly obviously recognisable growth stages of the coconut.

Gumawana (PT): 9 stages

asipu	‘very small, not drinkable’
gavi	‘a bit bigger, not drinkable’
mosali	‘bigger, not drinkable’
bosibosi	‘large green, drinkable’
nakulamata	‘starts turning brown’
nugomoyao	‘brown but has not fallen yet’
nadada	‘dry and will fall’
nadaiyada	‘dry and fallen’
tabona	‘sprouted’

Petats (MM): 11 stages (Blackwood 1935: 310)

teō	‘very young nut’
pēsis, pēli	‘young nut before it contains liquid’
kakarut	‘nut containing liquid before flesh appears’
irabil	‘nut with thin flesh layer at the creamy stage (drinking coconut)’
kuvo	‘nut with meat a little firmer, also used for drinking’
rut	‘nut containing a little (bitter) liquid and thick flesh’
laŋ	‘nut, the flesh of which has hardened (dry cococut)’
pitor	‘mature nut, the outer skin of which is not yet dry’
tunun	‘nut, the kernel of which has become spongy’
tus, alaun	‘nut which has become dry and fallen to the ground’
hala	‘nut which has sprouted’

Arosi (SES): 12 stages (Fox 1978)

ʔoraamai	‘the first bud of a coconut’
kopu	‘newly formed fruit’
poku	‘young nut’
poru	‘green nut’
p ^w aruru	‘young green drinking nut’
ʔobu	‘drinking nut’
niu p ^w aikari	‘a nut still containing liquid’
niu kokoru	‘nut with hard flesh already formed’ (lit. ‘coconut egg-white’)
niu saramarai	‘dry nut’
doʔo	‘ripe, dark nut’ (lit. ‘black’)
niu matere	‘fallen mature nut’
niu b ^w aʔo	‘very young palm’

The order of the Mota items below is that given by Codrington & Palmer (1896: 84), except that we have added *vara*, not included among their growth stage terms. However, their definitions (scattered under the various entries in the dictionary) suggest that their sequencing may be wrong, as *pulutyar* and *pepeya* appear to belong before *vusa maremare* (see discussion in association with Table 12.1).

Mota (NCV): 14 stages (Codrington & Palmer 1896)

wovaj	‘bud’
matmateyapun	‘just set, like the eye of a <i>yapun</i> crab’
sutarara	‘shell just formed, liquid not yet drinkable’ (<i>sus</i> ‘breast’, <i>tarara</i> ‘never given birth’)
m ^w alu	‘young green coconut, liquid not yet drinkable’
yarake p ^w arat	lit. ‘fat of meat’
[vusa] yoryor	‘enough meat to scrape after drinking’ (<i>yor</i> ‘scrape’)
vusa	‘green coconut for drinking’
vusa maremare	‘nut with hard flesh’ (<i>maremare</i> ‘hard’)
vusa sisis	‘flesh can be scraped with a thumbnail’
pulut-yar	‘ripening, flesh sticks to scraper’ (lit. ‘stick.to scrape’)
pepeya	‘outer skin turning yellow’ (<i>pepeya</i> ‘yellow’)
pane uwa	lit. ‘turtle fin’ ⁶
kor	‘ready to fall’ (<i>kor</i> ‘become dry, with heat or time’)
vara	‘a sprouting coconut’

The last three terminologies, Anejoñ, Wayan Fijian and Tikopia, differ from those above in that they appear to recognise no stages between a newly formed fruit and a drinkable green coconut, a fact that emerges clearly in Table 12.1. Whether these stages are less salient than others for speakers or whether the relevant terms are simply missing from the sources is not clear.

Anejoñ and Tikopia also recognise respectively three and four stages of sprouted coconut, but it can be argued that these are growth stages of the palm, not of the fruit. The other languages may have corresponding terms that are not listed as coconut growth stages.

Anejoñ (SV): 11 stages (Lynch 2001c)

nacom ^w	‘flower’
nohowa-nhuau	‘very small coconut’ (lit. ‘fruit a.boil’)
inhivañereri	‘green coconut with very soft flesh’
inhivañwou	‘green coconut with drinkable water’
inhivañ	‘green coconut for drinking’
inhivañyai	‘green coconut with edible flesh, almost ripe’ (lit. ‘fruit tree’)
neañ metou	‘yellowish coconut’ (lit. ‘coconut ripe’)
inhamesei, neañ mesei	‘dry coconut’ (lit. ‘coconut dry’)
nelaneañ	‘germinated coconut or its pith’
neañθel	‘sprouting coconut’ (lit. ‘coconut grows (v)’)
nerenren	‘sprouting coconut, longer sprout than <i>neañθel</i> ’

⁶ No further information on *pane uwa* is given by Codrington and Palmer.

Wayan Fijian (Fij): 7 stages (Pawley & Sayaba 2003)

bū takeri	‘very small coconut’ (lit. ‘fruit a.boil’)
sula	‘immature stage, before flesh has formed; full of liquid’
bū	‘coconut at a stage ideal for drinking and eating; still green but full-sized, flesh well developed and soft’
bū ðiði-vutovuto	‘stage between <i>bū</i> and <i>drokai</i> ’ (lit. ‘drinking.coconut flesh.removed-flooded’, i.e. a <i>bū</i> which still has liquid but the flesh of which is hardening; A. Pawley, pers. comm.)
drokai	‘stage of late maturity; meat is hardening but still good to eat; juice becoming acidic’
sama	‘fully mature, old, a stage when no juice is left inside the nut and the flesh is oily and no longer edible but ready to be dried for copra or to be grated and squeezed to obtain coconut cream’
vara	‘ripe coconut, germinating; spongy flesh in kernel of ripe coconut’

Tikopia (Pn): 11 stages (Firth 1985)

foi kārekāre	‘very young with soft shell’ (<i>foi</i> classifier, <i>kārekāre</i> ‘very young plant’)
niu mata kaere	‘young with soft shell and flesh barely formed’ (lit. ‘coconut unripe very.young’)
niu mata [laui]	‘green, with a firm shell and soft flesh’ (lit. ‘coconut unripe [good]’)
niu motomoto	‘fully grown with hard flesh’
niu ŋaruru kiki	‘the liquid splashes around inside’
niu matua laui	‘mature with fully developed flesh’ (lit. ‘coconut mature good’)
niu pakuku	‘dry, with darkened husk, last edible stage, fit for storage’ (lit. ‘coconut parched’)
niu somo	‘germinated, beginning to sprout’ (lit. ‘coconut sprouts (v)’)
niu matatiri	‘germinated, with a short sprout’
niu kapakau māroro	‘germinated, with shoots of about 30 cm’ (lit. ‘coconut fins flying.fish’)
niu raurau	‘germinated, with shoots of about 50 cm’ (lit. ‘coconut leafy’)

Table 12.1 attempts a rough comparison of the seven growth stage terminologies above. A dot indicates that the language has a term corresponding at least roughly to the growth stage to its left. Two or more dots indicate that number of terms which more or less correspond to the growth stage. The problem of Mota is discussed above: if we reordered the terms on the basis of their definitions, the four dots against ‘ripe, flesh hardened’ would be reduced to two. The multiple entries on the bottom (‘sprouted’) line are also touched on above.

Two intermediate growth stages are of particular importance to coconut consumers: the stage when the coconut is maximally drinkable, and the stage when the flesh is hardened enough to allow scraping for the production of coconut ‘milk’. Not surprisingly, terms for these stages occur in every terminology. These are the two stages for which Tok Pisin of Papua New Guinea has distinct terms: *kulau* (from Ramoaaiana) and *drai*.

Interestingly, two other stages have a term in all seven languages and in all terminologies we have examined: they are a term for the newly formed, tiny fruit and a term for the sprouted

Table 12.1 Rough comparison of coconut growth stage terms in seven Oceanic languages

	Gumawana	Petats	Arosi	Mota	Anejoñ	Wayan Fijian	Tikopia
1. coconut fruit bud			•	•	•		
2. very small newly formed fruit	•	•	•	•	•	•	•
3. young, green, no liquid yet	•	•	•				
4. young, green, liquid but no flesh yet	•	•	•	•••		•	
5. green, drinkable, very soft flesh			•	•	•		•
6. green, drinkable, with thin creamy flesh	•	•	•	•	••	•	•
7. starts turning brown, flesh firmer, still drinkable	•	•	•		•	•	••
8. little (bitter) liquid, thick flesh		•	•		•	•	•
9. ripe, flesh hardened	•	•	•	••••	•	•	•
10. dry and ready to fall	••	••	•	••			
11. dry, fallen		•	•				
12. sprouted	•	•	•	•	•••	•	••••

coconut. These are effectively the first and last stages in the life of the coconut (the bud is not yet a coconut).

This means that stages 2, 6, 9 and 12, shown in bold in Table 12.1 are the effective landmarks in any Oceanic coconut growth stage terminology and that they are likely to have been present in the POc terminology. There is no principled means of determining, however, which intervening terms may have occurred in POc, and the level of cognacy among the seven terminologies above is low. What might be the reasons for this? One, at least, is that scholars who elicit ordered growth stage terminologies from Oceanic speakers may, in some cases at least, be imposing their concept of an ordered terminology on a somewhat less ordered collection of terms used for coconuts at various stages of development. Two kinds of fact support this contention. First, the terminologies above show considerable variation in the regions between the landmarks, almost as if in some cases the native-speaker informant was thinking of terms to satisfy the lexicographer. Second, some languages have binomial terms between the landmarks, where the first word denotes a nearby growth stage, usually a landmark, and the second is a modifier. For example, Mota *vusa* denotes a green drinking coconut, and terms on either side of it in the growth sequence are binomials: *vusa yoryor* ‘drinking coconut [for] scraping’, *vusa maremare* ‘hard drinking coconut’, *vusa sisis* (meaning not known). Eight of the 11 stages in the Anejoñ sequence are built around *inhivañ* ‘drinking coconut’ or *neañ* ‘ripe coconut’. Three of the 7 Wayan Fijian stages contain *bū* ‘drinking coconut’. The 11-stage Tongan system⁷ carries this reliance on landmark categories a step further: two out of *ŋono* (meaning unknown), *mata* ‘unripe’ and *motomoto* ‘not quite ripe’ are strung together to

⁷ Churchward does not supply glosses for some terms. The gloss for *niu mata* is our inference.

create in-between categories (in bold below). Two other stages also include *mata* (assuming that *matasili* is a chance resemblance, as it does not denote an unripe stage).

Tongan (Pn): 11 stages (Churchward 1959)

pō-niu	‘newly formed coconut’
niu ŋono	...
niu mata-ŋono	...
niu mata-velivali	‘green, unripe’
niu mata	‘green drinking coconut’
niu mata-hihiloku	...
niu mata-motomoto	...
niu motomoto	‘not quite ripe’
niu motuʔu	‘quite ripe’
niu matasili	‘just beginning to sprout’
niu ʔuto	‘with a bigger sprout than <i>niu mata-sili</i> ’

Thus we might expect to be able to reconstruct terms for the four landmark stages. This is broadly true, except that stage 2 terms are hard to reconstruct. Terms between the landmarks tend to involve descriptive modifiers, as seen in the literal translations of a number of Anejoñ and Tikopia terms, and these are easily replaced over time. A few are metaphorical, like Mota *matmateyapun* ‘eye of a *yapun* crab’ and *pane uwa* ‘turtle fin’. New metaphors or descriptions are readily created by new generations of speakers, and we can be sure of little else than that some POc terms must also have been metaphorical or descriptive.

The Gumawana, Petats and Arosi terminologies above include no binomials (setting aside Arosi *niu* ‘coconut’). If our account is correct, we would expect to find that the terms between the landmarks in these terminologies also reflect earlier descriptive terms, but we lack the relevant data to test this expectation.

Reconstructions for the four landmark stages, 2, 6, 9 and 12, are presented first below.

3.2 Growth stage 2: very small newly formed fruit

Two weakly supported etyma, POc **(q)a-b^waji* and PEOc **kirip^wa*, can be offered for stage 2, ‘very small newly formed fruit’.⁸ The former may contain the root **b^waji*, which also occurs in POc **b^waji-b^waji* ‘coconut growth stage 4 or 5’ (§3.6).

POc **(q)a-b^waji* ‘coconut growth stage 2: very small newly formed fruit’

MM:	Kara (E)	<i>vəbos</i>	‘undeveloped coconut’
SV:	Kwamera	<i>(i)ap^was</i>	‘small coconut, coconut fruit bud’

PEOc **kirip^wa* ‘coconut growth stage 2: very small newly formed fruit’

SES:	’Are’are	<i>kiriwa</i>	‘immature coconut’
Mic:	Mokilese	<i>kirip^w</i>	‘young coconut up to one inch in diameter’
Mic:	Ponapean	<i>kurup^w</i>	‘immature coconut before teaching the growth stage called <i>ūp^w</i> ’

⁸ In Ross (1996c) this form was reconstructed with the stage 1 meaning of ‘coconut fruit bud’, but the sense common to the two reflexes implies a stage 2 gloss.

3.3 Growth stage 6: green, drinkable

Two forms can be reconstructed for landmark stage 6, ‘green drinkable coconut with thin creamy flesh’. The first, POc **karut*,⁹ has the best distributed support, but it is not as widely reflected as stage 9 terms, a fact that is surprising (and unexplained) in light of the salience of stage 6 in Oceanic cultures.

POc **karut* ‘coconut growth stage 6: green, drinkable’

PT:	Hula	<i>kalu</i>	‘half ripened coconut’
PT:	Motu	<i>karu</i>	‘young drinking coconut’
PT:	Lala	<i>alu-ʔalu</i>	‘young drinking coconut’
MM:	Petats	<i>ka-karut</i>	‘nut containing liquid before flesh appears’ (Blackwood 1935)
SES:	Longgu	<i>ʔaru</i>	‘a coconut ready to drink and eat’
SES:	‘Are’are	<i>aru</i>	‘green drinking coconut’

The other term, **polo*, is less well reflected. Glosses pointing to growth stage 6 occur only in southern New Ireland, and we cannot be sure what it denoted.

POc **polo* ‘coconut growth stage 6: green, drinkable’ (?)

Adm:	Lou	<i>puɔl</i>	‘coconut’
MM:	Barok	<i>polo</i>	‘young drinking coconut’
MM:	Sursurunga	<i>pol</i>	‘young drinking coconut’
MM:	Label	<i>polo</i>	‘coconut water, young drinking coconut’
MM:	Siar	<i>polo</i>	‘coconut water’

3.4 Growth stage 9: ripe, flesh hardened

Reconstructable terms for stage 9, ‘ripe, flesh hardened’, are POc **matuqu*, POc **kulu* and POc **maRajo*. Reflexes of POc **matuqu* have become the generic term for coconut in a number of languages, suggesting that in the minds of speakers it is this stage that is prototypical of the coconut. It is clearly the most useful, as the flesh is used for various culinary purposes.

PEMP **matu(qu)* ‘dry coconut’ (Blust 1978a)

POc **matuqu* ‘coconut growth stage 9: ripe, flesh hardened’

NNG:	Lukep (Pono)	<i>matuk</i>	‘coconut (generic)’
NNG:	Atui	<i>(ka)mutuk</i>	‘ripe coconut’
NNG:	Roinji	<i>mutuʔo-na</i>	‘ripe coconut’
NNG:	Matukar	<i>matywa-n</i>	‘ripe coconut’
PT:	Suau (Saliba)	<i>matuli-na</i>	‘ripe coconut, ready to fall’ (-li- < ?)
PT:	Sudest	<i>matu</i>	‘dry coconut’
NCV:	Mwotlap	<i>na-mtiy</i>	‘coconut (generic)’
NCV:	Mota	<i>matiy</i>	‘coconut (generic)’
NCV:	NE Ambae	<i>matui</i>	‘coconut (generic)’

⁹ A possible non-Oceanic cognate is Old Balinese *karu* ‘coconut shell’ (Modern Balinese *kau*).

NCV:	Nokuku	<i>metui</i>	‘coconut (generic)’
NCV:	Tape	<i>mətiu</i>	‘ripe coconut’
NCV:	Big Nambas	<i>nətu</i>	‘ripe coconut’
NCV:	Avava	<i>(ani) met-met</i>	‘dry coconut but not fallen’
NCV:	Port Sandwich	<i>marue</i>	‘ripe coconut’
NCV:	Paamese	<i>matou</i>	‘dry coconut’
NCV:	Lewo	<i>maru</i>	‘coconut (generic)’
SV:	Ura	<i>na-mda</i>	‘green, starting to dry’
SV:	Sye	<i>na-mte</i>	‘ripe coconut’
SV:	Anejoñ	<i>(neañ)metou</i>	‘drinking coconut with hard flesh’
NCal:	Iaai	<i>o-miṭ</i>	‘ripe, yellow’
NCal:	Xârâcùù	<i>nû-mata</i>	‘ripe coconut’
Mic:	Marshallese	<i>məcə(wip^u)</i>	‘coconut, nearly ripe’
Fij:	Rotuman	<i>mafū</i>	‘mature and hard (of wood), lumpy (of pudding), ripe and hard (of coconuts)’
Fij:	Bauan	<i>madū</i>	‘dry (of wood and mature coconuts)’
Pn:	Tongan	<i>(niu) motuʔu</i>	‘coconut growth stage: ripe’
Pn:	E Futunan	<i>(niu) mataʔu</i>	‘very ripe dry coconut’
Pn:	Takuu	<i>matuu</i>	‘coconut growth stage: mature coconut’

The Fijian gloss below calls into question the gloss of POc **kulu*. However, a reflex of this term has become the Araki generic for ‘coconut’, and this is something that happens quite commonly to terms for ripe coconut. The Kuni and Roro terms reflect **-r-* or **-R-*, not **-l-*.

POc **kulu* ‘coconut growth stage 9: ripe, flesh hardened’ (French-Wright 1983)

MM:	Tangga	<i>kulu</i>	‘fully grown drinking coconut’
NNG:	Uvol	<i>kul-kuli</i>	‘ripe coconut’
SES:	’Are’are	<i>ʔuru-ʔuru</i>	‘ripe coconut’
SES:	Sa’a	<i>ʔulu-ʔulu</i>	‘ripe coconut’
NCV:	Araki	<i>holo</i>	‘coconut’
Fij:	Bauan	<i>kulu-kulu</i>	‘the youngest stage of the coconut’

cf. also:

PT:	Kuni	<i>ol-olo</i>	‘ripe coconut’
PT:	Roro	<i>kuro-kuro</i>	‘ripe coconut’

The reconstruction of POc **maRaŋo* ‘coconut growth stage 9: ripe, flesh hardened (or stage 10: dry and ready to fall)’ entails a phonological problem. I assumed in vol. 2 (ch.7, §5.6) that reflexes of this term were cognate with reflexes of POc **[ma]raŋo* ‘become withered (of vegetation)’, reconstructed by Osmond in vol. 1 (ch.5, §9.4). I assumed further that both reflected PMP **(ma)Raŋaw* and that the POc form was **[ma]Raŋo*, regularly reflecting the PMP form. As I noted in vol.2, this is problematic, as Southeast Solomonic reflexes of the form *raŋo* ‘be withered’ reflect POc **r*, not **R*.

On balance the data now available suggest that my assumption in vol. 2 was wrong, and that two POc reconstructions must be made: POc **[ma]raŋo* ‘become withered (of vegetation)’, as reconstructed by Osmond, and **maRaŋo* ‘coconut growth stage ...’. Two pieces of

data underlie this decision. The first is Baelelea (SES) *maleŋa* ‘coconut’, in which *-l-* reflects POc **-R-*, contrasting with the SES items of the form *raŋo* ‘be withered’, reflecting POc **-r-*. The second is the Tape pair *meaŋ* ‘green coconut’, probably reflecting POc **-R-* as zero, and *maraŋ* ‘(of wood, leaves) dry’, probably reflecting POc **-r-*.¹⁰ The data supporting both etyma are listed below. The Sursurunga item appears in both lists, as it appears to represent a conflation of the two etyma.

Other than the items mentioned in the previous paragraph, none of the items below is diagnostic of the difference between POc **-R-* and **-r-* except for Niuean and Samoan *maŋo* ‘dry’, and these reflect **-R-* (with a zero reflex), not **-r-* as their meaning would lead us to expect. Also noteworthy is the odd fact that PMP **(ma)Raŋaw* ‘dry’ contains **-R-* whilst the POc etymon of similar meaning contains **-r-*. In both cases speakers seem to have conflated or confused the two etyma.

PMP **(ma)Raŋaw* ‘dry’ (Blust 1981*b*)

POc **maRaŋo* ‘coconut growth stage 9: ripe, flesh hardened (or stage 10: dry and ready to fall)’

NNG:	Medebur	<i>meraŋu-ŋ</i>	‘ripe coconut’
NNG:	Kairiru	<i>maraŋ</i>	‘ripe coconut’
MM:	Meramera	<i>mala</i>	‘ripe coconut’
MM:	Kara (E)	<i>məyaŋ</i>	‘dry coconut’
MM:	Nalik	<i>maraŋ</i>	‘ripe coconut’
MM:	Lihir	<i>malan</i>	‘ripe coconut’
MM:	Barok	<i>maŋa</i>	‘ripe coconut’
MM:	Susurunga	<i>maraŋ</i>	‘(be) old, dry; (old) coconut with lots of meat and little milk’
MM:	Patpatar	<i>maraŋa</i>	‘dry coconut’
SES:	Baelelea	<i>maleŋa</i>	‘coconut’
NCV:	Naman	<i>(neni) meraŋ</i>	‘ripe coconut’
NCV:	Neve’ei	<i>(nani) meraŋ</i>	‘ripe coconut’
NCV:	Larëvat	<i>(nən) meraŋ</i>	‘ripe coconut’
NCV:	Nese	<i>(nani) naraŋ</i>	‘ripe coconut’
NCV:	Tape	<i>meaŋ</i>	‘green coconut with flesh that has become hard and water that has begun to go fizzy’ (J. Lynch, pers. comm.)

POc **[ma-]raŋo* ‘become withered (of vegetation)’ (vol. 1, ch.5, §9.4)

Adm:	Mussau	<i>malaŋo</i>	‘dry’
NNG:	Manam	<i>maraŋo</i>	‘dry, arid’
MM:	Susurunga	<i>maraŋ</i>	‘(be) old, dry; (old) coconut with lots of meat and little milk’
MM:	Tolai	<i>ma-raŋa</i>	‘withered, dry (leaves, husk, tree)’
MM:	Halia (Selau)	<i>raŋo</i>	‘dry’

¹⁰ In NCV languages **R* is sometimes reflected as zero, sometimes as a liquid. I am grateful to John Lynch for pointing out the Tape contrast and providing the data.

SES:	Bugotu	<i>raŋo</i>	‘wither (leaves, yam vines)’
SES:	Sa’a	<i>raŋo</i>	‘be withered, dry (esp. yams when vine withers)’
SES:	Arosi	<i>raŋo</i>	‘withered, dead (of grass, green boughs +)’
NCV:	Mota	<i>raŋo</i>	‘become dried up in the course of nature’
NCV:	Tape	<i>məraŋ</i>	‘(of wood, leaves) dry’ (J. Lynch, pers. comm.)
SV:	Kwamera	<i>(kahi)mareŋi</i>	‘turning brown’

cf. also:

Pn:	Niuean	<i>maŋo</i>	‘dry (of wood, trees)’
Pn:	Samoan	<i>maŋo</i>	‘dry up; be dry (of wood, clothes)’

3.5 Growth stage 12: sprouting

Growth stage 12, the sprouted coconut, is evidently strongly associated in Oceanic minds with the spongy mass (the ‘apple’) inside it—the coagulated remains of the coconut water, eaten as a delicacy in many parts of Oceania (Peekel 1984: 65). Terms for the spongy mass inside the sprouting nut are given in §4.3.

The cognate set below apparently reflects POc **tubuq* ‘grow, swell’ (vol.1, ch.5, §9.2), with the added meaning ‘(plant) sprout’. Probably, as in Taboro *niu tubu-na*, the verb was used attributively with the term for coconut to denote growth stage 12.

PT:	Taboro	<i>(niu) tubu-na</i>	‘sprouted coconut’
PT:	Motu	<i>tubu</i>	‘sprouted coconut’
PT:	Roro	<i>kupu</i>	‘coconut sprouted’
NCV:	NE Ambae	<i>tubu</i>	‘germinated coconut or its pith’

POc **tab^wa* ‘coconut growth stage 12: sprouted’ is formally similar to but almost certainly distinct from the set above. There are two difficulties with this set. First, the NNG and NCV glosses denote a later growth stage. Second, the Polynesian items reflect a form with POc **-p-* rather than *-b^w-*.

POc **tab^wa* ‘coconut growth stage 12: sprouted’

NNG:	Ulau-Suain	<i>tabu-ñi</i>	‘young drinking coconut’
NNG:	Ali	<i>tapu-ŋ</i>	‘young drinking coconut’
PT:	Dobu	<i>tab^wa(-anuwa)</i>	‘coconut sprouted’
PT:	Gumawana	<i>tabo</i>	‘a shoot; flesh inside a coconut that has sprouted’
		<i>tabo-na</i>	‘coconut growth stage: coconut that has sprouted’
NCV:	Raga	<i>tab^we(-laha)</i>	‘coconut shell drinking cup’
SV:	Anejoñ	<i>na-tp^wa(-neañ)</i>	‘spongy mass formed in a coconut that has started to shoot’

cf. also:

Pn:	W Futunan	<i>tafa</i>	‘coconut when meat has jellied and milk is still sweet’
Pn:	E Uvean	<i>tāfā</i>	‘unripe coconut’
Pn:	Emae	<i>tāfā</i>	‘very young coconut’
Pn:	Tikopia	<i>tāfā</i>	‘coconut in developing stage with only water inside’

3.6 Other growth stages

Reconstructing the meanings of growth stage terms which fall between the landmarks is difficult, both because these meanings tend not to match precisely across languages and because the meanings tend to shift along the growth stage taxonomy over time. This is reflected in the vagueness of the glosses of the reconstructions in this section.

Three terms, POc **kubu*, POc **b^waji-b^waji* and PWOC **p^wiga*, denoted a stage when the coconut is young and green, somewhere among stages 3, 4 and 5. In the set supporting POc **kubu* the meanings of the Oceanic glosses vary from stage 2, ‘newly formed fruit’ (Arosi), to stage 9, ‘mature coconut with meat’ (Wuvulu). However, they point in the direction of a young coconut, and one that is younger than a typical drinking coconut.

PEMP **kupu* ‘very young coconut’ (ACD: **upu*: ‘germinating coconut?’)¹¹

POc **kubu* ‘coconut growth stage 3, 4 or 5: young and green’ (ACD: **umpu*: ‘young coconut?’)

Adm:	Wuvulu	<i>upu</i>	‘mature coconut with meat’ (ACD)
Adm:	Aua	<i>upu</i>	‘young coconut’ (Blust 1978b: 131)
Adm:	Seimat	<i>up</i>	‘coconut’ (ACD)
MM:	Solos	<i>kubo</i>	‘young drinking coconut’
MM:	Petats	<i>kuvo</i>	‘nut with meat a little firmer than the prototypical drinking coconut’ (see Petats terminology above)
MM:	Tinputz	<i>(oē) kupū</i>	‘green coconut with meat’
MM:	Roviana	<i>kubo(lokuhu)</i>	‘very young coconut’
SES:	Longgu	<i>kobu</i>	‘young coconut that has no meat, only water’
SES:	Arosi	<i>kopu</i>	‘newly formed fruit’ (see Arosi terminology above; probably a borrowing from another SES language)
SES:	Arosi	<i>?obu</i>	‘drinking nut’ (see Arosi terminology above)
Mic:	Kosraean	<i>uf</i>	‘young coconut’ (ACD)
Mic:	Ponapean	<i>ūp^w</i>	‘drinking coconut’ (ACD)
Mic:	Mokilese	<i>up^w</i>	‘coconut stage, unripe, younger than a drinking coconut’

POc **b^waji-b^waji* appears to have denoted either stage 4 (young, green, liquid but no flesh yet) or stage 5 (green, drinkable, very soft flesh), but it is not widely enough reflected for us to be sure.

POc **b^waji-b^waji* ‘coconut growth stage 4 or 5’

Adm:	Mussau	<i>pasi-pasi-na</i>	‘young drinking coconut’
PT:	Gumawana	<i>bosi-bosi</i>	‘large green drinkable coconut still on the tree’
PT:	Kilivila	<i>b^wai-b^wai</i>	‘young drinking coconut’
PT:	Misima	<i>b^wal-b^wal</i>	‘young coconut with water but no meat’
PT:	Sudest (Varavarae)	<i>b^wadi-b^wadi</i>	‘coconut’

¹¹ PEMP **kupu* is supported by a single non-Oceanic reflex, Numfor *uf* ‘round, yellow germination in a coconut’.

Ross (1996c) suggested that the cognate set reflecting PWOC **p^wiga* implied a stage 5 meaning ‘just drinkable’ because in both PT languages and Roviana we find the apparently independent semantic development in meaning to ‘drinking vessel’. The element *ku* in Ramoaaina *ku-bika* occurs in coconut terms in a number of Meso-Melanesian languages, and it is evidently cognate with Nehan *ku* ‘coconut oil’. The prefixed element in the Muyuw and Dobu terms may or may not be cognate.

PWOC **p^wiga* ‘coconut growth stage 3, 4 or 5: young and green’

PT:	Suau (Daui)	<i>biga-biga-na</i>	‘young drinking coconut’
PT:	Kilivila	<i>viga</i>	‘cup, drinking vessel’
PT:	Muyuw	<i>(k^wa)vig</i>	‘half coconut shell used as cup’
PT:	Dobu	<i>(ke)iga</i>	‘cup’
PT:	Maisin	<i>vuga</i>	‘cup’
MM:	Ramoaaina	<i>(ku)bika</i>	‘coconut growth stage before a green drinking coconut’
MM:	Nduke	<i>bika</i>	‘small green coconut’
MM:	Roviana	<i>piga</i>	‘coconut shell used as a bottle’

In vol. 2 (ch.7, §5.6) POC **goRu* ‘dry, of vegetation; coconut growth stage: dry and ready to fall’ was reconstructed. This gloss places a lot of weight on the Mota gloss: taken together the glosses suggest a stage 9 or 10 meaning, i.e. either ‘ripe’ or ‘dry and ready to fall’. Lavukaleve, the non-Austronesian language of the Russell Islands (central Solomons) has *ngolus* ‘old dry coconut’ (Angela Terrill, pers. comm.), apparently borrowed from a NW Solomonian language that regularly retained POC final consonants. For this reason, we tentatively reconstruct POC final **-s* here.

POC **[ma-]goRu(s)* ‘dry, of vegetation; coconut growth stage 9 or 10: ripe, perhaps dry and ready to fall’ (Ross 1996c)

NNG:	Malai	<i>gor-gori</i>	‘ripe coconut’
NNG:	Kakuna	<i>kolu-ŋana</i>	‘ripe coconut’
MM:	Nakanai	<i>ma-golu</i>	‘dried up, withered; of a coconut, dry enough to fall’ (A. Chowning, pers. comm.)
SES:	Lengo	<i>golū</i>	‘coconut flesh’
NCV:	Mota	<i>kor</i>	‘coconut in its last condition before it falls from the tree; dry (of other things too)’
NCV:	Atchin	<i>kor</i>	‘dry coconut’
NCV:	Uripiv	<i>(na-ni) kur</i>	‘mature coconut (with firm meat and dry husk)’

4 Parts of the coconut fruit

Terms for coconut parts are divided here into parts of the fruit (this section) and parts of the palm (§5). As we noted earlier **niuR* denoted both the palm and the fruit. POC speakers evidently distinguished between them by calling the palm **puqun ni niuR*, literally ‘trunk of coconut’) and the fruit **puaq ni niuR* ‘fruit of coconut’, reflected in Bauan and Wayan Fijian as *vū ni niu* and *vua ni niu* and in Tongan as *fuʔu ni niu* and *foʔi niu* (ch.2, §7.1.3).

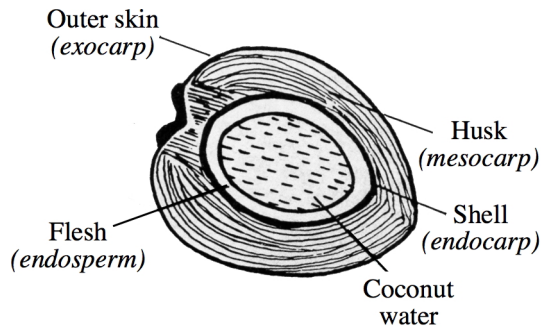


Figure 12.1 Parts of a coconut

In traditional times a palm bore between 5 and 30 coconuts a year, depending on the palm's age.¹² The usable parts of a coconut are related to its growth stages. At the green drinkable stage, the main usable product is the coconut water, although the thin flesh is sometimes eaten as a snack. At the ripe stage, when the flesh has thickened and hardened, the flesh is scraped and the scrapings are wrung out to give coconut milk, which is used in food, especially in stews. The husk of the ripe coconut is removed with a husking stick. Its mesocarp consists of densely matted dry fibres which have a variety of uses. Clean half-shells, with the flesh removed, are used as cups. At the sprouting stage, apart from use for planting a new palm, the main product is the 'apple', the edible sweet spongy mass that fills the shell cavity.

The fruit parts for which reconstructions are provided here are thus:

- coconut water (§4.1)
- hardened flesh and its products (§4.2)
- the 'apple' (§4.3)
- the husk (§4.4)
- the shell (§4.5)

4.1 Coconut water

POc **suRuq* appears to have denoted drinkable liquids in general, including soups, but perhaps excluding plain water: its range clearly included coconut water. No more specialised designation for coconut water has been reconstructed, and it seems likely that the terms for a green drinking coconut (§3.3) were also used for the water inside it.¹³

POc **suRuq* 'sap, soup, drinkable liquid derived from plants, fruits or trees' (Milke 1961:

**suRu(q)*)

Adm: Loni	<i>cuy</i>	'soup'
Adm: Titan	<i>sui</i>	'half-ripe coconut'
NNG: Kove	<i>suhu</i>	'drinkable liquids; also tears, saliva' (A. Chowning, pers. comm.)
NNG: Gitua	<i>suru</i>	'coconut water, soup'
	<i>suru-suru</i>	'saliva'
NNG: Bing	<i>sur</i>	'coconut water, soup'
NNG: Manam	<i>suru</i>	'soup'
NNG: Yabem	<i>sulu</i>	'soup'
	<i>(awa)sulu</i>	'saliva', i.e. 'sap of mouth' (<i>awa-</i> 'mouth')

¹² Under plantation conditions a palm may bear up to 60 nuts a year. Palms may live up to 100 years, but their bearing capacity decreases towards zero in later life.

¹³ In Ross (1996c) POc **polo* was glossed 'coconut water', but the glosses of its reflexes make it more likely that it was a term for a drinking coconut, and so it is included here in §3.3.

NNG:	Kaiwa	<i>ro-ruk</i>	‘soup’
		<i>(avo)rulu-</i>	‘saliva’, i.e. ‘sap of mouth’ (<i>avo-</i> ‘mouth’)
PT:	Dobu	<i>sulu</i>	‘coconut water’
PT:	Molima	<i>sulu</i>	‘coconut water’
MM:	Bali	<i>zuruka</i>	‘coconut water’
MM:	Halia (Haku)	<i>siru</i>	‘soup’
MM:	Tinputz	<i>hun</i>	‘coconut water’
MM:	Mono-Alu	<i>lulu</i>	‘soup’
SES:	To’aba’ita	<i>sulu</i>	‘juice, liquid of fruit; broth, sauce, gravy’
SES:	Arosi	<i>suru</i>	‘coconut water; k.o. yam soup’
NCV:	Raga	<i>hu-</i>	‘oil, liquid, juice, semen’
NCV:	Paamese	<i>sii-</i>	‘juice’
NCV:	Nguna	<i>na-su(a)</i>	‘coconut water, juice, soup’
Pn:	Samoaan	<i>sū</i>	‘be moist; (taro) be watery’
		<i>su(a)</i>	‘liquid, fluid; jouice; coconut milk; soup’

The weakly attested etymon POc **namo* may have denoted ‘coconut water’ or a drinkable growth stage.

POc **namo* ‘coconut water’ or ‘coconut growth stage: 3, 4 or 5: young and green’

MM:	Bulu	<i>namo</i>	‘coconut water’
MM:	Bola	<i>namo</i>	‘coconut water’
NCV:	S Efate	<i>nam^w</i>	‘coconut growth stage: young, green, liquid but no flesh yet’

4.2 Coconut flesh and its products

When the coconut is ripe, the hardened flesh is either removed from the shell and cut up, or scraped from the shell using a coconut scraper. Scraping produces parings which are then squeezed to produce coconut milk.¹⁴

The best candidate for ‘coconut flesh’ is POc **kanoŋ*, a fossilised reflex of PMP **kan-en* ‘something to be eaten, food’, itself a nominalisation of the PMP verb ‘eat’, **kaʔen*, or **kan* in the context of certain affixes. POc **kanoŋ* had evidently lost its expected sense and denoted ‘flesh, inner substance, coconut flesh’. The morphology of POc nominalisations is discussed in vol.1 (ch.2, §3.2.1).¹⁵

PMP **kan-en* ‘something to be eaten, food’

POc **kanoŋ* ‘flesh, inner substance, coconut flesh’

NNG:	Tuam	<i>anoŋa</i>	‘seed, fruit’
NNG:	Malalamai	<i>anuŋa</i>	‘coconut flesh’

¹⁴ Verbs for removing the flesh from the shell are reconstructed in vol.1, ch.9, §3.7, for scraping in vol.1, ch.9, §2.2.

¹⁵ Productive nominalisations of reflexes of POc **kani* ‘eat’ in Oceanic languages usually mean ‘staple food’ and by extension ‘food in general’ (ch.2, §6.1).

NNG:	Lukep (Pono)	<i>kano-</i>	‘fruit (of, e.g., breadfruit), inner substance’
NNG:	Sio	<i>kanajo</i>	‘coconut flesh’
MM:	Tangga	<i>kono</i>	‘coconut flesh’
SES:	Arosi	<i>?ano</i>	‘bulb, tuber, part of tree below ground’

PPn **/ka-]kano* ‘flesh, seed’ (POLLEX)

Pn:	Tongan	<i>kano</i>	‘flesh, substance’
		<i>ka-kano</i>	‘flesh, contents or substance’
Pn:	Pukapukan	<i>kano</i>	‘the real or essential part of something’
Pn:	Rennellese	<i>kano</i>	‘flesh or meat of anything; substance’
Pn:	Samoaan	<i>?a-?ano</i>	‘flesh; kernel, meat, including meat of coconut’
Pn:	Hawaiian	<i>?ano</i>	‘kind, nature, character, color, meaning’

PWOC **lamati* seems to have designated dry coconut flesh, but has undergone a two-step semantic shift, first a metonymic shift to ‘dry coconut’, then genericisation to ‘coconut’.

PWOC **lamati* ‘dry coconut flesh’

NNG:	Maenge	<i>lamasi</i>	‘coconut’
NNG:	Sissano	<i>(new-)lamat</i>	‘coconut meat’
MM:	Tigak	<i>lamas</i>	‘dried coconut meat for copra’
MM:	Kara (E)	<i>lɛmɛs</i>	‘coconut meat, dried coconut meat for copra’
PT:	Gumawana	<i>(naku-)lamata</i>	‘coconut growth stage: starts turning brown’
MM:	Lihir	<i>lames</i>	‘coconut’
MM:	Sursurunga	<i>lamas</i>	‘coconut, coconut palm’
MM:	Patpatar	<i>lɛmas</i>	‘dry coconut’
MM:	Tolai (Nodup)	<i>lamai</i>	‘coconut’
MM:	Kandas	<i>lamas</i>	‘coconut’

The reconstructions below relate to the process of squeezing coconut flesh to produce coconut cream, and of boiling it to make coconut oil. The data point to a POC verb **puro*, either ‘scrape coconut’ or ‘squeeze coconut milk onto food’ and a corresponding nominalisation **puro-ŋ* denoting the products of this activity. The Admiralties reflexes support reconstruction of **-r-* rather than **-R-*.

POC **puro* ‘squeeze coconut milk onto food’POC **puro-ŋ* ‘coconut pulp; pudding made by squeezing’; perhaps ‘grind’

Adm:	Lou	<i>pɔr</i>	‘coconut cream’
Adm:	Drehet	<i>puroŋ</i>	‘coconut pulp’
NNG:	Lukep (Pono)	<i>poroŋ</i>	‘taro cake’
NNG:	Takia	<i>furoŋ</i>	‘pudding made of banana/taro and canarium nuts’
NNG:	Atui	<i>pur</i>	‘scrape coconut’
NNG:	Akolet	<i>puru</i>	‘scrape coconut’
MM:	Nakanai	<i>pulo</i>	‘squeeze coconut cream onto food before cooking’ (A. Chowning, pers. comm.)
MM:	Kara (E)	<i>pur</i>	‘make coconut milk’
MM:	Patpatar	<i>polon</i>	‘coconut milk’
MM:	Ramoaina	<i>pur</i>	‘squeeze coconut milk onto food’

The distinction between ‘coconut cream’ and ‘coconut milk’ is fuzzy. The cream is the first product of squeezing, whereas the milk is the product of further squeezing after water has been added (M. Foale 2003: 87). The POc term for coconut milk and coconut cream was **g(o,u)rej* ‘coconut milk, coconut cream’, also apparently a nominalisation, but one for which no corresponding verb is known.

POc **g(o,u)rej* ‘coconut milk, coconut cream’

NNG:	Bariai	<i>goreŋa</i>	‘coconut milk (from dry coconuts, not for drinking)’
NNG:	Tuam	<i>goreŋ</i>	‘coconut milk’
NNG:	Kapin	<i>(ma)goleŋ</i>	‘coconut’
PT:	Ubir	<i>uren</i>	‘coconut oil’
PT:	Tawala	<i>gulena</i>	‘coconut milk’

PMic **ar(e,o)ŋ*, **ar(e,o)ŋu-* ‘coconut cream, scraped coconut meat’ (Bender et al. 2003)

Mic:	Kiribati	<i>(te)aoŋ</i>	‘scraped coconut mixed with other food’
Mic:	Marshallese	<i>yal^u</i>	‘coconut milk’
Mic:	Ponapean	<i>eriŋ</i>	‘ripe coconut’
Mic:	Mokilese	<i>ɔriŋ</i>	‘brown stage of coconut’
Mic:	Chuukese	<i>ariŋ</i>	‘coconut cream’
Mic:	Carolinian	<i>ariŋ</i>	‘coconut cream’
Mic:	Woleaian	<i>yazeŋi</i>	‘coconut cream, bone marrow, coconut milk’
Mic:	Sonsorolese	<i>yaləŋi</i>	‘coconut cream’
Mic:	Pulo-Annan	<i>yaləŋi</i>	‘coconut milk’

Coconut oil, produced by boiling the milk, was apparently regarded as a form of POc **moŋak*, which denoted fatty, creamy or oily substances which tasted good.

PMP **meŋak* ‘fat, grease’ (Dempwolff 1938)

POc **moŋak* ‘fat, oil, cream, coconut cream; tasty’ (Blust 1978*b*)

Adm:	Mussau	<i>mona</i>	‘fat, tasty’
NNG:	Manam	<i>mona-mona</i>	‘tasty’
NNG:	Kairiru	<i>moŋeq</i>	‘food’
PT:	Suau (Saliba)	<i>mo-mona-</i>	‘coconut oil, grease, pig fat’
MM:	Tabar	<i>monaki</i>	‘fat’
MM:	Lihir	<i>maniok</i>	‘fat’
MM:	Lamasong	<i>monok</i>	‘coconut cream’
MM:	Madak	<i>monouk</i>	‘fat’
MM:	Barok	<i>manok</i>	‘fat’
MM:	Tolai	<i>monoi</i>	‘fat’
SES:	Gela	<i>mona</i>	‘coconut cream’

4.3 The embryo and the ‘apple’

Distinguishing growth stage 12, the sprouted coconut, from the ‘apple’ inside it is difficult, but the terms reconstructed below all appear to have denoted the apple rather than the coconut. The most widely reflected of these terms is POc **paraq* ‘coconut embryo, spongy mass inside

sprouting nut; brain’: non-Oceanic cognates indicate that ‘coconut embryo’ was the earlier sense. Its Titan, Bariai, and Sinaugoro reflexes indicate that POc **paraq* could also denote ‘brain’, presumably because of the latter’s spongy appearance and texture.

The reconstruction of POc **paraq* entails a small phonological puzzle. For PMP Blust (ACD) reconstructs **para* ‘coconut embryo’ without **-q* because it is not reflected in non-Oceanic cognates. However, Iduna and Kilivila (PT), Tolai (MM) and Southern Vanuatu reflexes all point to its presence in POc **paraq*.

PMP **para* ‘coconut embryo’ (ACD)

POc **paraq* ‘spongy mass inside sprouting nut; brain’

Adm:	Titan	<i>pare-n</i>	‘brain, sprout’
NNG:	Bariai	<i>para</i>	(v) ‘sprout’
		<i>pata-ŋa</i>	‘brain’
PT:	Iduna	<i>valaga</i>	‘seed inside coconut; old yam’
PT:	Kilivila	<i>valiga</i>	‘coconut sprout, coconut sponge’ (Malinowski 1935b: 112)
PT:	Hula	<i>vala</i>	‘spongy ball inside sprouting coconut’
PT:	Sinaugoro	<i>vara</i>	‘inner part, brain, inner part of coconut’
MM:	Tolai	<i>varai</i>	‘sprouted coconut’
MM:	Siar	<i>arai</i>	‘young soft coconut’
MM:	Nehan	<i>uara</i>	‘coconut shoot; edible growth inside mature coconut/coconut with shoot, used for planting’
MM:	Petats	<i>hala</i>	‘sprouted coconut (see Petats terminology above)’
MM:	Halia-Haku	<i>hala</i>	‘sprouted coconut’
SES:	Gela	<i>vara</i>	‘a fallen coconut beginning to grow and showing leaf’
SES:	Longgu	<i>vara</i>	‘a coconut seedling ready for planting; the solid, sweet part of an old coconut (where the liquid has become solid)’
NCV:	Mota	<i>vara</i>	‘the shoot, plumule, of the coconut, as it forms first within the nut, afterwards when it shoots outside, and finally as growing up from the radicle’
NCV:	Raga	<i>vara</i>	‘sprouting coconut’
NCV:	N Ambrym	<i>var</i>	‘spongy kernel of a mature coconut’
NCV:	Lonwolwol	<i>vaa</i>	‘the spongy kernel of a mature coconut’
NCV:	Paamese	<i>a-hai</i>	‘sprouting coconut’
NCV:	Lewo	<i>(puru)ve</i>	‘sprouting coconut’
NCV:	Nguna	<i>na-vare</i>	‘sprouting coconut’
NCV:	Namagir	<i>var</i>	‘sprouting coconut’
NCV:	Nguna	<i>na-vare</i>	‘sprouting coconut’
NCV:	S Efate	<i>n-far</i>	‘spongy mass in sprouting coconut’

PSV **na-vəraq* ‘sprouting coconut and/or its pith’ (Lynch 2001c: 232)

SV:	Lenakel	<i>(nien-u)via</i>	‘sprouting coconut’
SV:	Kwamera	<i>nu-vera</i>	‘sprouting coconut’
SV:	Sye	<i>ne-vre</i>	‘sprouting coconut’
SV:	Ura	<i>ne-vla</i>	‘sprouting coconut’

NCal:	Fwâi	<i>(dō)vala</i>	‘sprouting coconut’
NCal:	Nemi	<i>(doo)vala</i>	‘sprouting coconut’
NCal:	Jawe	<i>(sep) vala</i>	‘sprouting coconut’
PMic <i>*fara</i> ‘core (of breadfruit, coconut, pandanus)’ (Bender et al. 2003)			
Mic:	Chuukese	<i>faar</i>	‘core of a breadfruit’
		<i>fara-n</i>	‘core of’
Mic:	Puluwatese	<i>faar</i>	‘core of breadfruit, sponge of coconut’
		<i>feræ-n</i>	‘core of’
Mic:	Woleaian	<i>faare</i>	‘core of a breadfruit’
		<i>fera-li</i>	‘core of’
Mic:	Ponapean	<i>paar</i>	‘spongy centre of sprouting coconut’
		<i>par</i>	‘to sprout (of coconuts)’
Mic:	Mokilese	<i>par</i>	‘sprouting coconut’
Fij:	Bauan	<i>vara</i>	‘spongy flesh in the kernel of a coconut before it shoots; a coconut in this stage or just shooting’
Fij:	Wayan	<i>vara</i>	‘ripe coconut, germinating; spongy flesh in kernel of ripe coconut’

We observed above that POc **paraq* ‘coconut embryo’ was also used to refer to the brain. POc **qutok* ‘brain, pith, marrow’ had a similar, but not identical, span of meanings, denoting the soft inner contents of a tree or palm trunk, canes, bones, and sprouting coconuts, as well as the contents of the human head. Glosses with meanings other than brain or head are shown in italics.

PMP **hutek* ‘brain, marrow’ (ACD)

POc **qutok* ‘brain, pith, marrow’

NNG:	Mapos Buang	<i>yuto</i>	‘brain’
NNG:	Bariai	<i>(i)uto-uto</i>	‘brain’
NNG:	Gitua	<i>uto</i>	‘pith, centre of tree (particularly sago)’
NNG:	Lukep	<i>kuto(na)</i>	‘head’
NNG:	Malasanga	<i>koto(na)</i>	‘head’
NNG:	Mangseng	<i>ut</i>	‘brain’
NNG:	Kis	<i>ut</i>	‘brain’
NNG:	Kaiep	<i>uto(ŋ)</i>	‘brain’
PT:	Suau (Saliba)	<i>uto</i>	‘brain’
PT:	Iduna	<i>uto-na</i>	‘flesh of coconut’
PT:	Misima	<i>utu(waul)</i>	‘brain’
PT:	Motu	<i>(au) uto-na</i>	‘pith’ (au ‘tree’)
SES:	’Are’are	<i>uo(-woi)</i>	‘pith, heart (of tree)’
SES:	Sa’a	<i>uo</i>	‘the inner skin of rattan cane, pith’
SES:	Arosi	<i>uo</i>	‘the flesh, edible part of a yam’
NCV:	Mota	<i>uto-i</i>	‘pith, the inner part, if hard, within the bark’
Fij:	Bauan	<i>uto</i>	‘heart; pith of a tree’
NCV:	Mota	<i>uto-i</i>	‘pith’
Mic:	Chuukese	<i>ōt</i>	‘coconut sprout, the soft spongy centre of a coconut’

PPn **quto* ‘brain; pith of a tree; inner part of something; spongy mass in sprouting coconut’

Pn:	Tongan	<i>?uto</i>	‘(of a coconut) beginning to sprout; soft kernel or “apple” of a sprouting nut; brain’
Pn:	E Futunan	<i>?uto</i>	‘brains; sprouting coconut’
Pn:	E Uvean	<i>?uto</i>	‘brains; spongy mass in sprouting coconut’
Pn:	Emae	<i>uto</i>	‘sprouting coconut’
Pn:	Rennellese	<i>?uto</i>	‘sponge, as of coconut, ivory nut’
		<i>?uto (?ugu)</i>	‘brains’ (= ‘head sponge’)
Pn:	Samoan	<i>uto</i>	‘spongy substance in old coconut’
Pn:	Luangiua	<i>?uko</i>	‘sprouting coconut’
Pn:	Nukuria	<i>udo</i>	‘soft wood around the centre of a tree trunk’
Pn:	Marquesan	<i>(?ehi)uto</i>	‘sprouting coconut’
Pn:	Mangarevan	<i>uto</i>	‘marrow; spongy mass in old coconuts’
Pn:	Rarotongan	<i>uto</i>	‘germinated coconut; kernel or white spongy substance found inside a germinated coconut’

The less widely reflected terms PAdm **puto-*, POc **p^wiras* and PWOC **gawa* also seem to have had ‘coconut apple’ as their principal denotation. Despite its formal similarity to POc **qutok* above, PAdm **puto-* ‘spongy mass inside sprouting nut’ appears to be a separate item, the reflexes of which denote only the inside of the sprouted coconut.¹⁶

PAdm **puto-* ‘spongy mass inside sprouting nut’

Adm:	Loniu	<i>putɔ</i>	‘core, especially of coconut’
Adm:	Titan	<i>buto-n</i>	‘coconut sprout, the soft spongy center of a coconut’

POc **p^wiras* ‘pithy ball inside sprouted coconut’ (ACD: **pirV*)

NNG:	Gitua	<i>pir</i>	‘white pithy ball inside sprouted coconut’
NNG:	Tuam	<i>pir</i>	‘germinating nut’ (Freedman 1967: 335)
NNG:	Lukep (Pono)	<i>pir</i>	‘coconut sprout’
MM:	Roviana	<i>piraha</i>	‘sprouting coconut’
SES:	Gela	<i>pira</i>	‘coconut on ground showing leaf’

PMic **pir*, **piri-* ‘growth or lump under the skin, spongy core of mature coconut’ (Bender et al. 2003)

Mic:	Marshallese	<i>pər</i>	‘small sprouted coconut; swelling, tumour’
Mic:	Puluwatese	<i>pir</i>	‘coconut sponge beginning to form; growth or lump under the skin’

¹⁶ Lynch (2001c) reconstructs PSV **nə-vutoy* ‘brain’ with an unexpected initial **v-* reflected in Anejoñ *h-*. Its resemblance to PAdm **puto-* is probably accidental, as its reflexes only denote ‘brain’ and it is probably a reflex of POc **qutok* in which PSV **v-* (normally < POc **p-*) is an idiosyncratic innovation.

PSV **nə-vutoy* ‘brain’ (Lynch 2001c)

SV:	Anejoñ	<i>n-hutu(ma)</i>	‘brains’
SV:	N Tanna	<i>no-uta</i>	‘brains’
SV:	Lenakel	<i>nenō-urək</i>	‘brain’

Mic:	Chuukese	<i>piir, piri-n</i>	‘hard lump or growth under the skin’
		<i>piri-(n taka)</i>	‘spore of the ripe coconut when beginning to form’

PWoc **gawa* ‘spongy mass inside sprouting nut; sprouted coconut’

PT:	Gapapaiwa	<i>go-go-na</i>	‘spongy centre of a sprouting coconut’
PT:	Tawala	<i>ko-ko</i>	‘coconut sprouted’
PT:	Sudest	<i>yayə</i>	‘spongy centre of a sprouting coconut’
MM:	Ramoaina	<i>gawa-ina</i>	‘spongy centre of a sprouting coconut’

4.4 Coconut husk

Fibre from coconut husks (‘coir’ < Malay *kayar* ‘rope’) is used for floor matting, brushes, ropes and strainers. Husks and shells are used for fuel.¹⁷ Most Oceanic languages have distinct terms for the husk of coconuts, probably reflecting its importance for cordage and for fuel (Firth 1985: 369). For example, in Kiribati there are names for all the operations involved in making string from *benu* ‘coconut husk (for making string)’, namely *tao-benu* ‘soaking the *benu*’; *tae-benu* ‘taking it out of the soaking pit’; *tiri-benu* ‘beating the *benu* to clean it’; *ake-ake* or *ake-a te benu* ‘to hackle it’; *bo-binoka* ‘to arrange *benu* ready for twisting’; *kakano* ‘twist the *benu* on thigh to make string’ (Sabatier 1971: 63).

Doublet forms, POc **punut* and **p^wenu(t)*, both ‘coconut husk’, appear to be reconstructable. Blust (ACD) also reconstructs the PMP doublets **bunut* and **benut*. PMP **bunut* is clearly the source of POc **punut*, but PMP **benut* is just as clearly not the source of **p^wenu(t)*, as its expected POc reflex would be †**ponut*. Instead, **p^wenu(t)* reflects a shift of the rounding feature of *-*u-* forward to **p-*. The change is not regular, and perhaps the result of vowel dissimilation. The Nduke, Bugotu, Gela, Longgu and Puluwatense point to an initial labiovelar.

PMP **bunut* ‘coconut husk’ (Zorc & Charles 1971, Blust 1989)

POc **punut* ‘coconut husk, fibres on coconut husk’ (Ross 1996c)

NNG:	Tuam	<i>pun-pun</i>	‘coconut husk’
NNG:	Bing	<i>fun-fūn</i>	‘coconut husk fibre; husk a coconut’
NNG:	Lukep (Pono)	<i>pun-pun</i>	‘coconut husk’
NNG:	Bing	<i>fun-fūn</i>	‘the coconut fibre from the husk’
NNG:	Takia	<i>funu(dan)</i>	‘coconut husk’
NNG:	Maeng	<i>putu-n</i>	‘coconut husk’ (metathesis)
MM:	Vitu	<i>vinuta</i>	
PT:	Motu	<i>bunu</i>	‘coconut husk’ ¹⁸
PT:	Roro	<i>punu</i>	‘coconut husk’
MM:	Ramoaina	<i>punut</i>	‘beard’
MM:	Nehan	<i>pitunu</i>	‘coconut husk’ (metathesis)
MM:	Halia	<i>putunu</i>	‘coconut husk’ (metathesis)

¹⁷ Terms for husking and breaking open a coconut are reconstructed in vol.1, ch.6, §5.5.

¹⁸ The initial consonant of this form is irregular, as POc **p* > *p* or *h* in Motu.

MM:	Nduke	<i>punutu</i>	‘fibrous epidermis round the base of a coconut frond; looks like an open-weave cloth, and used for straining milk from squeezed coconut flesh’
SES:	Bugotu	<i>vunu-</i>	‘outer skin of canarium almond’
NCV:	Nokuku	<i>wun</i>	‘coconut husk’
NCV:	Kiai	<i>vunu-</i>	‘husk, threads, fibre’
NCV:	Atchin	<i>no-un</i>	‘plaited string of coconut fibre’
NCV:	S Efate	<i>na-un</i>	‘husk’
Pn:	Tuvalu	<i>funu</i>	‘pubic hair’

Evidence for the word-final **t* of POc **p^wenu(t)* is indirect. The Nduke and Bugotu forms below both support the reconstruction of a final consonant for POc, but neither is a regular reflex of **p^wenu(t)*.

POc **p^wenu(t)* ‘coconut husk’ (Ross 1996c)

MM:	Meramera	<i>ven-venu</i>	‘coconut husk’
MM:	Tangga	<i>pinu-ŋ</i>	‘coconut husk’
MM:	Nduke	<i>pe-penete-</i>	‘husk of a mature coconut; thick coir or fibre that makes up the inside of the husk’ (for † <i>penutu</i>)
MM:	Maringe	<i>p^wetu</i>	‘coconut husk’ (metathesis, followed by loss of final consonant)
SES:	Bugotu	<i>penutu</i>	‘coconut husk’ (borrowed from a NW Solomonian language)
SES:	Gela	<i>penu</i>	‘coconut, outer husk, wound around foot as protection’
SES:	Longgu	<i>penu</i>	‘the outside husked part of the coconut, when it has rotted’
SES:	Arosi	<i>henu-</i>	‘husk; bark; mollusc shell’
Mic:	Puluwatense	<i>(ese) pān</i>	‘shell, peel, husk’
Fij:	Rotuman	<i>henu</i>	‘husk of coconut or large pandanus nut’
Fij:	Bauan	<i>venu(ki)</i>	‘fibres of coconut husk beaten ready for twisting into sinnet’ ¹⁹
Pn:	Samoan	<i>fenu</i>	‘make a join in plaiting etc’
Pn:	Māori	<i>fenu</i>	‘twist, spin a cord, strand of a garment, warp (in weaving); a single element in basketry’

4.5 Coconut shell

There was apparently no dedicated POc term for a coconut shell, but there were a number of terms for the utensils made from them. The following utensil terms are reconstructed in vol.1 (ch.4, §2.2)

- POc **b^(w)ilo* ‘coconut shell used as liquid container’
- POc **lasa* ‘coconut half-shell cup’

¹⁹ It is not clear what the final *-ki* of Bauan *venuki* reflects.

- POc **ubi/*ibu* ‘half coconut shell used as a drinking cup’
- POc **kabu* ‘cup, ladle’

5 Parts of the coconut palm

The growing period of a coconut palm from the germination of a nut to the production of new coconuts is 4–10 years. Generally, no use is made of the palm during its growing period, but once the palm is productive, its various parts, like the coconut itself, have a large variety of uses. Understanding the parts of the palm entails understanding how its fronds grow (see Figure 12.2):

The crown of the palm is made up of 20–35 fronds, depending on how favourable the growing environment is. The fronds emerging in sequence from the central bud of the palm conform to a set geometrical pattern of angular separation around the circumference of the palm trunk. ... If frond 1 in a series is given the azimuth angle of zero degrees, frond 2 will be located at plus or minus 140 degrees, frond 3 at 280 degrees, frond 4 past the starting angle at 60 degrees on the second circuit ... (M. Foale 2003: 48).

A new frond is supported at its base by a netlike brown fibrous epidermis so thick, tough and regular that it looks almost machine-made. It protects the tender growing area from physical injury, supporting the new leaf until it is mature, after which it drops to the ground and is collected for a number of uses. Arber (1922) labelled it the ‘coiffe’ or ‘pellicule’²⁰—but these terms have not caught on and it is often omitted from western descriptions of the coconut palm—yet its POc names are among the most easily reconstructed terms for a part of the coconut palm. We will call this material ‘frond netting’ in order to distinguish it clearly from the better known source of fibre, the coir of the coconut husk (§4.4).

A new flower bunch (inflorescence), from which coconuts eventually emerge, appears at the base of the frond that has reached the 10th to 12th position down from the youngest emerging frond. The flower bunch is encased in a spear-like sheath (the spathe) which protrudes as much as a metre from the inner side of the base of its accompanying frond. The tough skin of the spathe splits and shrinks back somewhat, exposing the inflorescence (M. Foale 2003: 47).²¹ The multi-branch flower stalk (spadix) becomes the stalk of a new bunch of coconuts.

Table 4.1 of Chapter 4 shows part of the coconut terminology of Tikopia, which is typical of Oceanic languages in its coverage. The parts of the coconut palm that are typically named are:

- the frond and its parts (§5.1)
- frond netting (§5.2)
- the spathe and the inflorescence (§5.3)

Some parts of the palm are labelled with terms that are used for parts of plants in general. For example, Oceanic languages do not have a distinct name for the trunk of a coconut palm and nor presumably did POc. Instead, POc **puqu(n)* ‘base of tree, source, origin’ (ch.4, §2.1)

²⁰ I am grateful to Jean Kennedy for this reference.

²¹ The spathe is quite woody, and in parts of Asia fallen spathes are boiled, dried and waxed to produce boat-shaped bowls.

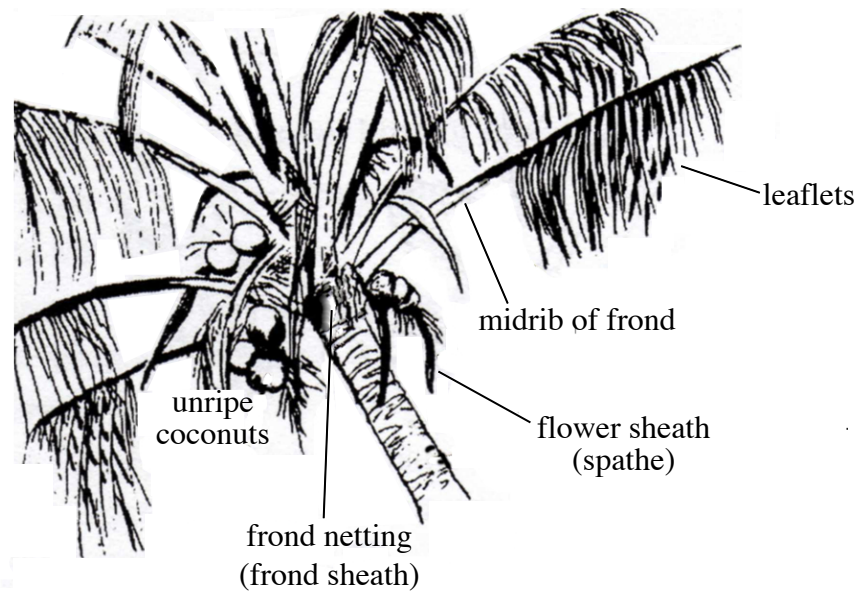


Figure 12.2 Parts of a coconut palm

was apparently used, and the trunk of a coconut palm—and by metonymy the palm as a whole—was probably **puqun ni niuR* (ch.2, §7.1.3). The coconut trunk is sometimes used for flooring and bearers, but it is difficult to trim and by no means the best material for these purposes (O’Collins & Lamothe 1989, Kwa’ioloa & Burt 2001: 192). The young leaf shoots of the coconut palm, which are sometimes eaten (French 1986: 31), have a distinct name only in Central Pacific languages (PCP **tō-rau*, where the second element reflects POc **raun* ‘leaf’; ch.4, §2.5, cf. Table 4.7), but are otherwise labelled with whatever term is used for leaf-shoots (ch.4, §2.6).

5.1 The frond and its parts

Coconut fronds are 4–6 m long and have a thick stalk (petiole) which narrows into a central spine or midrib (rachis) from which grow leaflets (pinnae) 60–90 cm in length. Fronds serve as roofing material for shelters. Their leaflets are used to make baskets, and the dried ribs of the leaflets are bound together to make brooms.

As noted in ch.4, §2.5, Oceanic languages tend to have more than one term for the coconut frond, distinguishing between the green frond on the palm and the fallen, dried brown frond.

5.1.1 Green fronds

Whether there was a single POc word denoting a green frond is debatable. Scattered languages use compounds meaning ‘leaf of coconut’ (Titan *lau-niw*, Anejoñ *neri-neañ*, Niuean *lau-niu*, each literally ‘leaf-coconut’) or ‘branch of coconut’ (Nehan *raŋ-kuen*, literally

‘branch-coconut’). There is thus some evidence for reconstructing **raun ni niuR* ‘leaf of coconut’ and/or **raqan ni niuR* ‘branch of coconut’.

Possible candidates for this meaning are POC **usiri* and PWOC **pagal*. However, the Tuam and Ramoaaina glosses of reflexes of **pagal* suggest that it may have denoted the midrib of the frond or the broad base of the midrib. The Lahir reflex suggests that the denotation may have included palm fronds other than the coconut. The Vaghua, Varisi and Ririo reflexes are irregular in reflecting *-r-* for expected *†-l-* and in their denotation: ‘branch’. The meaning of POC **usiri* is just as problematic.

POC **usiri* ‘palm frond or midrib of a frond’ (?)

MM:	Nehan	<i>usiri</i>	‘backbone; backbone of the small leaves of the coconut frond, sago palm, all palms’
NCV:	Paamese	<i>o-usil</i>	‘frond’
NCV:	S Efate	<i>sēr</i>	‘frond’

cf. also:

PT:	Iduna	<i>didi-na</i>	‘coconut frond’
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PWOC **pagal* ‘palm frond’ (?)

NNG:	Kove	<i>paya-paya</i>	‘coconut frond’ (A. Chowning, pers. comm.)
NNG:	Tuam	<i>peleŋga-n</i>	‘base of a coconut frond’ (metathesis)
NNG:	Mangap	<i>(pal)paanŋa, (sul)paanŋa</i>	‘palm frond’
MM:	Bulu	<i>pagal(i)</i>	‘frond’
MM:	Lahir	<i>palan</i>	‘sago leaf’
MM:	Ramoaaina	<i>pagal</i>	‘coconut leaf stem’

cf. also:

MM:	Vaghua	<i>pagar(a)</i>	‘branch’
MM:	Varisi	<i>pagar(a)</i>	‘branch’
MM:	Ririo	<i>pagar(eve)</i>	‘branch’

Ross (1996c: 204) reconstructed POC **[pa]paq[a-]*, apparently denoting the frond of any palm. It reflects PMP **pa(q)paq* ‘frond of a palm’ (Blust 1989). There is reasonable evidence that POC **[pa]paq[a-]* occurred, but its meaning is unclear. Only the Arosi and Ellicean reflexes mean ‘palm frond’. Its Meso-Melanesian reflexes simply mean ‘leaf’, whilst its Polynesian reflexes imply that PPn *faʔa* meant the stalk of large leaves of various plants.

PMP **pa(q)paq* ‘frond of a palm’ (Blust 1989)

POC **[pa]paq[a-]* ‘frond of a palm’ (?) (Ross 1996c)

MM:	Bola	<i>paga</i>	‘leaf’
MM:	Lavongai	<i>pa</i>	‘leaf’
MM:	Kara (E)	<i>paka</i>	‘leaf’
MM:	Kara (W)	<i>faka</i>	‘leaf’
MM:	Nalik	<i>fəkə</i>	‘leaf’
MM:	Tabar	<i>(paka)paka</i>	‘leaf’
MM:	Sursurunga	<i>pəkə</i>	‘leaf’

MM:	Patpatar	<i>paka</i>	‘leaf’
MM:	Label	<i>paka</i>	‘leaf’
MM:	Siar	<i>paka</i>	‘leaf’
MM:	Teop	<i>paka</i>	‘leaf’
SES:	Arosi	<i>haha-na</i>	‘palm frond, branch of a palm or tree that has no branches, as sago palms, coconut, cycad, screw palm’
Pn:	Tongan	<i>faʔa</i>	‘lower portion of leaf stalk of banana, taro, or giant taro (<i>Alocasia macrorrhiza</i>)’
Pn:	Niuean	<i>fā</i>	‘(plant) stalk’
Pn:	Tikopia	<i>fā</i>	‘leaf stem of fleshy plant’
Pn:	Rennellese	<i>haʔa</i>	‘(taro, banana, papaya) stalk’
Pn:	Samoaan	<i>fā</i>	‘stalk, stem of taro, banana and certain other plants’
Pn:	Tuvalu	<i>fā</i>	‘base end of a coconut midrib’
Pn:	Nukuoro	<i>hā</i>	‘coconut palm frond’
Pn:	Hawaiian	<i>hā</i>	‘stalk that supports the leaf and enfolds the stem of certain plants, as taro, sugarcane, layers in a banana stump’

5.1.2 Dried fronds

One of the main uses of dry coconut fronds is as torches, and in a number of languages there is a polysemous term meaning ‘dry coconut leaf’ and ‘(coconut leaf) torch’ (e.g. Misima *wita* ‘(go) fishing with a lamp; dry coconut leaves; light made by burning dry coconut leaves’ and NE Ambae *here* ‘dry coconut leaf; dry coconut leaf lit and used as a torch’). Milke (1961) reconstructs **sulu(q)* ‘dry coconut leaf torch’ for POc (see also vol.1, ch.6, §2.3). On the basis of the reflexes of this form it seems likely that as in the case of NE Ambae *here*, ‘dry coconut leaf’ was a secondary meaning. Thus, languages like Lukep, Ramoaaina, Uripiv, Mokilese and Tongan have reflexes with both meanings, and in other languages such as Longgu and Southeast Ambrym it is only the coconut leaf meaning which has been retained.

PMP **suluq* ‘torch’ (Dempwolff 1938)

POc **sulu(q)* ‘dry coconut leaf torch; dry coconut leaf’ (Milke 1961)

Adm:	Lou	<i>sula-n</i>	‘dry coconut leaf’
Adm:	Titan	<i>cul</i>	‘torch made from coconut fronds for scorching canoes or for fishing at night’
NNG:	Lukep (Pono)	<i>sul</i>	‘dry coconut leaf; torch, traditionally made of dry coconut leaves’
NNG:	Takia	<i>sul</i>	‘a torch made from dried coconut fronds’
MM:	Ramoaaina	<i>ulu</i>	‘leaf of a coconut palm; coconut leaf or torch’
SES:	Longgu	<i>sulu</i>	‘leaf, especially of coconut’
NCV:	Uripiv	<i>na-sul</i>	‘coconut frond (especially a dry one); a light (the traditional use for dry coconut fronds)’
NCV:	SE Ambrym	<i>o-sil</i>	‘coconut frond’
NCV:	Paamese	<i>(ou-i-)silu</i>	‘coconut frond’ (<i>ou</i> ‘leaf’)
NCV:	Nguna	<i>na-sulu</i>	‘torch, flashlight, lamp, light’

SV:	Lenakel	<i>(nə-kou-i-)səl</i>	‘coconut frond stalk’
SV:	Anejoñ	<i>ni-sel</i>	‘coconut leaf midrib’
Mic:	Kiribati	<i>rin</i>	‘dry coconut leaves used for torches’
Mic:	Mokilese	<i>til</i>	‘dry coconut frond, torch’
Fij:	Rotuman	<i>sulu</i>	‘coconut spathe; coconut spathe torch; fish by light of burning coconut spathe’
Pn:	Tongan	<i>hulu</i>	‘dry coconut or banana leaves; show a light or give a light, with lantern or torch’
Pn:	Niuean	<i>hulu</i>	‘torch (traditionally made of wooden fibres); to shine, give off light’

cf. also:

Fij:	Bauan	<i>suluka</i>	‘dry leaves, generally of bananas for rolling cigarettes’
Pn:	Samoan	<i>sului</i>	‘dry banana leaf (used as wrapper for a Samoan cheroot); cheroot’

PWOc **daki* had a similar meaning.

PWOc **daki* ‘dry coconut leaf torch’

PT:	Iduna	<i>daki</i>	‘dry coconut leaf torch’
MM:	Susurunga	<i>dək</i>	‘dry coconut leaf torch’

POc **ramaR* ‘coconut leaf used as a torch when fishing’, reflecting PMP **damaR* ‘resin, torch, light’, is also reconstructable (Ross 1996c: 205; vol.1, ch.8, §8).²² All reflexes indicate that this term denoted a torch—and specifically a torch used for fishing—rather just a coconut frond. The Lou and Tongan reflexes suggest that the **ramaR* may also have been used as a verb.

PMP **damaR* ‘torch, light’ (Dempwolff 1938)

POc **ramaR* ‘coconut leaf used as a torch when fishing’ (Capell 1943)

Adm:	Lou	<i>(ka)ram</i>	‘torch’
		<i>ram-ram</i>	(v) ‘fish at night by torchlight’
MM:	Kara (E)	<i>lamak</i>	‘coconut leaf used as a torch’
Fij:	Bauan	<i>rama</i>	‘cast light on’
		<i>rama-rama</i>	‘lamp of coconut shell filled with oil’
Pn:	Tongan	<i>ama</i>	(v) ‘fish at night by torch-light; torch made of coconut spathes bound together’
Pn:	Niuean	<i>ama</i>	‘search for crabs, etc. with a torch’
Pn:	Tikopia	<i>rama</i>	(N) ‘torch of dry coconut frond’; (v) ‘fish with torches’
Pn:	Samoan	<i>lama</i>	‘torch (made of dry coconut leaflets +); fishing with torches’

²² In vol.1, ch.8, §8, the reconstructed form is **(d)rama(R)*, but initial **dr-* (as opposed to **r-*) is not required by the data. Final *-R* is apparently reflected in Kara *-k*. The usual Kara reflex of **-R* is *-i*; *-k* is the normal reflex in neighbouring Tigak.

- Pn: Māori *rama* ‘torch; eeling with torches’
 cf. also:
 PT: Misima *dam* ‘coconut leaf used as a torch’

PWoc **bita* appears to have the same range of meaning. Although there are only two known reflexes, the probability of a chance correspondence in form and meaning is so low that we can have reasonable confidence in the reconstruction.

- PWoc **bita* ‘dry coconut frond, dry coconut frond torch; fish at night’
 PT: Misima *wita* ‘dry coconut leaves; light made by burning dry coconut leaves; (go) fishing with a lamp’
 MM: Nehan *bita* ‘dry coconut frond, dry coconut frond torch; fish at night’

5.1.3 Midrib of the frond

Modern languages tend to have a distinctive term for the midrib or spine of a coconut frond, e.g. Iduna *domoluluna* ‘(main) stalk of coconut leaf’, Nduke *kilikava* ‘stem of coconut frond, especially at thick end’, Wayan Fijian *bālotu* ‘a coconut frond stalk stripped of its leaflets; the stem of the coconut frond, used for firewood and torches’. There are two candidate terms for this meaning, POC **bala(p,b)a(q)* and POC **sasaRi*. Both may have denoted both the palm frond and the midrib—unsurprisingly, as a midrib is accompanied by its leaflets until they are stripped off.

- PMP **p<al>a(q)paq* ‘midrib of coconut frond’ (Dempwolff 1925)
 POC **bala(p,b)a(q)* ‘palm branch; midrib of palm frond’ (Ross 1996c: **palapa(q)*)
 Adm: Loniū *palapa* ‘branch, especially of palm tree’ (for †*palaha*)
 PPn **palalafa* ‘stalk and midrib of a coconut frond’ (POLLEX)
 Pn: Tongan *palalafa* ‘stalk (or stalk and midrib) of a coconut leaf’
 Pn: Emae *pararafa* ‘base of fallen coconut frond, still attached to tree’
 Pn: Pukapukan *palelawa* ‘midrib of coconut leaf’
 Pn: Tikopia *pararafa* ‘stem of coconut frond, used as small stirrer for liquids, tiny mallet in tattooing’

cf. also:

- Fij: Rotuman *parafa* ‘midrib of coconut leaf’ (loan from Polynesian)

The Fijian reflex of **sasaRi* makes the reconstruction of its meaning somewhat unsure.

- POC **sasaRi* ‘midrib of coconut frond’
 NNG: Kove *sasali* ‘midrib’
 NNG: Bariai *sasal* ‘midrib’
 NNG: Mangap *sasar* ‘midrib of a coconut leaf’
 SES: Longgu *sali-sali* ‘rip a leaf along its midrib’

cf. also:

Fij: Wayan *sāsā* ‘dry coconut frond’

5.1.4 Spine/stalk of leaflet

Our sources often do not distinguish clearly between the frond and the leaflet (both are labelled ‘leaf’). The main use of coconut leaflets is that their dried spines are very commonly bound together to make brooms, and terms for the spine or stalk of leaflet typically relate to this use. Thus Manam *sinoka* ‘spine of coconut leaves, used for making brooms’, Ramoaaina *noko* ‘broom, coconut leaf spine’ and Carolinian *sōw* ‘spine of the coconut leaf (used in weaving, making brooms)’. POC **no(k,g)o* evidently denoted both the spines and the broom.

POC **no(k,g)o* ‘midrib or spine of coconut leaflet; broom made therefrom’ (Bender et al. 2003: 61)

NNG: Lukep (Pono) *noŋ-noŋ* ‘spine of a coconut leaflet’
 NNG: Sio *noŋgo* ‘centre strip of coconut leaf (used in brooms)’
 MM: Ramoaaina *noko* ‘midrib, small leaf stem; coconut leaf spine; broom’
 MM: Tolai *noko* ‘midrib of the leaflets of a coconut branch; broom, especially one made from these leaflets’

PMic **noko* ‘midrib of a coconut frond or leaf’

Mic: Kiribati *noko* ‘midrib of side leaves of coconut palm’
 Mic: Marshallese *n^uɔk^w* ‘midrib of a coconut leaf’
 Mic: Kosraean *nok* ‘midrib’
 Mic: Mokilese *nok* ‘coconut leaf midrib’

5.2 The frond netting

The protective netting at the base of the new coconut frond has the appearance of an open-weave cloth and is used in Oceanic societies for straining liquids, and particularly for wringing coconut ‘milk’ out of coconut flesh.

Two POC terms are reconstructable. The first, **kaka* seems to have denoted the netting material itself, or perhaps the young frond within it. The second, **Runut*, perhaps denoted the material in its function as a strainer.²³ In vol.1 (ch.6, §5.6) a metathesised form **nuRut* is also reconstructed on the basis of the Motu, Tolai and Mota reflexes. It is possible that this form did indeed occur, but it is also possible that metathesis occurred independently in two or three locations. Misima *lulúsi* and Tawala *luluhi* are borrowings from a Suaucic language like Saliba: the addition of *-i* after final consonants is unique to Suaucic. These two forms and Saliba *lulusi* all display consonant assimilation (the expected Saliba form is †*lunusi*) and it is impossible to tell whether they reflect **Runut* or **nuRut*.

POC **kaka* ‘young coconut frond; coconut frond netting protecting young frond’

MM: Patpatar *kaka* ‘new coconut frond that has not opened yet’

²³ vol.1, ch.6, §5.6, refers to the frond netting as the ‘spathe’ of the frond. Technically this is correct, but we prefer not to use the term here in order to avoid confusion with the spathe of the coconut flower (§5.3).

NCV: N Efate	<i>kak</i>	‘coconut mat, mesh formed by the coconut palm, used for straining liquids’
NCV: S Efate	<i>kak</i>	‘coconut mesh’
PPn * <i>kaka</i> ‘clothlike fibre surrounding base of coconut fronds’ (POLLEX)		
Pn: Tongan	<i>kaka</i>	‘fibrous integument at the top of coconut palms’
Pn: Niuean	<i>(lau)kaka</i>	‘the fibrous wrapping round the base of a young coconut frond’
Pn: Tikopia	<i>kaka</i>	‘fibre of base of coconut palm (not sago palm) used traditionally to make filter sheet in turmeric extraction etc’
Pn: E Futunan	<i>kaka</i>	‘brown fibrous material that grows on coconut tree’
Pn: Samoan	<i>ʔaʔa</i>	‘coarse fibrous material found at the base of coconut leaves and used for strainers etc’
Pn: Nukuoro	<i>gaga</i>	‘fibrous sheathing (at the base of the petiole sheath of the flower) of the coconut tree’
Pn: Tahitian	<i>ʔaʔa</i>	‘brown fibrous membrane at base of coconut fronds; similar substance at base of leaves of sugarcane, bamboo and reeds’
Pn: Hawaiian	<i>ʔa-ʔaʔa</i>	‘coconut cloth, vascular bundles in taro corm, chaff; fibrous’

PMP **Runut* ‘plant fibres’ (Blust 1984)POc **Runut* ‘sheath around base of coconut frond, used as strainer’ (Ross 1996c: 203)

NNG: Gitua	<i>run</i>	‘sheath around base of coconut frond, used as strainer’
PT: Misima	<i>lulúsi</i>	‘fine matting growing around base of coconut leaves, used as a sieve’ (Suauic borrowing)
PT: Tawala	<i>luluhi</i>	(N) ‘sheath around base of coconut frond’; (V) ‘strain, purify, improve’ (Suauic borrowing)
PT: Suau (Saliba)	<i>lulusi</i>	‘coconut tissue, used as a strainer’
PT: Motu	<i>nuru</i>	‘fibrous substance that grows around base of coconut frond; the stipule; coarse cloth; a sack’ (metathesis)
MM: Tolai	<i>nirut</i>	‘leaf-root mesh of coconut tree’ (metathesis and vowel dissimilation)
NCV: Mota	<i>nir</i>	‘fibrous spathe of coconut frond, used to strain sago’ (metathesis and vowel dissimilation)
NCV: Paamese	<i>(ä)un</i>	‘cloth-like material at top of coconut tree’
NCal: Pije	<i>uñ</i>	‘fibrous spathe of coconut frond; husk of coconut’
Mic: Kiribati	<i>iŋ</i>	‘fibre enveloping base of palm leaf and attaching it to the trunk, used as a filter’
Mic: Puluwatese	<i>(ese) win</i>	‘coconut cloth’
Mic: Ulithian	<i>il</i>	‘coconut cloth’
Fij: Wayan	<i>unu</i>	‘strainer for kava, in earlier times made of bark cloth, now usually muslin or any fine cloth’

Pn:	E Futunan	<i>unu</i>	‘kava strainer made of <i>bourao</i> fibres’
Pn:	Samoan	<i>unu</i>	‘woven wringer, used to extract dye from shreds of <i>Bischofia</i> tree bark etc’

5.3 The spathe, the inflorescence and the spadix

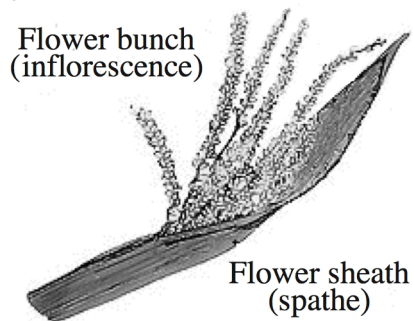


Figure 12.3 Coconut blossom and spathe)

There was perhaps no separate term in most Oceanic languages for the inflorescence of the coconut. Some languages do have separate non-cognate terms for coconut blossoms, e.g. Gapa-paiwa *sisina*, Gumawana *niyola*, Misima *lámun*, Paamese *voha*, Anejoñ *nacom*^w, but far fewer than have a term for ‘spathe’. Perhaps they were simply ‘flowers’, labelled by the general term POC **puŋa* ‘flower, blossom’ (ch.4, §2.7).

Terms for the boat-shaped spathe, shown in Figure 12.3, and for the spadix (the branching flower stalk which becomes the stalk of a bunch of coconuts) are more common, although some

languages do not distinguish between the two, whilst others have more than one term. The spathe is used for firewood and as a bowl or tray. Sugary sap can be tapped from the flower stalk (French 1986: 31). Sample terms are listed below. PPn had a term **losoloso* ‘coconut spadix; coconut spathe’ (POLLEX), reflected in most Polynesian languages.

Adm:	Titan	<i>páⁿrol</i>	‘sheath of flower of the coconut palm, when dry; used as firewood’
NNG:	Numbami	<i>wawanzija</i>	‘sheath over coconut blossoms (used as tray)’
PT:	Iduna	<i>lelewaka</i>	‘(split) pod of coconut; covers <i>kakaiyona</i>
		<i>kakaiyo-na</i>	‘twigs, hand on which coconuts grow’
PT:	Tawala	<i>kena</i>	‘sheath covering new coconut flowers’
MM:	Nduke	<i>rereto-</i>	‘spathe of the coconut, the ‘boat’ that accompanies the flowers and baby coconuts’
		<i>bayutu-</i>	‘stem that supports the flowers, and later the fruit, of the coconut’
SES:	Gela	<i>mbagona</i>	‘spathe of coconut flowers’
		<i>tu</i>	‘spathe of coconut flowers’
		<i>liliki</i>	‘flower case of coconut’
Fij:	Wayan	<i>sāmoa</i>	‘hard sheath or calyx enclosing flower of coconut (used as torch); coconut flower before sheath bursts’
Pn:	Tikopia	<i>taume</i>	‘coconut spathe, when dry used for fuel’

The Wayan and Tikopia terms above reflect POC **jamu((q)a)* which, however, evidently had the more general sense ‘cluster of flowers or fruit, usually palms’ (ch.4, §2.8). If there was a dedicated POC term for the coconut spathe and/or spadix, we have been unable to reconstruct it.

6 Conclusion

The importance of the coconut in POc culture is attested—as we might expect— by a substantial collection of terms for its growth stages, especially for those that are salient to its consumers (green drinking coconut, ripe coconut with hardened flesh), for its parts (its water, its flesh and coconut cream/milk, the ‘apple’, the husk) and for certain parts of the palm (the frond and its midrib, the spines of the frond’s leaflets and the frond netting). Not surprisingly, some of these terms are inseparable from the functions for which they are used (shells and cups made from them; dried fronds, frond torches and torch fishing; leaflet spines and brooms; frond netting and strainers).

13 *Other cultivated plants*

MALCOLM ROSS

1 Introduction

In his study of the uses of plants in central Pacific societies, Thaman (1994) shows that a number of plants are cultivated for purposes other than food production, an observation that equally applies to NW Island Melanesia. There are a number of such plants that have probably been cultivated in the Bismarcks since Proto Oceanic (POc) times. The evidence of longtime cultivation lies in the domesticated varieties of certain plants that only occur under cultivation (sugarcane, *Morinda citrifolia*, *Codiaeum variegatum*, *Cordyline fruticosa*, *Dracaena angustifolia* and *Heliconia indica*) and in the fact that some plants (sugarcane, some bamboo species, kava and *Broussonetia papyrifera*) only reproduce through the planting of cuttings and have no immediate wild relatives. Evidence that they have quite possibly been cultivated continuously since POc times is provided by the POc reconstructions in this chapter.

The plants treated in this chapter are used in a variety of ways. First there are those which are consumed by human beings but do not readily fall under the headings of earlier chapters: sugarcane is sucked to extract the sugar, betelnut is used as a stimulant, kava as a narcotic (§2). Then come plants which provide materials for making things: bamboo, the candlenut for illumination and black dyes, the paper mulberry for making bark cloth, and the Indian mulberry for yellow and red dyes (§3). Fish poisons are treated in §4, turmeric and ginger, which have various uses, in §5, plants with large colourful leaves used for decoration and for magic in §6 and cucurbits in §7. The pumpkin and the cucumber are of course foods, but cucurbits are discussed here, at the end of the volume, because (i) there is a question regarding the dating of the pumpkin's introduction(s) into Oceania and (ii) they do not readily belong in any of chapters 9 to 12.

2 Plants grown for human consumption

2.1 *Saccharum officinarum*, sugarcane, TP *suga* (Poaceae)

Sugarcane, *Saccharum officinarum* belongs to the family Poaceae, i.e., it is a grass, and is closely related to the wild species *S. spontaneum* (ch.8, §3.4).

Sugarcane is a domesticated, only planted from cuttings, and numerous varieties are found in gardens all over lowland and highland areas of NW Melanesia. Sugarcane prospers especially where the soil is moist and rich (Paijmans 1976: 125–126, Kwa’ioloa & Burt 2001: 204, Hviding 2005: 148). The jointed, fibrous stalks contain sucrose, obtained by cutting off a stem and chopping it into convenient lengths which are sucked and chewed as a refreshing snack. When the sugar has been sucked out, the rubbish is spat out.

The POC term **topu* ‘sugarcane, *Saccharum officinarum*’ continues PAN **tebuS* and is continued throughout Oceanic except in Polynesian, where reflexes attest to PPn **tō* ‘sugarcane’ rather than expected †**tofu*.

PAN **tebuS* ‘sugarcane’ (Blust 1969)

POC **topu* ‘sugarcane, *Saccharum officinarum*’ (Capell 1943)

Adm: Mussau	<i>tou</i>	‘sugarcane’
Adm: Seimat	<i>topu</i>	‘sugarcane’
Adm: Pak	<i>tuo</i>	‘sugarcane’
NNG: Maenge	<i>tau</i>	‘sugarcane’
NNG: Tuam	<i>toV</i>	‘sugarcane’
NNG: Lukep (Pono)	<i>to</i>	‘sugarcane’
NNG: Gedaged	<i>tou</i>	‘sugarcane’
NNG: Manam	<i>tou</i>	‘sugarcane’
PT: Wedau	<i>tom</i>	‘sugarcane’
PT: Bwaidoga	<i>toVU</i>	‘sugarcane’
PT: Duau	<i>tohu</i>	‘sugarcane’
PT: Suau (Saliba)	<i>tou</i>	‘sugarcane’
PT: Motu	<i>tohu</i>	‘sugarcane’
MM: Vitu	<i>toVU</i>	‘sugarcane’
MM: Nakanai	<i>toVU</i>	‘sugarcane’
MM: Tangga	<i>tuf</i>	‘sugarcane’
MM: Siar	<i>tu</i>	‘sugarcane’
MM: Mono-Alu	<i>tohu</i>	‘sugarcane’
MM: Marovo	<i>toVU</i>	‘sugarcane’
TM: Buma	<i>luro</i>	‘coconut’
TM: Nebao	<i>na-nə</i>	‘coconut’
TM: Asuboa	<i>u-ñio</i>	‘coconut’
TM: Tanabili	<i>no-ñio</i>	‘coconut’
SES: Gela	<i>toVU</i>	‘sugarcane’
SES: Kwara’ae	<i>ufu</i>	‘sugarcane’
SES: Arosi	<i>ohu</i>	‘sugarcane’
NCV: Mota	<i>tou</i>	‘sugarcane’
NCV: Mwotlap	<i>tōw</i>	‘sugarcane’
NCV: NE Ambae	<i>toVU</i>	‘sugarcane’
NCV: Araki	<i>rovU</i>	‘sugarcane’
NCV: Tamambo	<i>toVU</i>	‘sugarcane’
NCV: Nokuku	<i>toV[u]</i>	‘sugarcane’
NCV: Kiai	<i>toVo</i>	‘sugarcane’

NCV:	Raga	<i>toi</i>	‘sugarcane’
NCV:	Naman	<i>ni-cəv</i>	‘sugarcane’
NCV:	Neve‘ei	<i>netev</i>	‘sugarcane’
NCV:	Larëvat	<i>n-sev</i>	‘sugarcane’
NCV:	Uripiv	<i>na-tiv</i>	‘sugarcane’
NCV:	Port Sandwich	<i>na-roev</i>	‘sugarcane’
NCV:	Paamese	<i>a-tehi</i>	‘sugarcane’
NCV:	Lewo	<i>(puru)tevi</i>	‘sugarcane’
NCV:	Namakir	<i>tov</i>	‘sugarcane’
SV:	N Tanna	<i>nə-təp</i>	‘sugarcane’
SV:	Lenakel	<i>nə-ruw</i>	‘sugarcane’
SV:	SW Tanna	<i>nə-tuk^w</i>	‘sugarcane’
SV:	Anejoñ	<i>ne-to</i>	‘sugarcane’
NCal:	Iaai	<i>(aa)kü</i>	‘sugarcane’
NCal:	Xârâcùù	<i>de</i>	‘sugarcane’
Mic:	Kiribati	<i>tou</i>	‘fruit of the pandanus, chewed like sugarcane’
Mic:	Kosraean	<i>ta</i>	‘sugarcane’
Mic:	Ponapean	<i>sēw</i>	‘sugarcane’
Mic:	Woleaian	<i>wōw</i>	‘sugarcane’
Mic:	Puluwatese	<i>wōw</i>	‘sugarcane’
Mic:	Chuukese	<i>wōw</i>	‘sugarcane’
Fij:	Wayan	<i>tovu</i>	‘sugarcane’
Fij:	Bauan	<i>dovu</i>	‘sugarcane’

cf. also:

Mic:	Marshallese	<i>taw</i>	‘sugarcane’ (probably a loan, according to Bender et al. 2003)
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2.2 Stimulants and narcotics

One traditional stimulant, the betelnut, *Areca catechu* (§2.2.1), and one traditional narcotic, kava, *Piper methysticum* (§2.2.3) are in more or less complementary distribution in Oceania. Betelnut is chewed throughout New Guinea and NW Island Melanesia, whilst kava is consumed in Vanuatu, Fiji, Tonga and Samoa. The one point where the betelnut and kava domains overlapped was Vanikoro, to the east of the main Solomons archipelago (Darrell Tryon, pers. comm.). There were also locations in the small islands of the Admiralties and along the coast of the Madang Province of Papua New Guinea, i.e. in the betelnut domain, where kava was also used, having apparently found its way there from its place of domestication in Vanuatu.

2.2.1 *Areca catechu*, betel palm, betelnut, TP *buai*, P *bilnat*, *natnat* (Arecaceae)

Areca catechu is a slender palm which grows up to 30 m. Its crown is smaller relative to its height than that of a coconut, and leaflets are less densely spaced. A many-branched flower cluster develops below the leaf spathe, and the fruit develop from the flowers. The resulting branched cluster of fruit is a familiar sight in markets in lowland Papua New Guinea. The

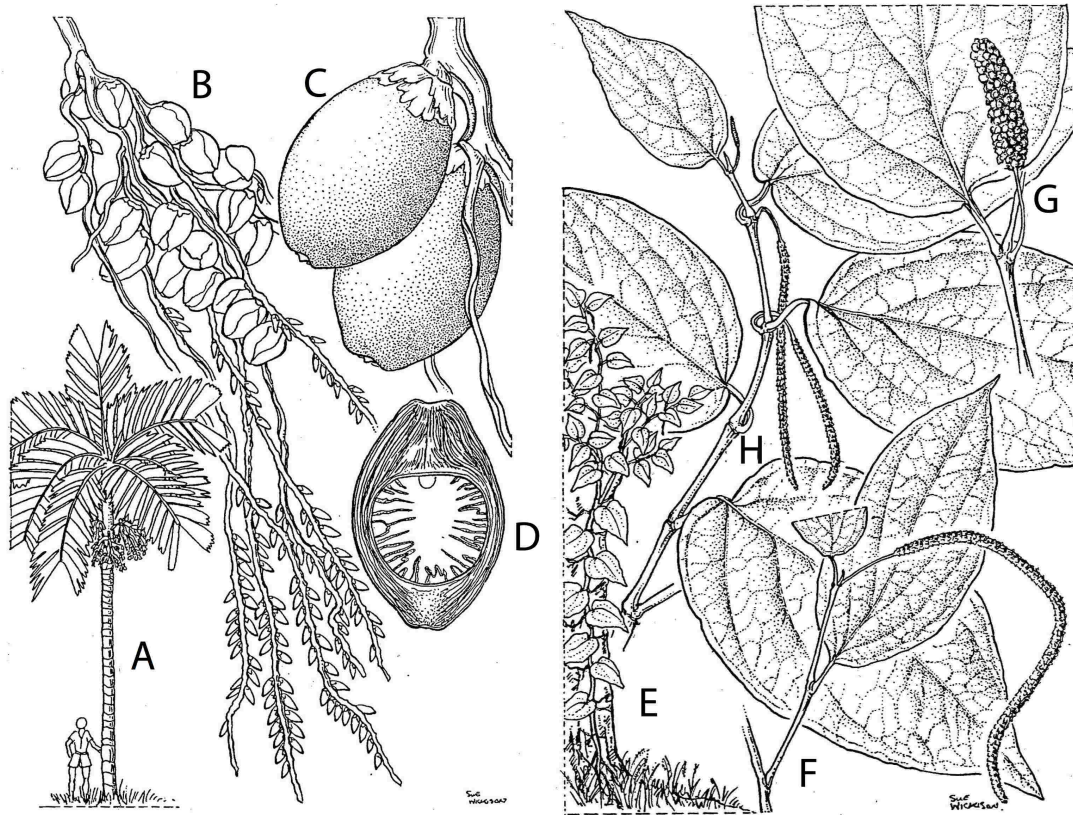


Figure 13.1 Left: *Areca catechu*, betelnut: A, tree; B, portion of inflorescence; C, portion of fruit cluster; D, fruit: longitudinal section showing fibrous exocarp and inner chewed 'nut'. Right: *Piper betle*: E, plant; F, G, H, flowering shoots of three varieties.

fruit consists of a seed enclosed in a thin green skin and a hard fibrous pericarp, i.e. husk (Figure 13.1, left).

Chewing betelnut as a stimulant is widespread in Papua New Guinea and the Solomon Islands, but not in other parts of the Pacific. Palms are grown in village groves or singly near houses. The seed may be chewed alone, but usually people chew a quid consisting of the seed, lime and a catkin or leaf of *Piper betle* (§2.2.2) (Paijmans 1976: 135).¹ Chewing the seed induces salivation, and if lime is present it turns the chewed mass bright red. Some people swallow all but the initial burst of saliva, whilst others spit out the red masticate. Initially, chewing leads to a very short-lived dizziness, followed by a sense of renewed wakefulness. In Papua New Guinea and parts of the Solomons chewing betelnut is a social ritual when people meet. Convention requires that the host offer betelnut to visitors (Henderson & Hancock 1988: 146). The husk of the fruit is sometimes used to clean the teeth after chewing, as the quid causes uncleaned teeth to turn dark brown.

Like other palms, the trunk of the betel palm can be split and the outer wood used for walling or flooring. In the western Solomons, liquid is squeezed from the husk into the eyes of conjunctivitis sufferers.

¹ Lime is made by crushing coral or shells, burning them to produce calcium oxide, then slaking this to produce calcium hydroxide (R.M. Bourke, pers. comm.).

POc **buaq* ‘*Areca catechu*’ is unusual, as both it and POc **puaq* ‘fruit’ evidently reflect a single etymon, PMP **buaq*, which had many meanings. Blust (ACD) gives the following glosses:

fruit; areca palm and nut; grain; berry; seed; nut; endosperm of a sprouting coconut; kidney; heart; finger; calf of the leg; testicle; various insects; scar tissue; roe; bud; flower; blossom; bear fruit; words, speech, or songs; meaning, contents of discussion; numeral classifier for roundish objects.

He makes the following observations:

1. PMP **buaq* formed the head of many head–attribute constructions which functioned as the names of particular fruits (**buaq kuluR* ‘breadfruit’, **buaq niuR* ‘coconut’, **buaq pahuq* ‘mango’, **buaq punti* ‘banana’, etc.). ...
2. PMP **buaq* almost certainly functioned in addition as a numeral classifier which applied to roundish or fruit like objects....
3. Most WMP and CMP reflexes support an inference that the meanings ‘fruit’ and ‘areca nut’ were associated with the same morpheme, but the Oc[eanic] evidence suggests that there were two homophonous morphemes. I assume that one morpheme expressed both meanings, but that in POc these meanings become disassociated and connected respectively with oral and nasal grade reflexes of PMP **buaq* (POc **puaq* ‘fruit’, **mpuaq* [our POc **buaq*] ‘betel [areca] nut’)...

Quite how this disassociation occurred is not clear, as no other similar cases are known. In vol. 1 (ch.2, §2.4), I explained that PMP **b* and **p* merged then split again into POc **b* and **p*. As a result, one cannot predict whether a PMP etymon with initial **b-* will begin with POc **b-* or with POc **p-*—but PMP **buaq* is the only etymon known to have both outcomes, in POc **buaq* ‘betel [areca] nut’ and POc **puaq* ‘fruit’.

František Lichtenberk (1998) examines the question of whether POc speakers chewed betelnut, concluding that they did, since a suite of terms associated with betel chewing can be reconstructed. Certainly there are no grounds in the set below for thinking that POc **buaq* was diffused across Oceanic languages rather than continued from POc. The easternmost limit of betelnut-chewing is in the Temotu Province of the Solomons, but **buaq* is reflected in Southern Vanuatu, where it is applied to palms of other kinds (John Lynch, pers. comm.).

PAn **buaq* ‘fruit’ (ACD)

PMP **buaq* ‘roundish or fruit-like object, including betelnut, *Areca catechu*’ (see above for the full ACD gloss)

POc **buaq* ‘betelnut, areca nut, palm, *Areca catechu*’ (Capell 1943: **pua(q)*)

Adm: Mussau	(<i>ai</i>) <i>bua</i>	‘ <i>Areca catechu</i> ’
Adm: Loniū	<i>bue</i>	‘ <i>Areca catechu</i> ’ (Nevermann 1934)
Adm: Nyindrou	<i>puii</i>	‘ <i>Areca catechu</i> ’
SJ: Sobei	<i>pue</i>	‘ <i>Areca catechu</i> ’
NNG: Tami	<i>bu</i>	‘ <i>Areca catechu</i> ’
NNG: Kove	<i>vua</i>	‘ <i>Areca catechu</i> ’
NNG: Bariai	<i>bua</i>	‘ <i>Areca catechu</i> ’
NNG: Lukep	<i>bu</i>	‘ <i>Areca catechu</i> ’
NNG: Yabem	<i>bu?</i>	‘ <i>Areca catechu</i> ’

NNG:	Manam	<i>bua</i>	‘ <i>Areca catechu</i> ’
PT:	Gabadi	<i>bua(kau)</i>	‘ <i>Areca catechu</i> ’
PT:	Motu	<i>bua(tau)</i>	‘ <i>Areca catechu</i> ’
PT:	Kilivila	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Vitu	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Bola	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Nakanai	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Tolai	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Notsi	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Tabar	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Tangga	<i>bu</i>	‘ <i>Areca catechu</i> ’
MM:	Tomoip	<i>bu</i>	‘ <i>Areca catechu</i> ’
MM:	Halia (Selau)	<i>boko</i>	‘ <i>Areca catechu</i> ’
MM:	Taiof	<i>bok</i>	‘ <i>Areca catechu</i> ’
MM:	Tinputz	<i>poe</i>	‘ <i>Areca catechu</i> ’
MM:	Banoni	<i>buyava</i>	‘ <i>Areca catechu</i> ’ (metathesis of <i>*bu(v)aya</i>)
MM:	Uruava	<i>bua</i>	‘ <i>Areca catechu</i> ’
MM:	Torau	<i>buka</i>	‘ <i>Areca catechu</i> ’ (metathesis of <i>*buak</i>)
TM:	Buma	<i>buioe</i>	‘ <i>Areca catechu</i> ’
TM:	Tanema	<i>boie</i>	‘ <i>Areca catechu</i> ’
SES:	Gela	<i>bua</i>	‘ <i>Areca catechu</i> ’
SES:	Arosi	<i>bua</i>	‘ <i>Areca catechu</i> ’
SES:	W Guadalcanal	<i>bua</i>	‘ <i>Areca catechu</i> ’
SES:	Talise	<i>bua</i>	‘ <i>Areca catechu</i> ’
SES:	Kwaio	<i>bua</i>	‘ <i>Areca catechu</i> ’
SES:	’Are’are	<i>pua</i>	‘ <i>Areca catechu</i> ’
SV:	Lenakel	<i>na-p^wo(k)</i>	‘palm sp.’
SV:	Kwamera	<i>na-puei</i>	‘coconut’

2.2.2 *Piper betle* (syn. *Chavica betle*), betel pepper, TP *daka* (Piperaceae)

The betel pepper vine, *Piper betle*, is a woody climber with catkins, pendulous spikes of berries in a crowded mass forming a cylindrical syncarp (a composite fruit) (Figure 13.1, right). It climbs on *Erythrina indica* and *Artocarpus incisa*. The catkins and/or leaves are chewed with betelnut, *Areca catechu* (§2.2.1), and lime throughout the Bismarck Archipelago and the Solomons (Peekel 1984: 124, Kwa’ioloa & Burt 2001: 226, Hviding 2005: 115).

The reconstruction of POc **[pu-]pulu* ‘betel pepper, *Piper betle*’ is taken from Lichtenberk’s (1998) discussion of whether POc speakers chewed betelnut. His reconstruction of POc **pulu* is based partly on data assembled for the present project, with the addition of Chamorro *pu-pulu* ‘*Piper betle*’, supporting the PMP reconstruction, and a Manam reflex. I add Mussau *ulo*.

PMP **pu-pulu* ‘*Piper betle*’ (František Lichtenberk 1998)

POc **[pu-]pulu* ‘betel pepper, *Piper betle*’ (František Lichtenberk 1998: **pulu*)

Adm:	Mussau	<i>ulo</i>	‘betel pepper, <i>Piper betle</i> ’
Adm:	Loniu	<i>pun</i>	‘betel pepper, <i>Piper betle</i> ’

Adm:	Bipi	<i>pun</i>	'betel leaf'
		<i>(pue)pun</i>	'betel pepper'
NNG:	Lukep (Pono)	<i>ul</i>	'betel pepper, <i>Piper betle</i> '
NNG:	Takia	<i>ful</i>	'betel pepper, <i>Piper betle</i> '
NNG:	Gedaged	<i>fu</i>	'betel pepper, <i>Piper betle</i> ' (expected final <i>-l</i> missing)
NNG:	Manam	<i>ulu(salaga)</i>	'big variety of betel vine' (<i>salaga</i> 'be long')
			(František Lichtenberk 1998)
SES:	Bugotu	<i>vu-vulu</i>	'betel pepper, <i>Piper betle</i> ' (Henderson & Hancock 1988)

PMM **siqa(r,R)(a)* 'betel pepper, *Piper betle*'

MM:	Kara (E)	<i>sie</i>	' <i>Piper betle</i> '
MM:	Tabar	<i>sia</i>	' <i>Piper betle</i> '
MM:	Lihir	<i>sie</i>	' <i>Piper betle</i> '
MM:	Patpatar	<i>sier</i>	' <i>Piper betle</i> '
MM:	Tolai	<i>ier</i>	' <i>Piper betle</i> '
MM:	Nehan	<i>hiara</i>	' <i>Piper betle</i> '
MM:	Petats	<i>sil</i>	' <i>Piper betle</i> '
MM:	Teop	<i>hia(kuru)</i>	' <i>Piper erectum</i> '
MM:	Tinputz	<i>(ta)sian</i>	' <i>Piper betle</i> '
MM:	Banoni	<i>siyana</i>	'betel pepper catkin'

cf. also:

MM:	Marovo	<i>hirata</i>	' <i>Piper betle</i> '
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2.2.3 *Piper methysticum*, kava (Piperaceae)



Figure 13.2 Leaves, stem and plant habit of kava, *Piper methysticum*

The kava plant, *Piper methysticum*, is a many branching plant with rounded green leaves. The plant is grown, usually near houses, exclusively from cuttings, and a narcotic is made from it in parts of Remote Oceania. Traditionally kava is consumed as a drink. The root is first reduced to small fragments by chewing, grinding or pounding. The fragments are deposited in a bowl, mixed with water and strained through the cloth-like fibre of a coconut spathe (ch.12, §5.3) to give a cloudy grey liquid (Pajmans 1976: 135). In Fiji, Tonga and Samoa the liquid is made from mature roots, is of low strength and plays a part in various ceremonies. In Vanuatu it is made from the roots of green plants and often has a much greater narcotic effect. Initially it causes the blood vessels in the lips and tongue to contract with a certain numbing effect. The drinker then senses some degree of

euphoria, followed by a sense of calm well-being and clear thinking and a general relaxation of the muscles.

Kava is also consumed in scattered areas of New Guinea and the Bismarcks. In fact the only Oceanic-speaking areas in this region where it is or was drunk are the small southeastern islands of the Admiralties (Lou, Pam and Baluan; Brunton 1988) and among the Takia of Karkar Island, where in the 1980s some older men told me that it had been drunk within their lifetimes. The Takia were traditionally in contact with Papuan-speaking villages on the Rai Coast (the north coast of the mainland east of Madang) where Mikloucho-Maclay (Mikloucho-Maclay 1886, 1975) reported that the kava root was chewed by some inhabitants of just a few villages. Bourke (1990) considers that the limited distribution of kava indicates recent introduction, and Miklouho-Maclay noted in 1886 that it had only recently been introduced to the Rai Coast.

Pawley & Green (1973) proposed a POc reconstruction **kawa* ‘*Piper methysticum*’. However, the facts that *Piper methysticum* only occurs in domesticated form and that it is not generally consumed in Oceanic-speaking communities in the Bismarcks imply that it was not present there in POc times, and that we should not expect to be able to reconstruct a POc term for it. The origin of kava has attracted a good deal of debate, both botanical and linguistic, over the past 35 years, partly because of its presence at New Guinea locations (Brunton 1988, Lebot 1989, Lebot et al. 1992, T. Crowley 1994, Lynch 2002a).

The best supported hypothesis appears to be that *Piper methysticum* is a domesticated variety of *Piper subbullatum* (syn. *P. wichmannii*),² a plant of similar appearance which grows wild in the Solomons (Kwa’ioloa & Burt 2001: 206), and that this domestication took place in northern Vanuatu. The linguistic evidence for this position is presented by Lynch (2002a). He reconstructs a POc term **kawaRi*, which he glosses as ‘root with special properties: one or more of *Zingiber zerumbet*, *Piper subbullatum*, fish-poison plants’, i.e. as a generic term for what in the title of his article he calls ‘potent roots’. He points out that none of the apparently directly inherited reflexes of **kawaRi* outside Vanuatu, Fiji and Polynesia means ‘kava’ or ‘*Piper methysticum*’. Only reflexes with a form that suggests borrowing have this meaning. The evidence suggests that POc **kawaRi* is reconstructable, but only with the ‘potent roots’ meaning. Only in northern Vanuatu and regions settled from it (the rest of Vanuatu, Fiji and Polynesia) do we find directly inherited reflexes denoting ‘kava’ or ‘*Piper methysticum*’. The reconstructions and directly inherited reflexes below are from (Lynch 2002a), except where shown.³

POc **kawaRi* ‘root(s) with special properties: one or more of *Zingiber zerumbet*, *Piper subbullatum*, and various fish-poison plants’ (Lynch 2002a)⁴

Adm:	Baluan	<i>kau</i>	‘ <i>Piper subbullatum</i> ’ (Ambrose 1991)
NNG:	Sissano	<i>(una)kaw</i>	‘k.o. ginger’
PT:	Muyuw	<i>ka-kawowa</i>	‘ <i>Piper</i> sp.’

² Anthropological and linguistic literature on the origins of kava usually retains the species name *wichmannii*, but the accepted botanical name is *subbullatum* (R. Gardner, pers. comm.).

³ This summary by no means does justice to Lynch’s (2002) article, to which the reader is referred for further detail.

⁴ The term ‘kava’ in the glosses here probably means both the plant and the drink: sources use it without further specification.

- PT: Gapapaiwa *kaware* ‘k.o. ginger’
 PT: Tubetube *kalava* ‘*Piper subbullatum* (?)’ (metathesis)
 MM: Maringe *k^hori* ‘(use) fish poison’
- PROc **kawa* ‘kava’; presumably also ‘ginger, fish-poison plants’
- PNCV **kea* ‘kava; sour, bitter’ (Lynch 2004a)
- NCV: Lehali *n-ya* ‘kava’
 NCV: Mota *yea* ‘kava’
 NCV: Mwotlap *na-ya* ‘kava’
 NCV: Vera’a *ye* ‘kava’
 NCV: Mwesen *ye* ‘kava’
 NCV: Vera’a *ye* ‘kava; sour, bitter’
 NCV: Vurës *ye* ‘kava; sour, bitter’
 NCV: Araki *hae* ‘kava; sour, bitter’
 NCV: Lewo *(wi)kawa* ‘brackish water’ (*wi* ‘water’)
- PCP **kawa* ‘kava, *Piper* sp., fish-poison plants; sour, bitter’; probably also ‘*Zingiber* spp.’
- Fij: Bauan *(wā)gawa-gawa* ‘*Piper betle*’
 Fij: Nadrogā *kawa* ‘fish-poison tree, *Euphorbia* sp. (?)’
 Fij: Lautoka *kawa* ‘fish-poison vine, *Derris* sp.’
 Fij: (many dialects) *kawa* ‘k.o. round fish-trap with mouth on top, made from *Derris* vines’
- PPn **kawa* ‘kava; sour, bitter’
- Pn: Tongan *kava* ‘kava’
 Pn: W Futunan *kava* ‘kava’
 Pn: Samoan *?ava* ‘kava’
 ?a-?ava ‘pungent, acrid’
 Pn: Hawaiian *?ava* ‘kava; sour, bitter’
 Pn: Rarotongan *kava* ‘kava; sour’
 Pn: Māori *kawa* ‘sour, bitter; perform certain kinds of ceremony’
 Pn: Māori *kawa-kawa* ‘*Macropiper excelsum*’
- The denotations of PCP **kawa* as ‘*Piper* sp.’, ‘*Zingiber* spp.’ and ‘fish-poison plant’ are continued as compounds in PPn:
- Proto Nuclear Polynesian **kawa-kawa qatua* ‘a shrub or vine, *Piper* sp.’
- Pn: E Futunan *kava-kava atua* ‘a climbing vine, *Piper vaupelii*’
 Pn: Marquesan *kava-kava atua* ‘*Piper latifolium*, *Piper tristachyon*’
 Pn: Rarotongan *kava-kava atua* ‘a shrub, *Piper latifolium*’
- PPn **kawa-sasa* ‘a creeper used to poison fish’
- Pn: Tongan *kava-haha* ‘*Derris trifoliata*, used as a fish poison’
 Pn: E Futunan *kava-sasa* ‘a vine’
 Pn: Samoan *?ava-sā* ‘shrub sp., *Tephrosia purpurea* sp., used to poison fish’

PpN **kawa-susu* ‘shrub sp., *Tephrosia* sp., used to poison fish’

- | | | | |
|-----|-----------|------------------|--|
| Pn: | Niuean | <i>kau-huhu</i> | ‘a plant used to stupefy fish’ |
| Pn: | E Uvean | <i>kava-huhu</i> | ‘shrub sp., <i>Tephrosia piscatoria</i> ’ |
| Pn: | E Futunan | <i>kava-susu</i> | ‘shrub sp., the leaves of which are used to poison fish’ |
| Pn: | Nukuoro | <i>gava-usu</i> | ‘ <i>Barringtonia asiatica</i> , used to poison fish’ |

Proto Nuclear Polynesian **kawa-pui* ‘a plant, *Zingiber* sp.’

- | | | | |
|-----|----------|-------------------|---|
| Pn: | Tikopia | <i>kava-pui</i> | ‘plant of the ginger family’ |
| Pn: | E Uvean | <i>kava-pui</i> | ‘ <i>Zingiber</i> sp.; white ginger, <i>Hedychium coronarium</i> ’ ⁵ |
| Pn: | Anutan | <i>kava-pui</i> | ‘ <i>Alpinia</i> sp.’ |
| Pn: | Samoan | ? <i>ava-pui</i> | ‘a herb, <i>Zingiber zerumbet</i> ’ |
| Pn: | Hawaiian | ? <i>awa-puhi</i> | ‘wild ginger, <i>Zingiber zerumbet</i> ’ |
| Pn: | Tahitian | <i>ava-puhi</i> | ‘an odiferous plant’ |

3 Plants which provide materials for making things

3.1 *Bambusa*, *Schizostachyum* and *Nastus* spp., bamboo, TP *mambu*, B *bambu* (Poaceae)

Three genera of bamboos are represented in NW Island Melanesia: *Bambusa*, *Schizostachyum* and *Nastus*. They are treated together here, since only one of the reconstructable terms can be related to a particular species. A number of species are often cultivated.

Three species of *Bambusa*, all thick-walled, are reported from the region. The most common in the Bismarcks and the largest in the Solomons is *B. vulgaris*, with a culm (walled stem) about 5–10 m high and 10–15 cm in diameter and a short internode distance around 30–50 cm. However, *B. vulgaris* was introduced after European contact (Rhys Gardner, pers. comm.) and was not among the denotata of the POC terms below. *B. blumeana* is very similar and apparently important only in Malaita. *B. forbesii*, reported from the Bismarcks, is smaller, with a culm 2–4 m high and 1–4 cm diameter, and has broad leaves (Peekel 1984: 55–56, Henderson & Hancock 1988: 203–205).

Bambusa bamboos are used in housing construction for beams and rafters, as well as to make containers for lime and water and tongs for lifting the hot stones of a stone oven (Henderson & Hancock 1988: 204–205). At Marovo they are used to make large traditional tuna-fishing rods and a whole stem serves as a ‘ladder’ to climb sago palms in order to cut its fronds (Hviding 2005: 117).

Two species of the thin-walled genus *Schizostachyum* are reported from the region. No comparative account is available, but the two appear similar. *S. lima*, found in the Bismarcks, has a culm about 4–8 m high and 4–10 cm in diameter, with internode lengths of 50–80 cm (Peekel 1984: 55). *S. tessellatum*, found in the Solomons, is described as tall and very thin, growing wild in many habitats in clumps 10 m tall. It is the only bamboo amongst the three genera that is observed to flower regularly

⁵ *H. coronarium* has apparently arrived since European contact.

Schizostachyum species are a source of very straight, lightweight poles with many purposes: as battens from which to hang sago leaf thatch, as yam poles, as small fishing rods and as spears. Pieces of *Schizostachyum* are used to make traditional panpipes and coconut scrapers. They are also used as fencing material (Henderson & Hancock 1988: 202–203, Hviding 2005: 107, Kwa’ioloa & Burt 2001: 202).

Three species of the thin-walled genus *Nastus* are reported from the region. One is *N. productus*, a small, often drooping bamboo. A second is *N. obtusus*, a very slender bamboo which is almost always cultivated and attains heights of over 20 m with stem diameters of 8–11 cm and internode lengths of 50 cm to a metre. A third *Nastus* species is not given a scientific name,⁶ but sources describe it as pliant and behaving as a tree or ground creeper. It has very short internode lengths and small, narrow leaves (Peekel 1984: 55, Henderson & Hancock 1988: 177, Kwa’ioloa & Burt 2001: 200–201).

The first two *Nastus* species, and especially *N. obtusus*, have similar uses to those of *Schizostachyum*, but the third *Nastus* species is considered by the Kwara’ae to be useless (Henderson & Hancock 1988: 176, 199–201, Kwa’ioloa & Burt 2001: 200–202, Hviding 2005: 112).

The term reconstructed as **qauR* ‘bamboo spp.’ below was probably the generic term for bamboos of the three genera mentioned above, as it still is in some modern languages. In Tolai, for example, we find the following:

MM:	Tolai	<i>kaur</i>	‘ <i>Bambusa vulgaris</i> ’
MM:	Tolai	<i>kaur luban</i>	‘ <i>Bambusa vulgaris</i> , larger variety’
MM:	Tolai	<i>kaur goragoro</i>	‘ <i>Schizostachyum lima</i> ’
MM:	Tolai	<i>kaur laur</i>	‘thin-walled bamboo species’

PAn **qauR* ‘bamboo’ is attested in Formosan languages, PMP **qauR* ‘bamboo’ in languages across Indonesia (Blust, ACD), and a number of Oceanic languages have reflexes indicating POc **qauR*. However, there are also a number of languages that reflect initial **k-* rather than **q-*, and I show below the POc segments seemingly reflected by the consonant(s) of each form in order to illuminate the discussion here. In those Remote Oceanic languages which reflect POc **k-* and **q-* differently from one another the form indeed reflects initial



Figure 13.3 *Nastus obtusus*

⁶ Kwa’ioloa & Burt (2001: 202) label it *N. productus*, but this does not coincide with others’ descriptions of the latter.

*q-. However, in Meso-Melanesian languages which reflect POc *k- and *q- differently and in Temotu languages the form reflects *k-, not *q-.

On the basis of Meso-Melanesian reflexes POc *kauR ‘bamboo’ was reconstructed as in vol.1 (ch.4, §6.2). However, non-Oceanic and Remote Oceanic data support *qauR.⁷

Among languages which retain a reflex of the final consonant, Mussau and Petats reflect *d or *dr, rather than *R, and Nakanai reflects *s or *c.⁸ The Bilibil, Gedaged and Sio forms reflect final *-R where the final consonant is normally lost.

Blust (1984) reconstructed POc *kaudru⁹ ‘bamboo sp.’ to account for the Mussau, Petats and Selau forms.¹⁰ However, it does not account for the other irregularities below, and its putative reflexes are here treated as (albeit irregular) reflexes of POc *qauR. Instead, the simplest linguistic explanation of these irregularities is that the forms reflect borrowings among neighbouring Oceanic languages. Indeed, it is possible that some of the forms with regular reflexes also result from borrowings, but happen to have regular reflexes of the consonants. However, it is not easy to see why such borrowings might have occurred, unless much of Near Oceania lacked useful bamboo species, and new species were imported by Oceanic speakers. Hviding (2005: 107, 112, 117) hints at this when he writes that old people say that *B. vulgaris*, *B. blumeana*, *N. obtusus* and a *Schizostachyum* species were all long ago introduced to Marovo from elsewhere. It is just possible that some of these borrowings were associated with the introduction of *B. vulgaris* after contact with Europeans.

PAn *qauR ‘bamboo sp.’ (ACD)

PMP *qauR ‘type of large bamboo’ (ACD)

POc *qauR ‘bamboo spp.’

Adm:	Mussau	<i>kauru</i>	*k~q	*d~dr	‘large bamboo from which combs are made’
NNG:	Mangap	<i>kau-kau</i>	*k~q		‘bamboo (big)’
NNG:	Bilibil	<i>aur</i>	*k~q	*r~R	‘bamboo’
NNG:	Gedaged	<i>auʔ</i>	*k~q	*r~R	‘bamboo, tall with thick walls’
NNG:	Sio	<i>kaul(a)</i>	*k~q	*r~R	‘bamboo’
NNG:	Lukep (Pono)	<i>kau-kau</i>	*k~q		‘bamboo’
NNG:	Atui	<i>kaur</i>	*k~q	*r~R~d~dr	‘bamboo’
NNG:	Akolet	<i>e-kaur</i>	*k~q	*r~R~d~dr	‘bamboo’
MM:	Bali	<i>kaura</i>	*k	*r~R	‘bamboo’
MM:	Nakanai	<i>kauru</i>	*k	*s~c	‘large bamboo’
MM:	Ramoaina	<i>kauru</i>	*k~q	*r~R	‘bamboo’
MM:	Tolai	<i>kaur</i>	*k~q	*r~R	‘bamboo, generic’
MM:	Patpatar	<i>kor</i>	*k~q	*r~R	‘bamboo, generic’
MM:	Petats	<i>kahur</i>	*k	*d~dr	‘bamboo’
MM:	Selau	<i>kawur</i>	*k	*r~R~d~dr	‘bamboo’

⁷ I am grateful to Françoise Ozanne-Rivierre and John Lynch for drawing my attention to this.

⁸ POc *R is reflected as Mussau, Nakanai and Petats *l*.

⁹ In Blust’s orthography *kaundu.

¹⁰ This reconstruction is maintained in the ACD in the notes to the entry for *qauR.

MM:	Mono-Alu	<i>aulu</i>	<i>*k</i>	<i>*r~R~l</i>	‘bamboo sp.’
SES:	Gela	<i>yau</i>	<i>*k~q</i>		‘a bamboo, bamboo knife’
SES:	Bugotu	<i>yau</i>	<i>*k~q</i>		‘bamboo; bamboo sliver used as a knife’
SES:	W Guadalcanal	<i>yau-yau</i>	<i>*k~q</i>		‘bamboo’
SES:	Lau	<i>?au</i>	<i>*k~q</i>		‘bamboo’
SES:	Kwara’ae	<i>ka?o</i>	<i>*k~q</i>		‘bamboo (generic)’
SES:	Kwaio	<i>?au</i>	<i>*k~q</i>		‘bamboo (generic)’
SES:	Sa’a	<i>äu</i>	<i>*k~q</i>		‘bamboo’
SES:	Arosi	<i>?au</i>	<i>*k~q</i>		‘a bamboo’
NCV:	Mota	<i>au</i>	<i>*k~q</i>		‘the bamboo, generic’
NCV:	SE Ambrym	<i>eou</i>	<i>*k~q</i>		‘bamboo’
NCV:	Paamese	<i>eau</i>	<i>*k~q</i>		‘bamboo’
NCV:	Lewo	<i>(pla)yu</i>	<i>*k~q</i>		‘bamboo, as knife’
NCV:	Port Sandwich	<i>n-au</i>	<i>*k~q</i>		‘arrow’
NCV:	Namakir	<i>?o</i>	<i>*q</i>		‘bamboo’
NCV:	Nguna	<i>na-au</i>	<i>*k~q</i>		‘wild cane, reed; flute, mouth organ’
SV:	Sye	<i>n-au</i>	<i>*q</i>		‘bamboo’
SV:	Ura	<i>n-au</i>	<i>*q</i>		‘spear’
SV:	N Tanna	<i>n-ao</i>	<i>*q</i>		‘bamboo’
SV:	Whitesands	<i>n-au</i>	<i>*q</i>		‘bamboo’
SV:	Lenakel	<i>n-au</i>	<i>*q</i>		‘bamboo’
SV:	Kwamera	<i>n-au</i>	<i>*q</i>		‘bamboo’
SV:	Anejoñ	<i>n-au</i>	<i>*q</i>		‘bamboo’
NCal:	Nêlêmwa	<i>ŋ-ga</i>	<i>*q</i>		‘bamboo’
NCal:	Nyelâyü	<i>ŋ-gao</i>	<i>*q</i>		‘bamboo’
NCal:	Jawe	<i>ŋ-go</i>	<i>*q</i>		‘bamboo’
NCal:	Pije	<i>(du)ko</i>	<i>*q</i>		‘bamboo’

Reflexes of POc **b^wau* ‘bamboo’ are largely complementary to those of **qauR* above, with overlaps on the mainland coast of the Vitiav Strait and in New Caledonia. The Manam and Kaiep reflexes provide a weak indication that **b^wau* may have denoted bamboo as a construction material.

POc **b^wau* ‘bamboo’

SJ:	Ormu	<i>bau</i>	‘bow’
NNG:	Tami	<i>b^wai</i>	‘bamboo’
NNG:	Malasanga	<i>boa</i>	‘bamboo’ (irregular loss of <i>*u</i>)
NNG:	Bing	<i>buau</i>	‘bamboo’
NNG:	Manam	<i>buau-buau</i>	‘(house) wall’
NNG:	Kaiep	<i>ba-boi</i>	‘(house) wall’
PT:	Molima	<i>bau-bau</i>	‘bamboo tube, smoking pipe made therefrom’ (A. Chowning, pers. comm.)
PT:	Dobu	<i>bau-bau</i>	‘bamboo’
PT:	Duau	<i>bau-bau</i>	‘bamboo’

PT:	Wedau	<i>bau-bau</i>	‘bamboo’
PT:	Tawala	<i>bau-bau</i>	‘bamboo’
PT:	Tubetube	<i>bau-bau</i>	‘bamboo’
PT:	Motu	<i>bau</i>	‘bamboo’
Mic:	Marshallese	<i>b^wae</i>	‘bamboo’
Mic:	Woleaian	<i>p^wāi</i>	‘bamboo’
Mic:	Chuukese	<i>p^wāw</i>	‘bamboo’
Mic:	Puluwatese	<i>p^wāy</i>	‘bamboo’
NCal:	Nyelâyu	<i>gao</i>	‘bamboo’

Five more reconstructions are listed below: POc **bitu(ŋ)* ‘bamboo sp., probably *Schizostachyum glaucifolium*’, POc **botu(ŋ)*, POc **kopu*, POc **b^wele*, POc **bue* ‘(made of) bamboo’. Except for the first and last, the glosses of the supporting data do little to help elucidate their denotata, some of which were presumably taxa made up of one or more of the species discussed above. The gloss of Nakanai *bele* ‘small cultivated bamboo used for thatching rods’ suggests that it denotes a *Schizostachyum* species, but this is insufficient information on which to base a gloss of POc **b^wele*.

The two reconstructions below are better supported by non-Oceanic than by Oceanic reflexes. Since *Bambusa vulgaris* is a recent import, the Fijian and Polynesian glosses indicate that PCP **bitu* probably denoted *Schizostachyum glaucifolium*. This may also be true of the POc reflex, but this is uncertain.

PMP **bituŋ* or **pituŋ* ‘bamboo sp.’ (ACD)

POc **bitu(ŋ)* ‘bamboo sp.’ (ACD)

PCP **bitu* ‘bamboo sp., probably *Schizostachyum glaucifolium*’ (ACD)

Fij:	Wayan	<i>bitu</i>	‘generic for two bamboo species, <i>Schizostachyum glaucifolium</i> and <i>Bambusa vulgaris</i> ’
Fij:	Bauan	<i>bitu</i>	‘bamboo, <i>Bambusa</i> sp. or <i>Schizostachyum glaucifolium</i> ’
Pn:	Tongan	<i>pitu</i>	‘bamboo, <i>Bambusa vulgaris</i> , variety with yellow stems’

PAn **betuŋ* ‘bamboo of very large diameter, probably *Dendrocalamus* sp.’ (ACD)

POc **botu(ŋ)* ‘large bamboo, presumably *Bambusa* sp.’ (ACD: **potuŋ*)

Adm:	Lou	<i>pot</i>	‘large thick bamboo variety’
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POc **kopu* ‘bamboo sp.’

Adm:	Drehet	<i>ɔp</i>	‘bamboo sp.’
Adm:	Nyindrou	<i>op</i>	‘bamboo sp.’
MM:	Tinputz	<i>kop</i>	‘bamboo sp.’
MM:	Teop	<i>kopu</i>	‘bamboo sp.’

The only non-WOc evidence for POc **b^wele* ‘bamboo’ is from Lonwolwol (NCV), where *b^wele-bo* consists of *b^wele-* ‘hollow vessel’ and *bo*, apparently reflecting PNCV **bue* ‘made

of bamboo' (see below). A possible inference is that **b^wele* denoted bamboo as a household utensil, e.g. a container for water.

POc **b^wele* 'bamboo sp.'

NNG:	Mapos Buang	<i>a-pel</i>	'bamboo sp.'
NNG:	Mumeng (Patep)	<i>pel</i>	'bamboo sp.'
MM:	Bulu	<i>bele</i>	'bamboo sp.'
MM:	Nakanai	<i>bele</i>	'small cultivated bamboo used for thatching rods' (Goodenough 1997)
MM:	Tiang	<i>bele</i>	'bamboo sp.'
NCV:	Lonwolwol	<i>b^wele(bo)</i>	'bamboo' (<i>b^wele</i> - 'hollow vessel'; <i>-bo</i> < POc <i>*bue</i> '(made of) bamboo')

Hus (Adm) *bu* 'bamboo' corresponds regularly with the NCV items below, implying that it and PNCV **bue* both reflect a POc **bue* '(made of) bamboo'.

POc **bue* '(made of) bamboo'

Adm:	Hus	<i>bu</i>	'bamboo' (Nevermann 1934)
PNCV <i>*bue</i> '(made of) bamboo' (Clark 1996a)			
NCV:	Mota	<i>pue</i>	'bamboo water-carrier'
NCV:	Raga	<i>bua</i>	'bamboo (generic); knife'
NCV:	Nokuku	<i>pue</i>	'water-pot'
NCV:	Kiai	<i>pue</i>	'bamboo'
NCV:	Araki	<i>(vi)pue</i>	'bamboo tree'
NCV:	Tamambo	<i>(vu)bue</i>	'bamboo tree'
NCV:	Uripiv	<i>na-bu</i>	'bamboo'
NCV:	Port Sandwich	<i>na-mbu</i>	'bamboo; bamboo water container; bamboo knife'
		<i>mb^we(var)</i>	'hard bamboo' (<i>na-var</i> 'stone')
NCV:	Labo	<i>(na-na)mbuo</i>	'bamboo'
NCV:	Lonwolwol	<i>(b^wele)bo</i>	'bamboo' (<i>b^wele</i> - 'hollow vessel, empty shell of')
NCV:	Lewo	<i>(pila)p^we</i>	'bamboo (used for walls of house); length of thatch woven on bamboo'

3.2 *Aleurites moluccana* (syn. *A. triloba*), candlenut, *P kandoltri*, *B kandeltri* (Euphorbiaceae)

Aleurites moluccana is a tree which grows to between 10 and 35 m in height, depending on its location. Its young leaves and inflorescence are dusted with grey to rust-brown scurf, and the mature fruit is chestnut brown, 3–7 cm in diameter. It has little pulp and a thick rind that encloses one or two very large seeds, the candlenuts. There appears to be considerable intra-species variation across its range, from India to eastern Polynesia, as well as a striking variety of uses. The seeds of some varieties are toxic, but others can be eaten without a problem. Even toxic seeds can often be eaten in small quantities, and the toxicity is reduced by roasting (Henty 1982, Walter & Sam 2002: 87).

In Vanuatu *A. moluccana* is not cultivated, as planted seeds do not germinate well, but people protect new seedlings (Walter & Sam 2002: 88). In Fiji the tree occurs close to villages but not in the wild, implying that it is planted.

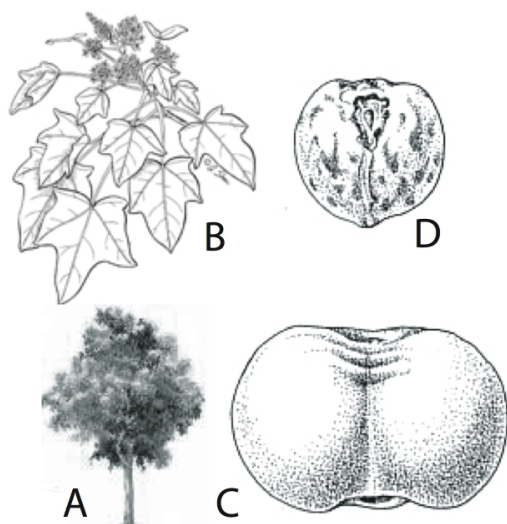


Figure 13.4 *Aleurites moluccana*: A, tree; B, leaves and inflorescence; C, whole fruit; D, kernel (candlenut).

POc **tuRi-tuRi* ‘*A. moluccana*’ is reconstructed below. It is quite widely supported, but it is by no means certain that its denotatum was *A. moluccana*. Blust (ACD) reconstructs PEMP **tuRi-tuRi* ‘*A. moluccana*’ on the basis of Biak *kuker* ‘tree with edible nut’ and Central Pacific reflexes. However, Geraghty (2004: 72) believes that PPn **tuitui* ‘*A. moluccana*’ was identical with **tuitui* ‘strung together’, reflecting the fact that candlenuts are strung together for use as torches or sources of dye. He does not discuss Blust’s reconstruction, but if Geraghty is right, the Biak, Motu and Roro terms must be dismissed as chance resemblances (none has the specific gloss *A. moluccana*).

PEMP **tuRi-tuRi* ‘candlenut tree, *Aleurites moluccana*’ (?) (ACD)

POc **tuRi-tuRi* ‘candlenut tree, *Aleurites moluccana*’ (?)

PT:	Motu	<i>turi-turi</i>	‘ <i>Cordia subcordata</i> ’
PT:	Roro	<i>curi-curi</i>	‘tree sp., with wood used for making drums’

PCP **tui-tui* ‘candlenut tree, *Aleurites moluccana*’

Fij:	Bauan	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Tongan	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Niuean	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	E Uvean	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	E Futunan	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	W Futunan	<i>tu-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Emae	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Tahitian	<i>tu-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Tuamotuan	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Hawaiian	<i>ku-kui</i>	‘candlenut, <i>Aleurites moluccana</i> ’
Pn:	Rarotongan	<i>tui-tui</i>	‘candlenut, <i>Aleurites moluccana</i> ’

The candlenut owes its name to the fact that in earlier times the nuts were threaded onto the midrib of a coconut palm leaf and lit, burning slowly one after another and giving a feeble light. The smoke given off is also a good insect repellent (Sperlich 1997). Charred seeds are used in New Ireland to make a sooty paint for blackening the face in mourning (Peekel 1984: 313) and by Ponapeans for making a black or brown dye. The oil extracted from them is also used as a paint base in New Britain (Powell 1976) and to polish wood in Fiji, where an extract of the seed is also used to scent the oil (Gardner & Pawley 2006). The products of *A. moluccana* have numerous medicinal uses (Walter & Sam 2002: 89).

POc **tuRi-tuRi* ‘*A. moluccana*’ is reconstructed below. It is quite widely supported, but it is by no means certain that its denotatum was *A. moluccana*. Blust (ACD) reconstructs PEMP **tuRi-tuRi* ‘*A. moluccana*’ on the basis of Biak *kuker* ‘tree with edible nut’ and Central Pacific reflexes. However, Geraghty (2004: 72) believes that PPn **tuitui* ‘*A. moluccana*’ was identical with **tuitui* ‘strung together’, reflecting the fact that candlenuts are strung together for use as torches or sources of dye. He does not discuss Blust’s reconstruction, but if Geraghty is right, the Biak, Motu and Roro terms must be dismissed as chance resemblances (none has the specific gloss *A. moluccana*).

3.3 *Broussonetia papyrifera*, paper mulberry, TP *burua* (Moraceae)

B. papyrifera is native to Japan and Taiwan and is an ancient introduction into the rest of the Pacific. A shrub or small tree 3–5, and sometimes up to 12, metres high, it is fertile in its native range, but the plants found throughout the Pacific are all male clones, transported and planted as rootstock. It is thus subject to deliberate propagation by human agency (Whistler & Elevitch 2006a).

As Osmond & Ross noted in vol.1 (ch.4, §5.1), Kooijman (1972: 446–453) believes from descriptions of manufacture and an examination of museum pieces that bark cloth in New Guinea was made from *Ficus* and *Artocarpus* species rather than from *Broussonetia papyrifera*, from which bark cloth is made in other parts of the Pacific, e.g. Fiji (Gardner & Pawley 2006). However, the glosses of the items listed below suggest fairly strongly that speakers of Oceanic languages in widely separated New Guinea locations were using *B. papyrifera* to make bark cloth at European contact.

POc **malo* probably denoted *B. papyrifera*, the tree which throughout much of the Pacific provides the bast from which barkcloth is made. If this is so, then *B. papyrifera* must have been introduced into the Pacific islands by early Oceanic speakers. Matthews (1996), however, notes its absence from the Philippines and Borneo, and thinks it possible that it did not arrive in Polynesia with the earliest colonisers. POc **malo* also denoted the cloth and the male genital covering made from it, and it is just possible that these were its primary meanings. It is also possible that some of the reflexes below reflect early Pacific Pidgin *malo* or *maro* ‘loincloth’. PMP **mal(u,aw)* apparently denoted a species of tree which provided bast for clothmaking, but it is unclear which species this was, as it is reconstructed on the basis of POc **malo* and Kaili (WMP, Sulawesi: Parigi dialect) *malo* ‘old term for *Trema amboinensis*, the tree whose bast is most commonly used for barkcloth in Sulawesi’ (Adriani & Kruijt 1901: 140, note 5, cited by R. Kennedy 1934: 242).

PMP **mal(u,aw)* ‘tree whose bast is used for barkcloth’¹¹

POc **malo* ‘paper mulberry, *Broussonetia papyrifera*; barkcloth, loincloth’ (Milke 1968)

NNG: Kove	<i>malo</i>	‘male genital covering’ (A. Chowning, pers. comm.)
NNG: Gedaged	<i>mal</i>	‘tree, bark used for G-strings and blankets; loincloth made from this’
NNG: Takia	<i>malu</i>	‘tree sp., loin cloth made from pounded bark’
NNG: Manam	<i>malo</i>	‘barkcloth belt from <i>dodoli</i> tree, given to a boy at first initiation’ (Böhm 1983: 81)

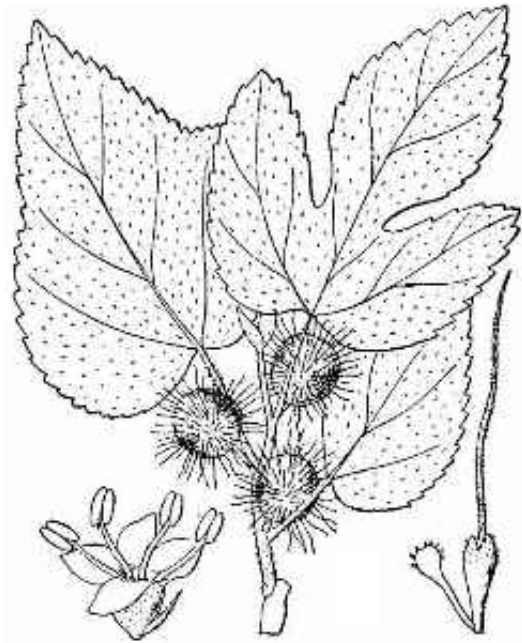


Figure 13.5 *Broussonetia papyrifera*, paper mulberry

¹¹ Blust (1970) reconstructs **maru* on the basis of Buru (CMP) *maru* and Oceanic reflexes, but the second syllables of the two forms do not correspond (as Blust notes).

MM:	Patpatar	<i>māl</i>	‘cloth, clothing’
MM:	Tolai	<i>mal</i>	‘ <i>Broussonetia papyrifera</i> ; native cloth made from bark of this tree’
MM:	Teop	<i>maro</i>	‘cloth, clothing’
SES:	Arosi	<i>maro</i>	‘ <i>Broussonetia papyrifera</i> ; beaten cloth of the <i>maro</i> tree’
NCV:	Raga	<i>malo</i>	‘men’s loincloth’
Fij:	Bauan	<i>malo</i>	‘ <i>Broussonetia papyrifera</i> ; hence the native cloth made from it and the former native male dress, passed between the thighs and fastened with a girdle’

PPn **malo* ‘barkcloth loin garment’ (POLLEX)

Pn:	Emae	<i>maro</i>	‘barkcloth’
Pn:	Samoan	<i>malo</i>	‘loincloth’
Pn:	Hawaiian	<i>malo</i>	‘loin garment’

POc **m*^(w)*ase* ‘wild mulberry, paper mulberry, *Broussonetia papyrifera*’ (Ross 1996c)

NNG:	Mapos Buang	<i>ñēs</i>	‘ <i>Broussonetia papyrifera</i> ’
MM:	Tolai	<i>mae</i>	‘ <i>Broussonetia papyrifera</i> ’
Fij:	Wayan	<i>masi</i>	‘ <i>Broussonetia papyrifera</i> ’
Fij:	Rotuman	<i>məsi</i>	‘tree sp. used to make bark cloth’

3.4 *Morinda citrifolia*, Indian mulberry, yellow wood, P *ialotri*, B *yelotri*, *noni* (Rubiaceae)

A small tree, 5–6 m in height, and occasionally more, up to 15 m, *Morinda citrifolia* (Figure 13.6, left) grows throughout Oceania behind the beach and in dry soils exposed to the sun. Barrau (1962: 188) comments on the large shiny elliptical leaves about 20 cm in length and 10 cm broad. Peekel (1984: 539) recognises two varieties, one with green, yellow, white or variegated leaves, the other (var. *bracteata*) with enlarged calyx lobes. The small white flowers grow on an oval or cone-shaped structure, the syncarpium, which later swells to become the syncarp, ‘a heavy, pungent smelling—sometimes repulsive—succulent fruit’ (Henderson & Hancock 1988: 52). The fruits of wild varieties are spherical or elongated syncarps of 3–6 cm and are soft and straw yellow at maturity, with numerous protuberances (French 1986: 272 describes them as ‘warty looking lumps’). Cultivated forms have paler, larger fruit with no protuberances, but are rarely found within village areas because of the strong smell when their fruit fall and rot (Walter & Sam 2002: 204–205).

M. citrifolia is a tree with many uses in Oceanic speaking societies. Wild young trees are well known as a source of dyes, red and yellow, extracted by boiling the root-bark (Floyd 1954, Gowers 1976: 99). In Marovo the dyes are applied to cocount-frond baskets, in Vanuatu to vegetable fibres used in items of apparel. S. Foale (2001) describes it as an all-purpose medicine on Lihir, and Walter & Sam (2002: 206–207) refer to research indicating that the Indian mulberry contains immuno-stimulant substances. This would explain its numerous medicinal uses. In Marovo, Manus and Tonga young leaves softened over the fire are applied to infected wounds and boils to draw out pus (O’Collins & Lamothe 1989, Hviding 2005: 133,

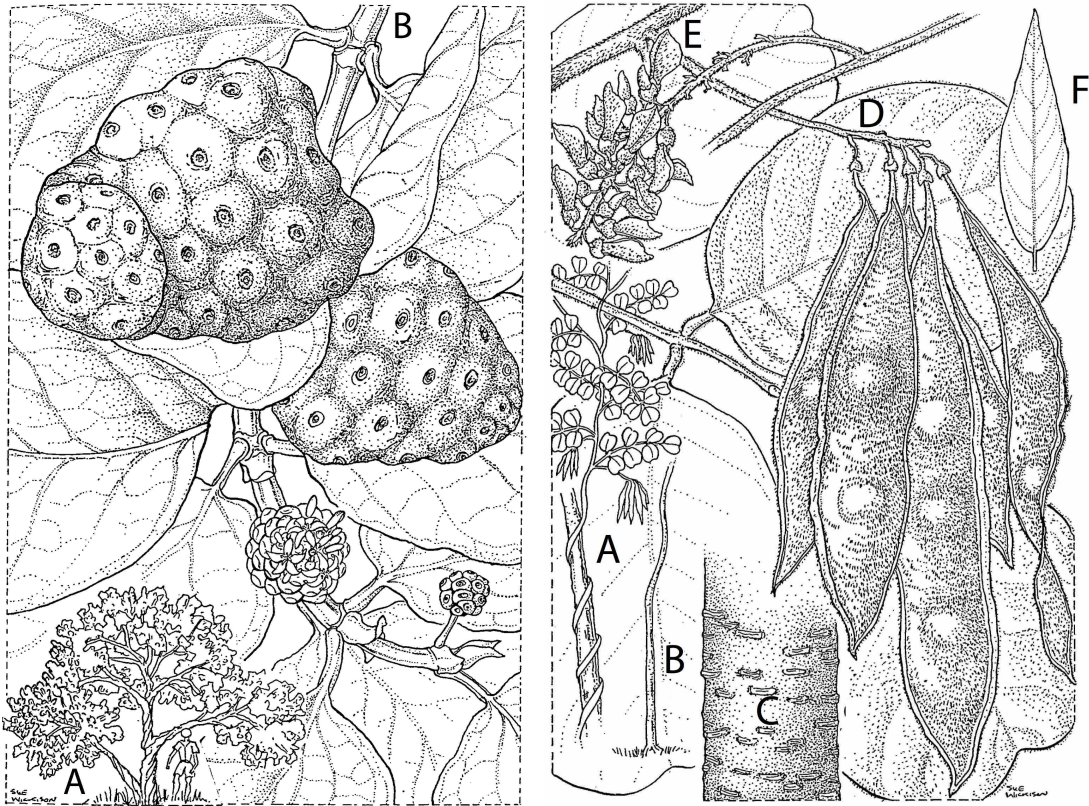


Figure 13.6 Left *Morinda citrifolia*, Indian mulberry: A, mature tree; B, shoot bearing leaves, fruit and flowers. Right *Derris* species: A, climbing plant; B, base of mature vine; C, woody vine stem; D, vine with leaves and pods; E, stem with inflorescence; F, immature leaf.

Walter & Sam 2002: 207). In Vanuatu the raw fruit is crunched and eaten to treat an enlarged spleen. However, the plant is also cultivated and the fruit of the cultivated variety eaten, raw or cooked, on small islands scattered across Papua New Guinea, on the Temotu islands of the Solomons and in the Banks and Torres Islands of Vanuatu. Elsewhere the fruit of the wild variety is a famine food (Walter & Sam 2002: 205–207). In parts of Papua New Guinea and the Solomons the young leaves, which are a rich source of carotene, are cooked as a vegetable or consumed for medicinal reasons (Henderson & Hancock 1988: 54, French 1986: 272).

There were apparently two POc labels for *M. citrifolia*, *ñoñu and *kurat. If Verheijen (1990: 86) has correctly identified the referent of Bima (CMP) *nonu* as *M. citrifolia* (he marks it with a question mark), then *ñoñu is reconstructable for PCEMP and was inherited into POc. If Tagalog, Bisayan, Tausug *nino M. citrifolia* (Madulid 2001a: 527) are also cognate with POc *ñoñu, then PMP *ñeñu is reconstructable. Milke reconstructed this etymon as POc *ñoñum with final *-m, but the only reflexes with this segment are Gedaged *nonom* and Takia *nom*. Both languages lose POc final *-VC, and it is more likely that -m in both languages irregularly reflects medial POc *-ñ-, with reduplication in Gedaged.

Geraghty (1993) speculates that *ñoñu (his *ñoñum) was the name of the plant and *kurat the name of the dye produced from it. In Geraghty (2004: 91) he finds support for this speculation in evidence provided by Mahdi (1994: 192–193). Papuan languages of the North Halmahera family show forms such as Ternate *guraci* ‘turmeric’, Tidore *guraci* ‘gold’, *guraci* ‘yellow’. These are the source of loans in Malayo-Polynesian languages of the South

Halmahera family such as Buli **guraci* ‘gold’. Geraghty suggests that such a form could also have been borrowed into languages of the New Guinea region and thence into early Oceanic. This proposal seems very plausible and leads to a speculation of my own. As Geraghty points out, the formal correspondence of the Halmahera and Oceanic forms is perfect. In the light of this, it is possible that POc **kurat* reflects a PEMP form **gurati* meaning ‘yellow dye’.

The distributions of POc **ñoñu* and **kurat* are complementary: **kurat* is reflected solidly through Melanesia from New Ireland (Lihir, Tangga) through NW Solomonic (Nehan, Roviana), SE Solomonic, North/Central and Southern Vanuatu, New Caledonia and Fiji, while **ñoñu* occurs in the Admiralties, North New Guinea, Papuan Tip, Micronesian and Polynesian. These distributions suggest that POc **ñoñu* was in some sense the default term for *M. citrifolia* and that it was then replaced by **kurat* in a solid Melanesian block from New Ireland to New Caledonia and Fiji. However, the reflexes of **kurat* are generally regular, suggesting that replacement took place very early in the history of Oceanic.¹²

POc **ñoñu* ‘*Morinda citrifolia*’ (Milke 1965: **nonum*; Blust 1978b)

Adm: Seimat	<i>naun</i>	‘ <i>Morinda citrifolia</i> ’ (Sorensen 1950) (*-o- > Seimat -au-)
Adm: Leipon	<i>ñoñ</i>	‘ <i>Morinda citrifolia</i> ’
Adm: Bipi	<i>ñoñ</i>	‘ <i>Morinda citrifolia</i> ’
NNG: Gitua	<i>nono</i>	‘ <i>Morinda citrifolia</i> ’
NNG: Gedaged	<i>no-nom</i>	‘ <i>Morinda citrifolia</i> ’
NNG: Takia	<i>nom</i>	‘ <i>Morinda citrifolia</i> ’
NNG: Manam	<i>noŋ</i>	‘tree sp.’
NNG: Wogeo	<i>ñoñ</i>	‘ <i>Morinda citrifolia</i> ’
PT: Bwaidoga	<i>nono</i>	‘ <i>Morinda citrifolia</i> ’
PT: Motu	<i>nonu</i>	‘ <i>Morinda citrifolia</i> ’
Mic: Kiribati	<i>non</i>	‘ <i>Morinda citrifolia</i> ’
Mic: Marshallese	<i>nen</i>	‘ <i>Morinda citrifolia</i> ’
Mic: Puluwatese	<i>nēn</i>	‘ <i>Morinda citrifolia</i> ’
Mic: Woleaian	<i>lēli</i>	‘ <i>Morinda citrifolia</i> ’
Pn: Tongan	<i>nonu</i>	‘ <i>Morinda citrifolia</i> ’
Pn: Tikopia	<i>nonu</i>	‘ <i>Morinda citrifolia</i> ’

POc **kurat* ‘the dye produced from *Morinda citrifolia*’ (Geraghty 2004)

MM: Lihir	<i>ulet</i>	‘ <i>Morinda</i> sp.’
MM: Tangga	<i>urat</i>	‘ <i>Morinda citrifolia</i> ’
MM: Nehan	<i>rata</i>	‘ <i>Morinda citrifolia</i> ’
MM: Mono-Alu	<i>urati</i>	‘ <i>Morinda citrifolia</i> ’ (W. McClatchey, pers. comm.)
MM: Varisi	<i>ku-kure</i>	‘ <i>Morinda citrifolia</i> ’ (W. McClatchey, pers. comm.)
MM: Roviana	<i>yurata</i>	‘ <i>Morinda citrifolia</i> ’

PEOc **kurat* ‘*Morinda citrifolia*’

SES: Longgu	<i>?ura</i>	‘ <i>Morinda citrifolia</i> ’
SES: Santa Ana	<i>yura</i>	‘ <i>Morinda citrifolia</i> ’

¹² Cf. ch.9, §4, where a similar but not identical situation is described with regard to breadfruit.

NCV:	Mwotlap	<i>woy</i>	' <i>Morinda citrifolia</i> '
NCV:	Mota	<i>wura</i>	' <i>Morinda citrifolia</i> '
NCV:	NE Ambae	<i>hure</i>	' <i>Morinda citrifolia</i> '
NCV:	Araki	<i>hura</i>	' <i>Morinda citrifolia</i> '
NCV:	Raga	<i>yuresi</i>	' <i>Morinda citrifolia</i> ' (Walsh 2004) ¹³
NCV:	Uripiv	<i>na-ur</i>	' <i>Morinda citrifolia</i> '
NCV:	Paamese	<i>o-ulo</i>	' <i>Morinda citrifolia</i> '
NCV:	Lewo	<i>(pur)kula</i>	' <i>Morinda citrifolia</i> '
NCV:	Nguna	<i>na-kura</i>	'tree sp.'
NCV:	S Efate	<i>na-kur</i>	' <i>Morinda citrifolia</i> '
PSV	* <i>na-yura(t,c)</i> ' <i>Morinda citrifolia</i> ' (Lynch 2001c)		
SV:	Sye	<i>noyrat</i>	' <i>Morinda citrifolia</i> '
SV:	Lenakel	<i>nauias</i>	' <i>Morinda citrifolia</i> '
SV:	Kwamera	<i>noueis</i>	' <i>Morinda citrifolia</i> '
SV:	Anejoñ	<i>na-uras</i>	' <i>Morinda citrifolia</i> '
NCal:	Nyelâyü	<i>yelac</i>	' <i>Morinda citrifolia</i> '
NCal:	Iaai	<i>hulak</i>	' <i>Morinda citrifolia</i> '
NCal:	Dehu	<i>xelek</i>	' <i>Morinda citrifolia</i> '
Fij:	Wayan	<i>kura</i>	' <i>Morinda citrifolia</i> '
Fij:	Rotuman	<i>?urɔ</i>	' <i>Morinda citrifolia</i> '

4 Fish poisons

One method of catching fish was to put a toxic plant substance into an area of water surrounded by rocks or reef so that fish were stunned or killed and could then simply be collected by hand. As well as the plants described below, the seeds of the tree *Barringtonia asiatica* (ch.5, §5.2) were also used for this purpose.

4.1 *Derris* spp., derris root, fish poison plant, TP *vut* (Fabaceae)

The use of climbing shrubs of the genus *Derris* to stun fish for an easy catch is known from the Bismarcks to Fiji (see vol.1, ch.8, §7). However, of fifteen *Derris* species that Verdcourt (1979: 314–331) identifies in Papua New Guinea, only three are said to be used for fishing: *D. elliptica*, *D. elegans* (syn. *D. rufula*, *D. salomonensis* and perhaps *D. heterophylla*) and *D. malaccensis*. We can evidently add a fourth, as Peekel mentions the use of *D. trifoliata* (syn. *D. uliginosa*) to stun fish, a claim confirmed by Hviding (2005: 105).

In its wild form *Derris elliptica* is a climbing shrub up to 10 m high which grows in coastal locations (Figure 13.6, right). Cultivated plants are mostly low and tangled, and produce thick fleshy roots which are scraped or crushed, then stirred into shallow water to benumb fish so that they can be easily caught.

Chewing derris root and then swallowing copious amounts of water was the traditional means of suicide in NW Island Melanesia.

¹³ Raga *yuresi* reflects the irregular retention of the POc final consonant and addition of *-i* discussed in §3.6.

D. trifoliata is a smaller species but has a thicker stem, larger leaves and a weaker fish-stunning effect than *D. elliptica* (Peekel 1984: 243). Hviding (2005: 105) reports that in Marovo *D. trifoliata* is indigenous, and *D. elliptica* has been introduced from New Guinea.

It seems likely that POc **tupa* referred to *Derris* creepers in general, or at least to those used in fishing, and perhaps also to *D. elliptica* in particular, as this was the source of the strongest poison. Also reconstructable are

- POc **puna(t)* ‘vine used for fish poison, probably *Derris elliptica*’
- PWOC **m^(w)ali* ‘*Derris* sp.’
- PROc **vuba* ‘k.o. vine, probably *Derris elliptica*’

but I am unable to determine how they differed in meaning from each other or from **tupa*.

PMP **tuba* ‘*Derris* fish poison’ (Dempwolff 1938)

POc **tupa* ‘climbing shrubs, *Derris* spp.’ (Capell 1943)

Adm:	Seimat	<i>tu[hi]</i>	‘ <i>Derris</i> sp.’ (Sorensen 1950)
NNG:	Aria	<i>tuva</i>	‘derris root’
NNG:	Kove	<i>tuva</i>	‘derris root’
PT:	Molima	<i>tuva</i>	‘derris root’
PT:	Kilivila	<i>tuva</i>	‘poisonous root used for fishing’
PT:	Motu	<i>tuha</i>	‘derris root’
MM:	Vitu	<i>tuva</i>	‘derris root’
MM:	Tigak	<i>tua</i>	‘derris root’
MM:	Teop	<i>suva</i>	‘derris root’
MM:	Mono-Alu	<i>tuha</i>	‘ <i>Derris heterophylla</i> ’ (W. McClatchey, pers. comm.)
MM:	Marovo	<i>tuva</i>	‘ <i>Pongamia pinnata</i> ’
SES:	Gela	<i>tuva</i>	‘derris root’
SES:	Sa’a	<i>uha, uhe</i>	‘derris root’
NCV:	Mota	<i>tua</i>	‘a creeping plant used to poison fish’
NCV:	Uripiv	<i>na-tuv</i>	‘fish poison vine’

PSV **(i)tuv* ‘*Derris* sp. usually *trifoliata*’ (Lynch 2004a)

SV:	Sye	<i>(nos)(i)tup</i>	‘ <i>Derris</i> sp. usually <i>trifoliata</i> ’ (<i>nos</i> ‘vine’)
NCal:	Nyelâyu	<i>(ñale)jep</i>	‘derris root’
NCal:	Xârâcùù	<i>(k^wa)di</i>	‘derris root’
Mic:	Woleaian	<i>sūpe</i>	‘fish poison (root)’ (- <i>p</i> - for †- <i>f</i> -)
Fij:	Wayan	<i>tuva</i>	‘generic for <i>Derris</i> spp.’
Fij:	Rotuman	<i>fuha</i>	‘ <i>Derris</i> spp., used to stun fish’

PMP **bunat* is reconstructed on the basis of the Oceanic data here and Botolan Sambal *bunat* ‘*Derris elliptica*’.

PMP **bunat* ‘*Derris elliptica*’

POc **puna(t)* ‘vine used for fish poison, probably *Derris elliptica*’

Adm:	Lou	<i>pun</i>	‘vine used for fish poison’
PT:	Sudest	<i>vun</i>	‘poison fish with derris’

MM:	Tolai	<i>vun</i>	‘ <i>Derris elliptica</i> , root with which fish are poisoned; to kill or benumb fish with poison of this name’
MM:	Nduke	<i>buna</i>	‘ <i>Derris heterophylla</i> , a poison-leaf vine, crushed and thrown into rock-holes to stun reef fish’
MM:	Roviana	<i>buna</i>	‘littoral vine (macerated and thrown into rock pools, it stupefies fish)’
MM:	Marovo	<i>buna</i>	‘climber with poisonous leaves, fish poison’
SV:	Lenakel	<i>no-un</i>	‘fish poison’

PWoc **m^(w)ali* (incorrectly given as **maRi* in vol. 1, ch.8, §7) is reconstructed on the basis of North New Guinea and Meso-Melanesian languages:

PWoc **m^(w)ali* ‘*Derris* sp.’

NNG:	Gitua	<i>(waro)mali(ŋ)</i>	‘ <i>Derris</i> root’
MM:	Nalik	<i>mal-mal</i>	‘ <i>Derris</i> root’
MM:	Kara (E)	<i>mal</i>	
MM:	Sursurunga	<i>mel</i>	‘a vine used to poison fish or humans’
MM:	Marovo	<i>moli</i>	‘a coastal creeping vine’

Bender et al. (2003) offer two Proto Micronesian reconstructions with the gloss ‘fish poison’ or ‘*Derris* sp.’. One is PMic **(t,T)upa*, continuing POC **tupa* and reflected only in Woleaian *sūpe* ‘fish poison (root)’. Since *sūpe* has *-p-* for †*-f-* and PMic **(t,T)upa* is reconstructed for expected †**tufa*, the reconstruction is suspect. The other PMic reconstruction is **upa* ‘*derris* vine’, which is well supported in Micronesian languages and appears to have cognates in Southern Vanuatu, permitting reconstruction of PROc **vuba*.

PROc **vuba* ‘k.o. vine, probably *Derris elliptica*’

PSV **na-vup* ‘k.o. vine’ (Lynch 2001c: 236)

SV:	Sye	<i>na-vup</i>
SV:	Anejoñ	<i>no-hop(ŋev)</i>

PMic **upa* ‘*Derris* vine’ (Bender et al. 2003)

Mic:	Kosraean	<i>op</i>	‘plant used as fish poison’
Mic:	Marshallese	<i>wep</i>	‘a tree, <i>Barringtonia asiatica</i> , seeds used for fish poison’
Mic:	Ponapean	<i>ūp</i>	‘ <i>Derris elliptica</i> ’
		<i>ūpa-wp</i>	‘to poison fish’
Mic:	Chuukese	<i>wīp, wīpe(n)</i>	‘ <i>Derris elliptica</i> ’

5 Multi-purpose roots

Turmeric and ginger are both cultivated for their roots, which have a variety of uses. Among these are magical applications, shared with the first three plants in §6. Like the candlenut (§3.2) and Indian mulberry (§3.4) turmeric also produces a dye.

5.1 *Curcuma longa* (syn. *C. domestica*), turmeric (Zingiberaceae)

Figure 13.7 *Curcuma longa*

The turmeric plant, *Curcuma longa*, is much smaller than *Alpinia* species, being only 50–120 cm tall, but it is treated by at least speakers of Marovo and Kwara'ae as belonging to the same taxon as *Alpinia* (Kwa'ioloa & Burt 2001: 193–194, Hviding 2005: 131).¹⁴ It has long green leaves and pale yellow flowers. The rhizome is lumpy and an intense yellow (Peekel 1984: 109).

Although it grows readily in the wild in locations where there is light, the Marovo and Kwara'ae sources also report that it is often cultivated. The rhizome provides spice. It is also a source of yellow dye, but the colour fades easily (Floyd 1954, Peekel 1984: 109). At Marovo the aromatic leaves are used for parcelling fish for the stone oven.

Turmeric also has ritual significance. At Marovo it is planted to keep evil spirits away from gardens, and in both Marovo and Kwara'ae the roots are chewed and spat out of the door or window of the house to fend off evil spirits (Hviding 2005: 131). The Kwara'ae also chew it both with betelnut and alone, the latter both as a snack and medicinally.

There are two reconstructions, POc **yano* and PEOc **reŋ^(w)a*. There is some evidence in the glosses of reflexes that the latter meant yellow material, including prepared turmeric and perhaps the yolk of an egg.

POc **yano* 'turmeric, *Curcuma longa*' (Milke 1968)

NNG:	Mangap	(<i>n</i>) <i>aŋgo-ŋgo(ŋana)</i>	'a plant, ginger type, yellow when crushed' (- <i>ŋana</i> 'nominaliser')
NNG:	Adzera	<i>yana(n)</i>	'ginger'
MM:	Kara (E)	<i>ioŋ</i>	'turmeric'
MM:	Patpatar	<i>iaŋ</i>	'turmeric'
MM:	Kubukota	<i>aŋo</i>	'plant similar to ginger, of various colours (white and yellow); it has various medicinal and magical uses in healing and cursing'
MM:	Nduke	<i>aŋo</i>	'turmeric'
MM:	Roviana	<i>aŋo</i>	'turmeric'
NCV:	Mota	<i>aŋo</i>	'turmeric'
Mic:	Ponapean	<i>āŋ</i>	'turmeric'
Mic:	Mokilese	<i>ɔŋ</i>	'turmeric'
Mic:	Woleaian	<i>yāŋa</i>	'ginger'
Fij:	Bauan	<i>ḍaŋo(laya)</i>	'wild ginger, <i>Zingiber zerumbet</i> '
		<i>ḍaŋo</i>	'turmeric'
Pn:	Tongan	<i>aŋo</i>	'turmeric'
		<i>aŋo-aŋo</i>	'shampoo ginger, <i>Zingiber zerumbet</i> '
Pn:	Samoaan	<i>aŋo</i>	'turmeric'

¹⁴ No reconstruction for *Alpinia* is made in this volume.

The root above was the source of the POc term for 'yellow', **yaŋo-yaŋo*:

POc **yaŋo-yaŋo* 'yellow' (Grace 1969)

NNG:	Kove	<i>eaŋ-eaŋo</i>	'yellow'
NNG:	Tami	<i>yaŋo-yaŋo</i>	'yellow'
NNG:	Kairiru	<i>yaŋ-yaŋ</i>	'yellow'
NNG:	Manam	<i>aŋo-aŋo</i>	'yellow'
PT:	Molima	<i>yawo-yawo(na)</i>	'yellow'
MM:	Nakanai	<i>ial-alo</i>	'yellow'
SES:	Gela	<i>aŋo-aŋo</i>	'yellow'
NCV:	Mota	<i>aŋo-aŋo</i>	'yellow'
Mic:	Woleaian	<i>yaŋo-yaŋo</i>	'yellow colour of ginger'
Fij:	Wayan	<i>aŋo-aŋo</i>	'yellow'
Fij:	Bauan	<i>ðaŋo-ðaŋo(a)</i>	'reddish or orange like the turmeric plant'

PEOc **[re]reŋ^wa* 'yellow material, prepared turmeric (?)' (Biggs 1965: **reŋa*)

SES:	Sa'a	<i>reŋa</i>	'decorate with black, white and red designs; beautiful'
NCV:	Loh	<i>eŋ</i>	'turmeric'
NCV:	Mota	<i>re-reŋa</i>	'yolk of an egg; yellow colour'
Mic:	Kiribati	<i>reŋa</i>	' <i>Curcuma longa</i> ' ¹⁵
Fij:	Wayan	<i>re-reŋ^wa</i>	' <i>Curcuma longa</i> , turmeric'
Fij:	Bauan	<i>re-reŋa</i>	'turmeric'
Pn:	Tongan	<i>eŋa</i>	'turmeric'
Pn:	Rennellese	<i>ŋeŋa</i>	'prepared turmeric'
Pn:	Samoa	<i>leŋa</i>	'yellow dye from turmeric' (Whistler 2000: 177)
Pn:	Tokelauan	<i>leŋa</i>	'yolk of egg, turmeric'
Pn:	Tahitian	<i>reŋa</i>	'ginger, turmeric'
Pn:	Hawaiian	<i>lena</i>	'yellow'
Pn:	Māori	<i>reŋa-reŋa</i>	'a large herb with curcuma-like leaves and short rhizome, <i>Arthropodium cirratum</i> ' (R. Gardner, pers. comm.)

5.2 *Zingiber* spp., ginger, TP *kawawar* (Zingiberaceae)

Zingiber officinale (common ginger), 50–120 cm tall, cultivated and wild, serves as a spice plant, medicine and magic (Peekel 1984:100). It appears to have arrived in Near Oceania a long time ago (R.M. Bourke, pers. comm.), but does not seem to have been carried into (at least parts of) Remote Oceania until European contact, where the only species of ginger was *Z. zerumbet* ('wild ginger', 'shampoo ginger', 'pinecone ginger'), a woody shrub, 80–120 cm high with long narrow green leaves and magnificent red flowers which resemble a pinecone in shape. It is widely cultivated, with numerous cultivars.

¹⁵ According to Geraghty (2004: 67) Kiribati *reŋa* is borrowed from a Polynesian language.

If it is true that *Z. officinale* did not find its way into Remote Oceania with Oceanic speakers, then one must ask whether it had in fact arrived in NW Island Melanesia by POc times. This is a matter which seems to require further research.

In Marovo wild ginger was associated with magic and sorcery. The leaves of particular varieties were important in calling on ancestor spirits, and the roots were chewed for magical purposes. In earlier times, one was planted at each corner of a garden to protect it against destructive magic. The roots of some varieties are chewed for their healing properties. Because of these associations, ginger is rarely used in ordinary cooking (Hviding 2005: 130).¹⁶ Peekel (1984: 101) in any case reports that the rhizome of *Z. zerumbet* is less tasty than those of other *Zingiber* species.

Two POc terms are reconstructed below. The gloss of the first, **laqia*, remains a little doubtful because of the difficulty in dating the arrival of *Z. officinale* in NW Island Melanesia. POc **para(k)* evidently referred to Zingiberaceae species but just how large a taxon it denoted is currently unknown.

PMP **laqia* ‘ginger, *Zingiber officinale*’ (Headland & Healey 1974)

POc **laqia* ‘ginger, *Zingiber officinale* (?)’ (French-Wright 1983)

Adm:	Mussau	<i>laia</i>	‘ginger’
Adm:	Titan	<i>lei</i>	‘ginger’
Adm:	Lou	<i>lei</i>	‘ginger’
NNG:	Kove	<i>haia</i>	‘ginger’
NNG:	Tami	<i>lagi</i>	‘ginger’
NNG:	Adzera	<i>rakia</i>	‘ginger’
NNG:	Mumeng	<i>leha?</i>	‘ginger’
NNG:	Kairiru	<i>lakea</i>	‘ <i>Curcuma</i> spp.’ (Borrell 1989: 42)
PT:	Wedau	<i>naia</i>	‘ginger’
PT:	Iduna	<i>naiya</i>	‘ginger’
PT:	Motu	<i>ayi</i>	‘ginger’
MM:	Bulu	<i>layia</i>	‘ginger’
MM:	Bola	<i>lahia</i>	‘ginger’
MM:	Nakanai	<i>lahia</i>	‘ginger’
MM:	Tangga	<i>lae</i>	‘ginger’
MM:	Nehan	<i>laia</i>	‘ginger’
NCV:	Tape	<i>løy-løy</i>	‘wild ginger’
SV:	Kwamera	<i>nə-re</i>	‘ginger’
Fij:	Bauan	<i>(ḍaŋo)laya</i>	‘ginger, <i>Z. zerumbet</i> ’

PSES **ria* ‘ginger’ (Gela *ria* ‘ginger’, W Guadalcanal, Arosi *ria* ‘turmeric’, Kwaio *lia* ‘turmeric’) is evidently derived from POc **laqia* by borrowing rather than by direct inheritance, as the expected PSES form is †**layia*.

PMP **badak* is tentatively reconstructed below on the basis of the Tolai and Wayan Fijian items and of Tagalog *barak* ‘*Curcuma zedoaria*, *Zingiber zerumbet*’, Kuyunon *barak* ‘*Curcuma domestica*, *Globba marantina*’ (Madulid 2001a).

¹⁶ Unfortunately, Kwa’ioloa & Burt (2001: 193–194) describe wild ginger and turmeric together, and it is impossible to work out which uses are attributed to which plant.



Figure 13.8 *Codiaeum variegatum*

PMP *badak 'Zingiberaceae spp. with edible rhizomes'

POc *para(k) 'Zingiberaceae spp. with edible rhizomes'

MM: Tolai va-var 'Curcuma longa'

MM: Tolai (ka)va-var 'Zingiber officinale'

Fij: Wayan va-va 'Alpinia boia'

6 Plants with large colourful leaves

Here four plants are discussed. The first three, *Codiaeum variegatum*, *Cordyline fruticosa* and *Dracaena angustifolia*, are described separately but the reconstructions are presented together in §6.4 because there is evidence of a POc taxon, *jiRi, which included 'Cordyline fruticosa and *Dracaena angustifolia* and of a PWOc taxon, *m^wa(r,R)e, which included *Codiaeum variegatum* and *Cordyline fruticosa*. All three species are cultivated for their brightly coloured glossy leaves and are used decoratively, ceremonially and ritually.

6.1 *Codiaeum variegatum*, croton, TP purpur, B kala lif (Euphorbiaceae)

Codiaeum variegatum usually takes the form of a non-woody shrub a metre or more in height, consisting of a clump of large leathery leaves, at their largest 30 cm by 9 cm. In the wild the leaves are green and the plant may grow into a small tree up to 5 m tall. Under cultivation the leaves vary greatly in shape and colour, and traditionally, *C. variegatum* was cultivated for its brilliant colours, although it grows in the wild in open locations with access to sunlight (Peekel 1984: 313, Wheatley 1992: 89, 91). Kwa'ioloa & Burt (2001: 175) names five cultivars, four of them distinguished by colour (green, yellow, red and dark red).

C. variegatum shrubs were cultivated around the edges of villages for their decorativeness and as boundary markers and markers of taboo sites like graves. They also provided a source

of leaves to decorate men's bodies during dances (Floyd 1954, Kwa'ioloa & Burt 2001: 175, Wheatley 1992: 91, Hviding 2005: 117, Gardner & Pawley 2006).¹⁷

On New Britain the bark or the leaves were rubbed on the skin to cure skin diseases (Powell 1976). On Waya Island the leaves are used in the treatment of high blood pressure (Gardner & Pawley 2006).

6.2 *Cordyline fruticosa* (syn. *C. terminalis*, *Taetsia fruticosa*), cordyline, victory leaf, ti plant, TP *tangget*, B *nanggaria* (Agavaceae)

Cordyline fruticosa has a woody stem usually 1–2 m high with no branches; the leaves issue from the top of the stem. There is a great variety of leaf shapes from long and narrow to broadly oval and a great variety of leaf colours: green with white or red stripes, white with green or red stripes, rose-red, rose-red and dark-red stripes, and dark-red to blackish purple (Peekel 1984: 81–83).

The cordyline has a tuber which is edible and occasionally eaten in Papua New Guinea, although it may have been used more extensively for food in the past. Its young leaf shoots are sometimes cooked and eaten (Barrau 1965, Bourke 1982: 60, French 1986: 335). The Saliba eat the flowers, cooked with leaves of *Gnetum gnemon* (ch.10, §2.3) (Margetts 2005b). The Molima simply add them to the cooking pot (A. Chowning, pers. comm.). *C. fruticosa* is used for plot markers, as an item of clothing, and as a warning to thieves (Bourke 1982).

Leaves of *C. fruticosa* are worn by dancers in New Britain (Arentz et al. 1989: 94). Bourke comments on the spiritual significance of *C. fruticosa* in some Papua New Guinea societies. The Marovo believe that cordyline holds spiritual power, and different cultivars of cordyline are used for different kinds of magic, often exercised by holding the leaf itself (Hviding 2005: 118). It also functions as a charm against magic among the Kwaio and the Kwara'ae, and the latter is the one place where a non-decorative, non-ritual use is mentioned: it is used to wrap lizards for cooking (Kwa'ioloa & Burt 2001: 180). On Waya Island it is usually planted in villages and at taboo sites, and today often at graves. Different varieties were used for different kinds of magic (Gardner & Pawley 2006).

6.3 *Dracaena angustifolia* (Liliaceae)

In its mature form *Dracaena angustifolia* is a woody shrub growing to 3–6 m high. It has no bole and splits into many branches at ground level. Each branch splits again recursively,

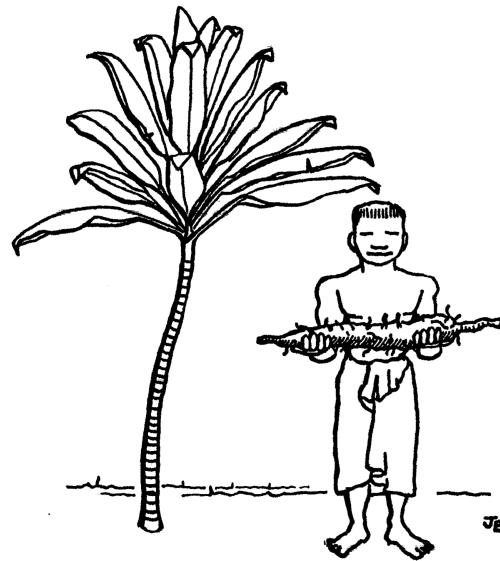


Figure 13.9 *Cordyline fruticosa*: plant and tuberous root

¹⁷ According to Wheatley, the other leaves used as dance decoration were from *Euodia hortensis* (ch.7, §5.6) and from *Polyscias* species (ch.10, §2.4).

and at the end of each branch, issuing directly from it, is a plume of long narrow leaves. In cultivated varieties these leaves are often brightly striped. *D. angustifolia* receives far fewer mentions in the literature than croton or cordyline: Hviding, for example, does not mention it. This may be because non-botanist observers have confused the species or because *D. angustifolia* has less magical and taboo significance. Kwa'iolea & Burt (2001: 181) say that it is used for living fences. However, the Arosi dictionary describes it as a very sacred plant which is planted on burial grounds and on gardens to protect crops, is used in divination, and is waved at the annual harvest ceremony (Fox 1978). Sa'a speakers use the leaves in incantations, in bonito ceremonials and in malevolent magic (Ivens 1929). On Ulawa the priest uses a *Dracaena* branch bound with a climbing fern to draw out the yam beetles when a garden is dedicated for planting. Such a branch is then planted at the entrance stile to keep out disease (Ivens 1927: 360, 362).

6.4 Reconstructions

Cordyline and *Dracaena* varieties are both used as decorative plants and for making leaf skirts, and many Oceanic languages treat them as a single taxon. In E Kara (MM), for example, *si* denotes *Cordyline fruticosa*, and the binomial *si tavul* is *Dracaena angustifolia*. In Kwa'ae *Cordyline fruticosa* is *dili* and *Dracaena angustifolia* is *mala-dili* 'resembling cordyline' (see ch.2, §7.1.4). Each of the cognate sets below spans plants of both genera, and it is probable that many more of the glosses should refer to both *Cordyline* and *Dracaena*: the full span of the denotation was missed when the data were recorded.

Chowning (1963, 2001: 81) suggests that the 'Proto-Melanesian' terms **babaka*,¹⁸ **dili* (my POC **jiRi* 'Cordyline sp., Dracaena sp.') and **male* (my PWOC **m^wa(r,R)e* 'Codiaeum variegatum; Cordyline fruticosa') were each used collectively for three species. Her first two species are *Codiaeum variegatum* and *Cordyline fruticosa*. Her third, however, is not *Dracaena angustifolia*, but *Cycas rumphii*. She writes that all three are 'used primarily for decorative and magico-religious purposes' (Chowning 1963).¹⁹

It is quite possible that PWOC **m^wa(r,R)e* indeed denoted a taxon including *Codiaeum variegatum* and *Cordyline fruticosa*, and perhaps other decorative plants (note Nakanai *ma-male* 'Cananga odorata'), but I have found no evidence of a term that denoted plants of all three species. Possibly Chowning considered some of the items collected together under PEOC **m^wa(q)ele* 'cycad' (ch.9, §5.2) to belong to the same cognate set as the items under PWOC **m^wa(r,R)e* below. Despite the formal similarity between the two reconstructions, however, the two cannot be reconciled: reflexes of the former agree in reflecting **-l-*, the latter in reflecting **-(r,R)-*. The two sets can be united only by positing irregular sound change or borrowing.²⁰

Three other etyma are reconstructed below: POC **jiRi*, **kaRi(q)a* and **jajal*. POC **jiRi* indeed introduces a third species into the discussion, but it is *Dracaena angustifolia*, not

¹⁸ I do not have access to the data on the basis of which **babaka* was reconstructed.

¹⁹ In her 2001 discussion of PWOC **m^wa(r,R)e* as presented by Ross (1996c), she corrects the gloss of Nakanai *male* from 'Codiaeum' to 'Cordyline' and adds the Kove etymon.

²⁰ I initially thought that Anejoñ *na-mraθ* 'Croton insularis' was cognate with the items under POC **m^wa(r,R)e*. However, members of the genus *Croton* are substantial trees which have little in common with *Codiaeum variegatum*, popularly called 'croton' (although both belong to the family Euphorbiaceae).

Cycas rumphii. The distribution of the reflexes of POC **kaRi(q)a* ‘taxon of decorative plants’ leaves us unable to determine which of the three species it denoted. POC **jajal* probably denoted a particular variety of *Codiaeum variegatum*.

PWOC **m^wa(r,R)e* ‘taxon including *Codiaeum variegatum* and *Cordyline fruticosa*’ (Ross 1996c; Chowning 1963: **male*)

NNG:	Kove	<i>mohe</i>	‘ <i>Cordyline</i> sp.’ (Chowning 1996: 17)
NNG:	Yabem	<i>(ka)maʔ</i>	‘ <i>Cordyline</i> sp.’
NNG:	Takia	<i>mra-mor</i>	‘ <i>Cordyline fruticosa</i> ’
NNG:	Kairiru	<i>(moel) morie(p)</i>	‘thin-leaved, green variety of <i>Codiaeum variegatum</i> ’
PT:	Roro	<i>mare</i>	‘plant with yellow leaves’
MM:	Vitu	<i>mare</i>	‘ <i>Cordyline</i> sp.’
MM:	Bulu	<i>mara</i>	‘ <i>Cordyline</i> sp.’
MM:	Nakanai	<i>male-male</i> <i>ma-male</i>	‘ <i>Cordyline</i> sp.’ (Chowning 1996: 17) ‘ <i>Cananga odorata</i> (like <i>Cordyline</i> used for personal adornment)’ (Floyd 1954)
MM:	Kara (E)	<i>ma-mara</i>	‘ <i>Codiaeum variegatum</i> ’
MM:	Patpatar	<i>mora-mora</i>	‘ <i>Codiaeum variegatum</i> ’
MM:	Kandas	<i>muro</i>	‘ <i>Codiaeum variegatum</i> ’
MM:	Roviana	<i>mar-mar</i>	‘ <i>Codiaeum variegatum</i> ’

cf. also:

SV:	Anejoñ	<i>na-mraθ</i>	‘ <i>Codiaeum variegatum</i> ’
Fij:	Wayan	<i>ŋ^wali</i>	‘croton, <i>Codiaeum variegatum</i> ’

PMP **siRi* ‘*Cordyline* sp., *Dracaena* sp.’ (Blust 1989)

POC **jiRi* ‘taxon consisting of *Cordyline fruticosa* and *Dracaena angustifolia*’ (Milke 1968: **diRi*; Ross 1988)

Adm:	Mussau	<i>sii</i>	‘banyan, <i>Ficus</i> sp.’
Adm:	Kurti	<i>siy</i>	‘ <i>Dracaena</i> sp.’
Adm:	Wuvulu	<i>ti</i>	‘ <i>Dracaena</i> sp.’
Adm:	Aua	<i>ti</i>	‘ <i>Dracaena</i> sp.’
Adm:	Ere	<i>siy</i>	‘ <i>Dracaena</i> sp.’
NNG:	Malasanga	<i>sir</i>	‘grass skirt’
NNG:	Mindiri	<i>(da)dir</i>	‘grass skirt’
NNG:	Mapos Buang	<i>sī</i>	‘tree sp., Euphorbeaceae’
NNG:	Wampur	<i>riciʔ</i>	‘cordyline’
NNG:	Adzera	<i>ji-ji</i>	‘cordyline’
NNG:	Kairiru	<i>jir</i>	‘small pandanus sp.’
PT:	Wedau	<i>diri</i>	‘ <i>Dracaena</i> sp.’
PT:	Tawala	<i>diri</i>	‘ <i>Dracaena</i> sp.’
PT:	Molima	<i>dili</i>	‘red cordyline’
MM:	Tiang	<i>si</i>	‘cordyline’
MM:	Kara (E)	<i>si</i> <i>si(-tavul)</i>	‘ <i>Cordyline fruticosa</i> ’ ‘ <i>Dracaena angustifolia</i> ’

MM:	Nalik	<i>sir</i>	‘cordyline’
MM:	Tabar	<i>cir</i>	‘cordyline’
MM:	Lihir	<i>cir</i>	‘ <i>Cordyline terminalis/fruticosa</i> ’
MM:	Notsi	<i>cil</i>	‘cordyline’
MM:	Konomala	<i>si</i>	‘cordyline’
MM:	Patpatar	<i>suri(ah)</i>	‘ <i>Dracaena angustifolia</i> ’
MM:	Tolai	<i>ir</i>	‘leaf of the croton’ (ACD)
MM:	Ramoaaaina	<i>ir-ira</i>	‘croton leaf, <i>Dracaena</i> ’
MM:	Petats	<i>rin</i>	‘cordyline’
MM:	Taiof	<i>rir</i>	‘cordyline’
MM:	Varisi	<i>zili(para)</i>	‘ <i>Cordyline fruticosa</i> ’ (W. McClatchey, pers. comm.)
MM:	Marovo	<i>ji(polo)</i>	‘ <i>Cordyline fruticosa</i> ’
MM:	Roviana	<i>zi(polo)</i>	‘shrub, <i>Dracaena</i> sp.’
SES:	Gela	<i>dili</i>	‘ <i>Dracaena</i> ’
SES:	Lau	<i>dili</i>	‘ <i>Dracaena</i> with thin green leaves’
SES:	Kwara’ae	<i>dili</i>	‘ <i>Cordyline fruticosa</i> ’
SES:	Kwaio	<i>dili</i>	‘ <i>Cordyline fruticosa</i> ’
SES:	’Are’are	<i>siri</i>	‘herb with red stem and leaves, used for magical purposes’
SES:	Sa’a	<i>dili</i>	‘ <i>Draecena</i> ’
SES:	Arosi	<i>diri</i>	‘ <i>Draecena</i> ’
NCal:	Nyelâyû	<i>di</i>	‘ <i>Cordyline fruticosa</i> ’
Mic:	Chuukese	<i>tī-n</i>	‘ <i>Cordyline fruticosa</i> ’
PCP * <i>jī</i> ‘taxon consisting of <i>Cordyline fruticosa</i> and <i>Dracaena angustifolia</i> ’			
Fij:	Rotuman	<i>jī</i>	‘plant with ornamental leaves and a sweet root: <i>Cordyline fruticosa</i> ’
Pn:	Tongan	<i>sī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	E Futunan	<i>tī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	Rennellese	<i>tī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	W Uvean	<i>tī</i>	‘ <i>Draecena</i> ’
Pn:	Emae	<i>tī</i>	‘ <i>Cordyline</i> sp.’
Pn:	Samoan	<i>tī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	Tikopia	<i>tī</i>	‘ <i>Cordyline</i> sp.’
Pn:	Tuamotuan	<i>tī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	Hawaiian	<i>kī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	Marquesan	<i>tī</i>	‘ <i>Cordyline</i> sp.’
Pn:	Tahitian	<i>tī</i>	‘ <i>Cordyline fruticosa</i> ’
Pn:	Māori	<i>tī</i>	‘ <i>Cordyline</i> sp.’

Medial parenthesised *-q- is reconstructed in POc **kaRi(q)a* on the assumption that Vitu *kariya* ‘rattan’ is cognate, but the difference in denotation calls this into doubt.

POc **kaRi(q)a* ‘taxon of decorative plants’ (Geraghty 1990: PEOc **gaRi(a)*)

NNG:	Tami	<i>kali-kali</i>	‘ <i>Codiaeum variegatum</i> ’ (Dempwolff 1902)
SES:	Kwara’ae	<i>ka-kali</i>	‘ <i>Hornstedtia lycostoma</i> ’

NCV: Mota	<i>karia</i>	‘ <i>Dracaena</i> sp.’
NCV: NE Ambae	<i>karie</i>	‘ <i>Cordyline</i> sp.’
NCV: Raga	<i>yaria</i>	‘generic for <i>Cordyline</i> spp.’
NCV: Atchin	<i>kari</i>	‘ <i>Dracaena</i> sp.’
NCV: Uripiv	<i>gari</i>	‘ <i>Cordyline</i> sp.’
NCV: Naman	<i>na-yari</i>	‘ <i>Cordyline</i> sp.’
NCV: Neve’ei	<i>na-ʔari</i>	‘ <i>Cordyline</i> sp.’
NCV: Larëvat	<i>na-yri</i>	‘ <i>Cordyline</i> sp.’
NCV: Port Sandwich	<i>xari</i>	‘crotons’
NCV: Lewo	<i>(puru)kalie</i>	‘ <i>Cordyline</i> sp.’
NCV: Namakir	<i>kari</i>	‘ <i>Cordyline</i> sp.’
NCV: Nguna	<i>na-karie</i>	‘palm-lily plant, <i>Dracaena</i> sp.’
SV: Sye	<i>(tana)ŋklai</i>	‘ <i>Cordyline</i> sp.’
Fij: Bauan	<i>gai</i>	‘ <i>Cordyline</i> sp.’

cf. also:

MM: Vitu	<i>kariya</i>	‘rattan’
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POc **jajal* ‘croton, *Codiaeum variegatum*’

NNG: Yabem	<i>(ka)dada</i>	‘a grassland shrub, the sap of which is used to blacken teeth’ (probably <i>Rhus taitensis</i> —MDR)
MM: Nehan	<i>dedel(am)</i>	‘ <i>Codiaeum variegatum</i> , yellow and green variety’
MM: Varisi	<i>zazala (piru)</i>	‘ <i>Codiaeum</i> sp.’ (W. McClatchey, pers. comm.)
MM: Babatana	<i>jajala</i>	‘ <i>Codiaeum variegatum</i> ’ (W. McClatchey, pers. comm.)
MM: Nduke	<i>zazala</i>	‘ <i>Codiaeum variegatum</i> ’
MM: Roviana	<i>zazala</i>	‘ <i>Codiaeum variegatum</i> ’
MM: Marovo	<i>jajala</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Mwotlap	<i>na-sas</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Mota	<i>sasa</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: NE Ambae	<i>sasa</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Lonwolwol	<i>ha</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Raga	<i>hahali</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Apma	<i>sasli</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Uripiv	<i>na-jej</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Rerep	<i>ne-jaj</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Neve’ei	<i>ne-nsah</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Tape	<i>cec</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Avava	<i>a-sah</i>	‘ <i>Codiaeum variegatum</i> ’
NCV: Lonwolwol	<i>ha</i>	‘ <i>Codiaeum variegatum</i> ’
Fij: Bauan	<i>ðaða</i>	‘ <i>Codiaeum variegatum</i> ’ (Geraghty 2004: 79)
Fij: Rotuman	<i>sasa</i>	‘ <i>Codiaeum variegatum</i> ’ (Geraghty 2004: 79)

6.5 *Heliconia indica*, heliconia, B lif laplap (Heliconiaceae)

Two species of *Heliconia* grow in NW Island Melanesia, *H. indica* in eastern mainland New Guinea and the Bismarcks and *H. salomonensis* in Bougainville and the Solomons (R. Gardner, pers. comm.). The two appear to be very similar (Figure 13.10, left).²¹ Numerous short stems formed from leaf sheaths rise from an underground rhizome to a height of 5 or 6 m. The leaves resemble banana leaves, and under cultivation assume various colours and patterns: yellow, yellow-and-green striped, bright red or dark red. In the wild heliconias grow in damp shady environments in primary and secondary forest.

The leaves are used for covering and sealing the stone oven because of their thick, waxy cuticle and very large leaf surfaces. Thanks to their size, fewer are needed, reducing the labour of cutting and carrying (Henderson & Hancock 1988: 239, Kwa'ioloa & Burt 2001: 196, Hviding 2005: 120).

POc *paqo 'Heliconia sp'

MM:	Nduke	vayo	'a large perennial herb with banana-like leaves, <i>Heliconia salomonensis</i> '
MM:	Marovo	vayo	'tree sp. with large banana-like leaves, <i>Heliconia</i> sp.'
SES:	Gela	vao-vao	'shrub with large leaves; wild banana'
SES:	Santa Ana	fao	' <i>Heliconia salomonensis</i> '
NCV:	Mwotlap	(no-yo)va	' <i>Heliconia indica</i> ' (yo- 'leaf')
NCV:	Mota	vao	'a heliconium'
Fij:	Wayan	vā-vā	' <i>Heliconia</i> sp.'
Fij:	Bauan	va-vao(a)	'a plant, <i>Bleekeria elliptica</i> '

PEOc *rako 'Heliconia sp., usually *H. indica*' (Lynch 2004a: PSOc *rau)

SES:	Kwara'ae	rako	' <i>Heliconia indica</i> '
NCV:	S Efate	n-rau	' <i>Heliconia</i> sp.'
SV:	Sye	n-rau	' <i>Heliconia</i> sp.'
SV:	Ura	lau	' <i>Heliconia</i> sp. (generic)'

6.6 *Crinum asiaticum*, spider lily (Amaryllidaceae)

Crinum asiaticum is a large lily with long erect leaves that are arranged in a spiral rosette to form impressive clumps up to 1.5 m in height and 2 m wide (Figure 13.10, right). The leaves may be a metre long and 10 cm wide. They emerge from huge bulbs that may weigh as much as 9 kg. Its white flowers, with thick succulent stems, are shaped like tubes that flair open into a crown of narrow petals.²² Hviding (2005: 103) distinguishes between *Crinum asiaticum*, which is cultivated, and *Crinum pedunculatum*, which grows wild in sandy areas near beaches and in other damp locations. Kwa'ioloa & Burt (2001: 216) distinguish between

²¹ An editor's footnote indicates that Peekel (1984: 98, 100) incorrectly identified *H. indica* as *H. bihai*, an American species.

²² http://www.floridata.com/ref/C/crin_asi.cfm, accessed October 2007

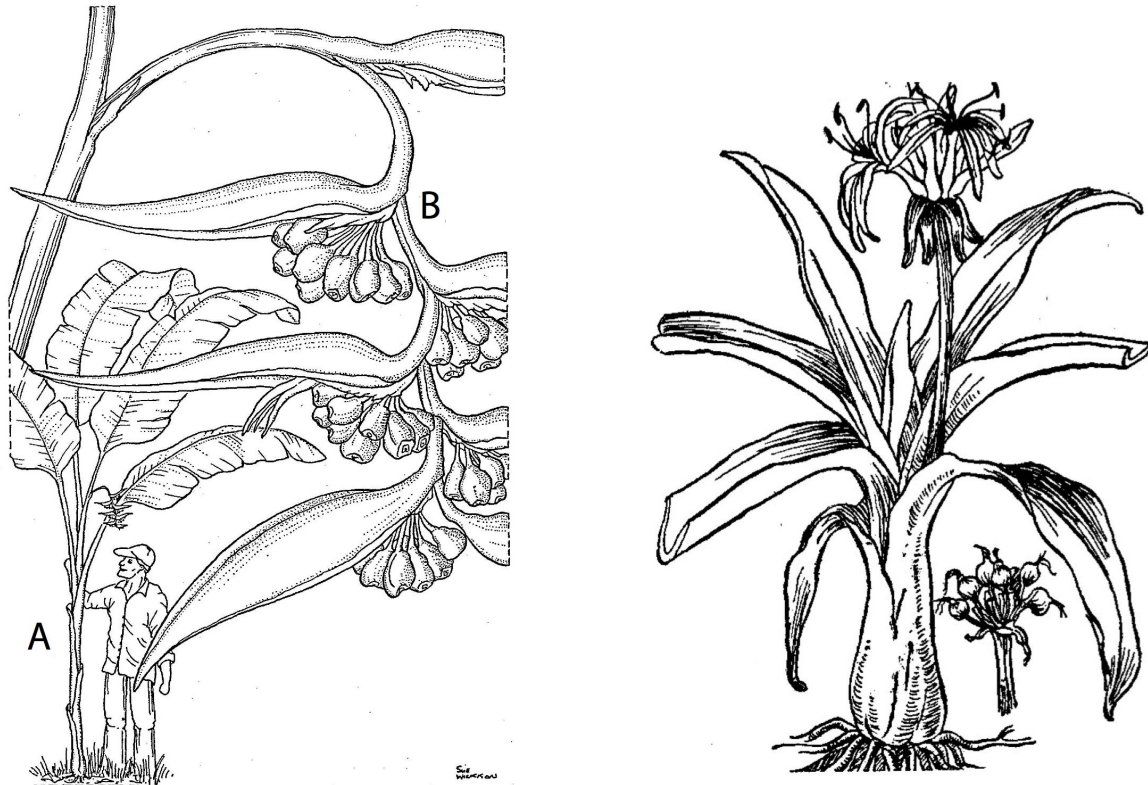


Figure 13.10 Left: *Heliconia solomonensis*: A, plant; B, mature inflorescence, open and showing fruit. Right: *Crinum asiaticum*, spider lily.

a green-leaved wild variety of *C. asiaticum* and a yellow-leaved variety cultivated for decoration in villages.

At Tinupuz (Bougainville) the pounded roots of this plant were mixed with red iron oxide and the mixture was rubbed onto coconut palm trunks to ensure that they bore well (Blackwood 1935: 311). The Nakanai of New Britain and the Marovo use the light-coloured leaf bases as trolling lures to catch large fish, in Marovo barracuda and Spanish mackerel (Hviding 2005: 103, Floyd 1954). The Nakanai also use the leaves for making women's leaf skirts. In Marovo the leaves are used to treat bruises and fractures.

The forms listed below are clearly cognate, but it is not clear whether or how many of the parenthesised segments of the Kairiru and Kilivila forms reflect part of the protoform: hence the question mark against **m^walak*.

POc **m^walak* (?) 'spider lily, *Crinum asiaticum*'

NNG:	Kairiru	<i>mlak(ap)</i>	' <i>Crinum asiaticum</i> '
PT:	Kilivila	<i>mola(bau)</i>	'a lily, <i>Crinum asiaticum</i> '

PSOc **m^walak* 'spider lily, *Crinum asiaticum*' (Lynch 2004a)

NCV:	Mwotlap	<i>m^w[a]lak</i>	
SV:	Anejom̃	<i>no-(hos)meley</i>	' <i>Crinum</i> sp.'

7 Cucurbits

The four plants discussed below, namely the bottle gourd (*Lagenaria siceraria*), the wax gourd (*Benincasa hispida*), the pumpkin (*Cucurbita moschata*) and the cucumber (*Cucumis sativus*) have in common not only that they all grow on vines but, more relevant here, that the dates and directions of their introductions into Oceania have been objects of controversy. The linguistic evidence supports the controversial claim that the pumpkin, *Cucurbita moschata*, was absent from the world of POc speakers but arrived soon after the break-up of POc.

7.1 *Lagenaria siceraria* (syn. *L. vulgaris*, *L. leucantha*, *Cucurbita siceraria*, *C. lagenaria*), bottle gourd, TP kembang (Cucurbitaceae)

The bottle gourd, *Lagenaria siceraria*, is grown throughout much of the Pacific, mainly for its value as a container and occasionally for its food value (French 1986: 107). The plant originated in Africa, but had spread across much of the world in pre-Columbian times. Barrau (1962: 189) regards it as an ancient plant in Melanesia, but no POc form can be reconstructed, as noted by Ross (1996c).

Clark (1996a) reconstructs PNCV **tavaya* (Raga *tavai*, Mota *wo-tavae*), which, together with Bauan *tavaya* ‘bottle’, implies PEOc **tapaya*. But no cognates of the latter nor alternative cognate sets have been found in Western Oceanic or Admiralties languages, implying that the bottle gourd was not known to POc speakers. Surveying recent findings, Green (2000) suggests quite strongly that this was the case. The gourd may well have reached Oceania from two directions, arriving in Melanesia from the Indo-Malaysian region and much later in eastern Polynesia from South America. There is good evidence that the Polynesians did not carry the gourd with them into eastern Polynesia (Whistler 1990, 1991). It is thus possible—and on the linguistic evidence likely—that the bottle gourd first reached the Bismarck Archipelago after the break-up of POc.

7.2 *Benincasa hispida*, wax gourd, white gourd, winter melon (Cucurbitaceae)

Golson (2002) also provides a survey of archaeological evidence which shows that allegedly pre-Oceanic dates for the bottle gourd in Oceania are the result of misidentification of remains of the wax gourd, *Benincasa hispida*. Whistler (1990) similarly shows that reports of the bottle gourd in Polynesia reflect incorrect identifications of the wax gourd. The latter is a native of SE Asia and archaeological evidence indicates that it was present at least on mainland New Guinea when the Austronesian speaking ancestors of POc speakers arrived there. There are terms for it in non-Oceanic languages: terms from Philippine languages listed by Madulid (2001b: 42) together with Malay *kundur* point to a possible PMP **kundur*, but this may be an outcome of borrowings across island SE Asia (Wolff 1994). Verheijen (1990: 195) cites terms that point to a possible PCMP **kelas*. As Golson points out, the botanical literature indicates that *B. hispida* is at least occasionally present at locations on the mainland and in the Bismarcks where Oceanic languages are spoken today. In support of this he cites Peekel (1984: 547–548) and Borrell (1989: 66). French (1986: 108) also indicates that *B. hispida* is grown in Papua New Guinea, but does not specify locations.

Whistler provides names for *B. hispida*, listed below, which allow us to reconstruct Proto Central Pacific **van(o,u)*. I have accepted his arguments for glossing the Fijian terms as *B.*

hispida: his sources (H. B. R. Parham 1943, Capell 1941) gloss them as species of *Lagenaria*. Despite the obvious presence of *B. hispida* further west I have been unable to reconstruct an earlier term for it, but not for the usual reasons. Usually, a term is not reconstructable because there are no cognates in the data or because cognates are insufficiently widespread. In the case of *B. hispida*, however, there are no data from outside Fiji and Polynesia except Peekel's Patpatar *hulhul parahō*. This can only indicate that, even if *B. hispida* was present in early Oceanic times, its presence and significance in the agricultural suite of Oceanic-speaking societies has faded almost to zero.²³

PCP **vaŋ(o,u)* 'wax gourd, *Benincasa hispida*'

Fij:	Lau Is.	<i>vaŋo</i>	' <i>Benincasa hispida</i> '
Fij:	Bauan	<i>vaŋo</i>	' <i>Benincasa hispida</i> '
Pn:	Tongan	<i>faŋu</i>	' <i>Benincasa hispida</i> '
Pn:	Niuean	<i>faŋu</i>	'bottle'
Pn:	Samoa	<i>faŋu</i>	' <i>Benincasa hispida</i> '
Pn:	E Uvean	<i>faŋu</i>	' <i>Benincasa hispida</i> '
Pn:	E Futuna	<i>faŋu</i>	' <i>Benincasa hispida</i> '

7.3 *Cucurbita moschata*, pumpkin, TP pamken (Cucurbitaceae)

Barrau (1962: 190) declares that the pumpkin²⁴ is a European introduction to Melanesia, and the linguistic data largely support his assertion. A number of terms for it are borrowings from English (MM: E Kara *bəniyɪn*, Tinputz *banken*, NCV: Paamese *vamuken*, Lewo *pamken*) or from elsewhere (PT: Motu *mausini*, Roro *mauteni*, apparently from Samoan *mautini* 'gourd').

The set of seeming cognates below provides evidence, on the other hand, of an early Oceanic etymon, **waluq* or *[*w*]aruq, that must have denoted *C. moschata* or a similar plant. I write 'seeming' because, however one reconstructs the term, there are irregular phonological developments due to borrowing. Dempwolff (1938) reconstructed **baluq* 'bottle gourd, *Lagenaria siceraria*'. However, the Oceanic forms below, together with Sundanese, Old Javanese, Balinese *waluh*, Buru *walu* 'bottle gourd', point to PMP **waluq* 'bottle gourd'. Whether PMP actually had such a form or whether this is a series of borrowings postdating the break-up of PMP and perhaps even of POc (cf §7.1) is not relevant here. What is relevant is that a form related to these entered early Oceanic, but was applied to the pumpkin, *C. moschata*, or a related species.

If we assume that the Oceanic etymon was **waluq*, then the consonants are regularly reflected in Kela, Dami and Takia. Sio reflects **waruq*, and Kela may also do so, as *-*l*- and *-*r*- are neutralised as Kela *-r-*. Hote, Mapos Buang and Patep reflect **ruq-aruq* and Lenakel

²³ Barrau (1962: 189) lists *B. hispida* as a recent introduction to Oceania: he is apparently wrong, although there may have been recent reintroductions.

²⁴ Barrau refers to the pumpkin as *Cucurbita pepo*. In Papua New Guinea, at least, the common pumpkin is *C. moschata*, not *C. pepo* (R. Michael Bourke, pers. comm., and French 1986: 102-103). Both are evidently recent introductions, so this possible confusion makes no difference to the argument of this paragraph.

and Anejoñ reflect **ruq-ruq*.²⁵ Gapapaiwa and Misima *bonu-bonu* (and similar forms in other PT languages) reflect **b^walu-b^walu*. If we assume instead that the Oceanic etymon was **waruq* or **aruq*, we are still left with irregularities.

The strong likelihood, then, is that the term was borrowed from community to community sometime very soon after the break-up of POc. That is, *C. moschata* or a similar plant must have found its way into NW Melanesia not much less than 3000 years ago. The genus *Cucurbita* is indigenous to the tropical zone of the Americas, where domestication is known to have occurred by 4000 years ago (Sauer 1993).

This finding is not at odds with the historical fact that the modern pumpkin was introduced to NW Melanesia by Europeans after 1870. It simply indicates that a variety of *C. moschata* or a similar plant was already present, and had been present for a long time, albeit perhaps as a very minor crop in a few areas.

Early Oceanic **waluq* OR **[w]aruq* ‘pumpkin, *Cucurbita moschata*?’

NNG: Sio	<i>waru</i>	‘pumpkin’
NNG: Kela	<i>waru-waru</i>	‘pumpkin’
NNG: Hote	<i>lu-alu</i>	‘pumpkin’
NNG: Mapos Buang	<i>ruχ-arūχ</i>	‘pumpkin’ (-r- for †-l-)
NNG: Mumeng (Patep)	<i>lu[?]-alu</i>	‘pumpkin’
NNG: Dami	<i>olu</i>	‘pumpkin’
NNG: Takia	<i>walu</i>	‘pumpkin’
PT: Gapapaiwa	<i>bonu-bonu</i>	‘pumpkin’
PT: Misima	<i>bonu-bonu</i>	‘pumpkin’
PSV <i>*na-r(o,u)r(o,u)(q)</i> ‘pumpkin, gourd’		
SV: Lenakel	<i>(noua)ne-lulu</i>	‘pumpkin’
SV: Anejoñ	<i>ne-rero</i>	‘gourd’

7.4 *Cucumis sativus*, cucumber (Cucurbitaceae)

Because of the varieties that have been introduced since 1870, it is sometimes assumed that the cucumber is a crop introduced by Europeans. However, Bourke & Allen (forthcoming) write that it was probably introduced via SE Asia thousands of years ago. The cognate set supporting the reconstruction of POc **[ka]tim(o,u)n* ‘cucumber, *Cucumis sativus*’ below confirms that the cucumber was part of the world of POc speakers, even though it is not indigenous to the Pacific. The genus *Cucumis* has its origins in Africa, and the cucumber is one of the few African species known to have been domesticated outside Africa. Until recently it was thought that it was part of a suite of plants that were domesticated in the Fertile Crescent of SW Asia or in India, but recent work in molecular biology has cast doubt on this, placing the cucumber instead in an Asian-Australian clade of the genus *Cucumis* (Renner et al. 2007). There is thus no biogeographic challenge to the proposal that the cucumber was known to both PMP and POc speakers.

²⁵ Hote, Patep and Lenakel also neutralise **-l-* and **-r-*, but I have ignored this here for the sake of simplicity of presentation.

Blust (ACD) produces strong evidence to suggest that the denotatum of POc **[ka]tim(o,u)n* was the cucumber, but the reflexes below suggest that it may also have been used of other species of *Cucumis*.

The initial syllable of **[ka]tim(o,u)n* is reflected only in Western Oceanic languages, whereas Central Pacific reflexes point to **timun*. This distribution justifies the reconstruction of POc forms with and without initial **ka-*, which may represent or have been reanalysed as the prefix **ka-* ‘tree’ reflecting earlier **kayu* ‘tree’ (ch.2, §7.1.2).

Shown in parentheses below are irregular phonological developments, implying that although the term was inherited into POc, it was sometimes borrowed from one language into another.

PMP **[ka]timun* ‘cucurbit (generic); cucumber, *Cucumis sativus*’ (Dempwolff 1938:

**timun*)

POc **[ka]tim(o,u)n* ‘*Cucumis* spp. (generic?); cucumber, *Cucumis sativus*’ (ACD)

NNG: Sengseng	<i>tamun</i> <i>katim</i>	‘ <i>Cucumis sativus</i> ’ (A. Chowning, pers. comm.) ‘small cultivated cucurbit with dark green skin and sweet orange flesh’ (A. Chowning, pers. comm.) (probably borrowed)
NNG: Gitua	<i>karimon</i>	‘cucumber’ (ACD)
NNG: Mapos Buang	<i>qatimŋ</i>	‘cucumber, <i>Cucumis sativus</i> ’
NNG: Mumeng (Patep)	<i>kətima</i>	‘cucumber, <i>Cucumis sativus</i> ’ (-a- for †-(o,u)-)
NNG: Numbami	<i>katimana</i>	‘cucumber’ (-a- for †-(o,u)-)
PT: Motu	<i>asemo</i>	‘small wild cucumber, <i>Cucumis</i> sp.’ (ACD)
MM: Sursurunga	<i>katmur</i>	‘vegetable like pumpkin or cucumber’ (-r for †-n)
MM: Tolai	<i>katimur</i>	‘Pacific melon, <i>Cucumis melo</i> ’ (-r for †-n)
MM: Teop	<i>asimuru</i>	‘a vegetable like a cucumber’ (-r for †-n)
MM: Tinputz	<i>asimū</i>	‘cucumber’
Fij: Bauan	<i>timo</i>	‘a plant, <i>Cucumis acidus</i> ’
Pn: E Futunan	<i>timo</i>	‘melon’

14 *Concluding notes*

MALCOLM ROSS

1 The uses of plants

Reconstructed plant names in chapters 5 to 13 are usually accompanied by an indication of each plant's recent or present-day uses. These are often drawn from the works listed in §5.2 of chapter 1, which have been consulted extensively. In these chapters I have made no attempt to reconstruct the uses which POc speakers may have made of particular plants, but it is a reasonable inference that where a particular use is reported in mutually distant locations—and particularly where one or more of these locations is in the Bismarck Archipelago—this is likely to be a use which POc speakers made of the plant under discussion.

One observation which emerges from this work is that a given plant—or similar species of the same genus—commonly has similar uses at widely separated locations in the Bismarcks, the Solomons, Vanuatu and sometimes Waya Island in western Fiji (Gardner & Pawley 2006). This is not surprising, insofar as the properties of a plant itself often determine the uses to which it may be put, but there are also a number of cases where the use of a particular plant for a particular purpose is to some extent culturally determined. For example, *Cordyline fruticosa* is (or was) held to have spiritual power in locations across Melanesia from New Britain to Fiji (ch.13, §6), and its longtime importance to Oceanic speakers is evidenced by the number of cultivars of the species that are found across the region. Although the properties of the plant—variegated colourful leaves and a distinctive smell—provided the basis for its uses in association with magic and taboo, they do not account for its cultural importance across much of Oceania, and it is reasonable to infer that it already played a role in the ceremonial and ritual practices of early Oceanic speakers. On present-day practice it seems likely that another plant with colourful leaves, *Codiaeum variegatum*, was used by early Oceanic speakers to mark taboo sites and other boundaries and as a source of leaves to decorate men's bodies and cover the genitals during dances.

It seems likely that some of the plant names reconstructed in this volume were not originally plant names but terms for useful material produced from the plant. Indeed, it may be that some of the present-day terms which linguists and others have taken to be plant names are still terms for materials, or generics for trees from which a certain material is produced. Obvious candidates for POc terms that at least once upon a time denoted materials are **bau* 'hardwood taxon' (see ch.7, §4.10), **toRas* 'a taxon of hardwood trees including *Intsia bijuga*'

(see ch.7, §4.9) and **dotoq* ‘sticky liquids including the sap of (some?) trees; a mangrove tree, probably *Excoecaria agallocha*’ (see ch.6, §4.3).

2 The durability of Proto Oceanic plant names

One cannot engage in the reconstruction of POc plant names without becoming aware of the fact that some names are far more durable than others. For some plant names a cognate set several pages long could be provided (such sets have been cut down so that they provide a reasonable sample of the available data), whilst for others only two or three cognates are available, and in some cases no name is reconstructable for a plant, even though it can be assumed with reasonable confidence that it occurred in the environment of POc speakers and that they had a name for it. I have touched on these matters elsewhere (Ross 2005).

As Chowning (1963) notes in her concluding remarks, a number of the plant names for which we find cognates across Oceania were probably never cultivated and almost certainly were not carried on migrant canoes, but people used the old names for the same or similar plants when they encountered them afresh. An observation that arises from this volume, however, is that there appears to be a reasonably high correlation between the durability of a POc plant name and the plant’s frequency of use. The evidence for this is admittedly impressionistic and circumstantial, and takes the form of the uses to which a plant is put. A POc reconstruction is more likely to be made for a species for which the sources (ch.1, §5.2) note many and widespread applications than for a species with few or no uses. In other words, plant names that are used more are mentioned more, and plant names that are mentioned more last longer. This is unsurprising: more frequently mentioned names are passed on to and used by the next generation. Less frequently mentioned names are either forgotten or never learned by the next generation, leading to the creation of a new name when one is again needed. If early groups of settlers on Oceanic islands beyond the Bismarcks were small in membership, then the likelihood of less frequently used terms being replaced by neologisms is increased.

3 Where do Oceanic plant names come from?

Tables 14.3–14.9 list most of the POc, PWOC, PEOc and PROc terms (including generics) reconstructed in this book. Omitted are (i) terms for plant parts and plant products and (ii) POc terms whose origin is unclear, i.e. the term has suspected but uncertain non-Oceanic cognates).

The number of terms in Tables 14.3–14.9 reconstructed at each interstage is shown in Table 14.1. A striking fact emerges: of 220 reconstructions, 177, or 80.4%, are POc reconstructions, and only 43, or 19.6% are attributable exclusively to the later interstages PWOC, PEOc and PROc—this despite the fact that data are available from languages that permit the reconstruction of terms at these interstages, and every term that the data supported was reconstructed at the highest possible interstage. This heavy skewing towards POc is not attributable to patchiness in the data, but reflects a fact about Oceanic plant names, namely that POc terms are generally quite durable, and that only a minority underwent replacement in PWOC, PEOc and PROc. In fact the figures overstate replacement, because (i) a number of the reconstructed lower-order terms coexisted with terms inherited from POc; (ii) it is possible that some of these terms will prove to be of POc antiquity as more data become available.

Table 14.1 Number of plant terms reconstructed at each interstage

POc	177	80.4%
PWOc	22	10.0%
PEOc	15	6.8%
PROc	6	2.7%
Total	220	99.9%

Table 14.2 Inherited and possibly innovatory plant terms in Proto Oceanic

Inherited from PAn or PMP	65	36.7%
Inherited from PCEMP	11	6.2%
Inherited from PEMP	4	2.3%
Total inherited	80	45.2%
Possibly innovatory	97	54.8%
Total	177	100.0%

This skewing revealed in Table 14.1 is not peculiar to plant names. It reflects the speed of Oceanic settlement and the fact that Western Oceanic probably emerged out of a stay-at-home dialect network, whilst Proto Eastern Oceanic and Proto Remote Oceanic, as we noted in chapter 1 (§3.2.3), perhaps never really existed as the languages of discrete communities.

Of 177 reconstructed POc plant terms, Table 14.2 shows that 80, or 45%, have a known Austronesian source that precedes POc, i.e. the POc term has non-Oceanic cognates which show that it was inherited into POc from an earlier interstage, whilst 97, or 55%, have no known non-Oceanic cognates. The latter figure is of course open to question. It cannot be higher, but it could be lower, because some seemingly innovatory POc terms were probably inherited from an earlier interstage, but the non-Oceanic sources listed in ch.1, §5.2 happen not to record cognates. Nonetheless, it would not be surprising if many of these 97 were POc innovations. Wolff (1994) points out how readily plant names are borrowed, and we would expect POc speakers to have borrowed plant names from their Papuan speaking neighbours and Papuan speakers to have retained older names as they shifted to POc (see ch. 2, §4). The only reasonably clear example of such a loan is **m^wapo(q)* ‘taro’ (ch.9, §2.2.1). Whether we will ever be able to source other terms convincingly depends partly on research in historical Papuan linguistics, currently in its infancy. However, there is one small pointer in the forms themselves. As noted in vol. 1 (ch.2, §2.4), the POc labiovelar consonants **p^w*, **b^w* and **m^w* were not present in Proto Malayo-Polynesian and represent an innovation in the POc consonant system. In some lexical items their presence is the result of conditioning (Blust 1981*a*, Lynch 2002*b*), in many their occurrence probably reflects borrowing from Papuan languages. Items in Tables 14.3–14.9 which contain one of these phonemes are shown in

bold. Only three (= 4%) of the 80 inherited items listed in Tables 14.3–14.5 include one of these phonemes, and in two of these instances—**m*^(w)*aso(q)u* and **p*^(w)*atoRu*—the labiovelar is uncertain, whilst the exact form of the third reconstruction, **qaram*^w*aqi*, is insecure in other respects (§2.6). On the other hand 19 (20%) of the 97 items in Table 14.6 include a labiovelar, five if them albeit uncertain, suggesting that the table does indeed include a good number of Papuan loans—the more so as we would not expect more than a minority of Papuan loans to contain labiovelars.

If a POc plant name has cognates in eastern Indonesia, especially in EMP languages, then it is possible that in some cases I am unaware of them, as the available sources for these languages are limited. However, non-Oceanic Austronesian plant names from the sources listed at the beginning of §5.2 of chapter 2 have led to the reconstruction of a number of higher-order (PCEMP and PMP) plant names in this volume, and it is a reasonable supposition that many of the plant names reconstructed in this volume for which no non-Oceanic cognates have been found really were POc innovations.

Table 14.3: Proto Oceanic plant terms inherited from Proto Austronesian or Proto Malayo-Polynesian (65 reconstructions)

*[a]ñuliŋ	‘ <i>Pisonia</i> sp.’
*aRu	‘a shore tree, <i>Casuarina equisetifolia</i> ’
*bai-bai(t)	‘a cycad, <i>Cycas rumphii</i> ’
*[baR]baR	‘coral tree, <i>Erythrina variegata</i> ’
*bitu(ŋ)	‘bamboo sp.’
*botu(ŋ)	‘large bamboo, presumably <i>Bambusa</i> sp.’
*buaq	‘betelnut, areca nut, palm, <i>Areca catechu</i> ’
*drokol	‘small <i>Dillenia</i> species’
*droRu(ŋ)	‘ <i>Trema orientalis</i> ’
*guRu(n)	‘sword grass, <i>Imperata cylindrica</i> ’
*[ja]laton	‘ <i>Laportea</i> and <i>Dendrocnide</i> spp.’
*kanawa(n)	‘ <i>Cordia subcordata</i> ’
*[ka]tim(o,u)n	‘ <i>Cucumis</i> spp. (generic?); cucumber, <i>Cucumis sativus</i> ’
*kati(p)al	‘a palm with black wood, <i>Caryota</i> sp.’
*kayu	‘tree or shrub: generic name for plants with woody stems and branches, probably not including palms or tree-ferns; wood, stick’
*kiRe	‘coastal <i>Pandanus</i> sp., probably <i>Pandanus tectorius</i> ’
*kulapu(R)	‘ <i>Dillenia schlechteri</i> ’
*kuluR	‘breadfruit, <i>Artocarpus altilis</i> ’
*laqia	‘ginger, <i>Zingiber officinale</i> (?)’
* <i>m</i> ^(w) <i>aso(q)u</i>	‘wild cinnamon, <i>Cinnamomum</i> sp., probably <i>C. xanthoneuron</i> ; possibly also <i>Cananga odorata</i> ’
*malo	‘paper mulberry, <i>Broussonetia papyrifera</i> ; barkcloth, loincloth’
*naRa	‘ <i>Pterocarpus indicus</i> ’
*ñatuq	‘ <i>Burckella obovata</i> ’
*nini(q)	‘shrub, <i>Donax cannaeformis</i> ’

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Table 14.3 continued

* <i>nipaq</i>	‘ <i>Nypa fruticans</i> ’
* <i>niuR</i>	‘coconut palm and/or fruit, <i>Cocos nucifera</i> ’
* <i>nunuk</i>	‘fig trees, <i>Ficus taxon</i> ’
* <i>ŋiRac</i>	‘ <i>Pemphis acidula</i> ’
* <i>p^(w)atoRu</i>	‘a cycad, <i>Cycas rumphii</i> ’
* <i>padran</i>	‘coastal pandanus, <i>Pandanus tectorius</i> ; pandanus (generic)’
* <i>pali[s,j]i</i>	‘generic term for grasses and other grass-like plants’
* <i>(p,b)anaRo</i>	‘ <i>Thespesia populnea</i> ’
* <i>para(k)</i>	‘Zingiberaceae spp. with edible rhizomes’
* <i>paRu</i>	‘ <i>Hibiscus tiliaceus</i> ’
* <i>pila(q)u</i>	‘ <i>Casuarina equisetifolia</i> ’
* <i>pinu(q)an</i>	‘ <i>Macaranga</i> spp., perhaps <i>M. involucrata</i> ’
* <i>piRaq</i>	‘giant taro, elephant ear taro, <i>Alocasia macrorrhizos</i> ’
* <i>piRu(q)</i>	‘fan palm, <i>Licuala</i> sp.’
* <i>pitaquR</i>	‘ <i>Calophyllum inophyllum</i> ’
* <i>pudi</i>	‘banana, <i>Musa</i> cultivars’
* <i>[pu-]pulu</i>	‘betel pepper, <i>Piper betle</i> ’
* <i>puna</i>	‘vine used for fish poison, probably <i>Derris elliptica</i> ’
* <i>putun</i>	‘ <i>Barringtonia asiatica</i> ’
* <i>qa(l,R)a</i>	‘ <i>Ficus</i> sp.’
* <i>qaram^waqi</i>	‘ <i>Pipturus argenteus</i> ’
* <i>qasam</i>	‘fern used for tying and binding, <i>Lygodium circinnatum</i> ’
* <i>(qate-)qate</i>	‘ <i>Wedelia biflora</i> ’
* <i>qauR</i>	‘bamboo spp.’
* <i>qipil</i>	‘a taxon of hardwood trees including <i>Intsia bijuga</i> and <i>Casuarina equisetifolia</i> ’
* <i>qu(w)e</i>	‘rattan, <i>Calamus</i> spp.’
* <i>qupi</i>	‘greater yam, <i>Dioscorea alata</i> ; yam (generic)’
* <i>Rabia</i>	‘sago, <i>Metroxylon</i> spp., mainly <i>Metroxylon sagu</i> (syn. <i>Metroxylon rumphii</i>)’
* <i>raqu(p)</i>	‘New Guinea walnut, <i>Dracontomelon dao</i> ’
* <i>rarap</i>	‘coral tree, <i>Erythrina</i> spp.’
* <i>talise</i>	‘ <i>Terminalia catappa</i> ’
* <i>talo(s)</i>	‘taro, <i>Colocasia esculenta</i> ’
* <i>toŋoR</i>	‘mangrove, <i>Bruguiera</i> spp.; mangroves (generic)’
* <i>topu</i>	‘sugarcane, <i>Saccharum officinarum</i> ’
* <i>toRas</i>	‘a taxon of hardwood trees including <i>Intsia bijuga</i> ’ (?)
* <i>tui</i>	‘ <i>Dolichandrone spathacea</i> ’
* <i>tupa</i>	‘climbing shrubs, <i>Derris</i> spp.’
* <i>wai, *waiwai</i>	‘mango (generic)’
* <i>walasi</i>	‘tree sp. with poisonous sap, <i>Semecarpus forstenii</i> ’
* <i>waR[e]</i>	‘ <i>Flagellaria indica</i> ’
* <i>waRoc</i>	‘generic term for vines and creepers, plants with creeping or climbing growth structure; string, rope’

Table 14.4: Proto Oceanic plant terms inherited from Proto Central/Eastern Malayo-Polynesian (11 reconstructions)

*[bual]bual	‘species of palm used for making spears and bows; palm-wood spear or bow, probably <i>Caryota</i> sp.’
*dalo	‘ <i>Calophyllum inophyllum</i> ’
*dradrap	‘ <i>Hoya</i> sp.’
*ima	‘ <i>Pandanus</i> sp. with useful leaves’
*jasi	‘ <i>Cordia subcordata</i> ’
*kai(k)	‘ <i>Albizia</i> sp.’
*[ka]ŋaRi	‘canarium almond, <i>Canarium indicum</i> ’
*lowaŋa	‘ <i>Litsea</i> sp.’
*pail	‘ <i>Falcataria moluccana</i> ’
*pau(q)	‘mango, <i>Mangifera</i> sp. (not <i>indica</i>)’
*Reqi	‘sword grass, <i>Imperata cylindrica</i> ’

Table 14.5: Proto Oceanic plant terms inherited from Proto Eastern Malayo-Polynesian (4 reconstructions)

*na[su]-nasu	‘ <i>Scaevola taccada</i> ’
*qayawan	‘ <i>Ficus</i> strangler fig taxon’
*tawan	‘ <i>Pometia pinnata</i> ’
*tuRi-tuRi	‘candlenut tree, <i>Aleurites moluccana</i> ’ (?)

Table 14.6: Proto Oceanic plant terms with no known non-Oceanic cognates (97 reconstructions)

*ba(k,g)a	‘banyan tree, medium-sized <i>Ficus</i> spp., not stranglers’
*babak	‘ <i>Falcataria moluccana</i> ’
*bala	‘taxon including various <i>Euodia</i> spp.’ (?)
*baqun	‘banana cultivar’
*baReko	‘breadfruit’
*bau	‘hardwood taxon’
*bele	‘ <i>Abelmoschus manihot</i> ’
*beta	‘breadfruit’
*biRi-biRi	‘ <i>Hernandia nymphaefolia</i> ’
*bosi	‘a forest tree with white wood, probably <i>Euodia elleryana</i> ’
*bou	‘ <i>Fagraea</i> spp.’
*bulu	‘ <i>Garcinia</i> sp., perhaps <i>G. novo-guineensis</i> ’
*b ^(w) ala	‘tree fern, <i>Cycas</i> or <i>Cyathea</i> sp.’
*b ^w au	‘bamboo’
*b ^w ele	‘bamboo sp.’
*b ^w era	‘ <i>Musa</i> cultivar’

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Table 14.6 continued

* <i>drala</i>	‘shrub sp., <i>Vitex trifolia</i> ’
*(<i>dr,d</i>) <i>aRa(q,k)a</i>	‘wild nutmeg, <i>Myristica</i> sp.’
* <i>i(u)bu</i>	‘ <i>Corynocarpus cribbianus</i> ’
* <i>iguRa</i>	‘ <i>Ficus</i> species with sandpapery leaves, either <i>F. copiosa</i> or <i>F. wassa</i> or both’
* <i>ipi</i>	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’
* <i>jajal</i>	‘croton, <i>Codiaeum variegatum</i> ’
* <i>jamaR</i>	‘ <i>Commersonia bartramia</i> ’
* <i>jiRi</i>	‘taxon consisting of <i>Cordyline fruticosa</i> and <i>Dracaena angustifolia</i> ’
* <i>joRaga</i>	‘banana, <i>Fe’i</i> (?) cultivars’
* <i>ka(m^wa)-kam^wa</i>	‘ <i>Ficus</i> sp., perhaps <i>Ficus nodosa</i> ’
* <i>ka[(r,l)a]qabusi</i>	‘ <i>Acalypha</i> spp.’
* <i>kalaka</i>	‘ <i>Planchonella</i> sp.’
* <i>kapika</i>	‘Malay apple, rose apple, <i>Syzygium malaccense</i> ’
* <i>karag^wam</i>	‘seaweed, seagrass’
* <i>kaRi(q)a</i>	‘taxon of decorative plants’
* <i>kaRi(q)ana</i>	‘ <i>Pandanus lamekotensis</i> ’
* <i>kayu qone</i>	‘ <i>Heritiera littoralis</i> ’
* <i>koka</i>	‘ <i>Macaranga</i> spp.’
* <i>koma(r,R)(o,u)</i>	‘ <i>Endospermum</i> sp.’
* <i>kopu</i>	‘bamboo sp.’
* <i>koRa</i>	‘wild mango, <i>Mangifera minor</i> ’
* <i>kurat</i>	‘the dye produced from <i>Morinda citrifolia</i> ’
* <i>m^(w)ase</i>	‘wild mulberry, paper mulberry, <i>Broussonetia papyrifera</i> ’
* <i>ma(i)tagaR(a)</i>	‘ <i>Kleinhovia hospita</i> ’
* <i>mapuqan</i>	‘ <i>Flueggea flexuosa</i> ’ (?)
* <i>maqota</i>	‘ <i>Dysoxylum</i> spp.’
* <i>maRakita</i>	‘the putty nut, probably <i>Parinari laurina</i> and <i>Parinari glaberrima</i> ’
* <i>maRako</i>	‘ <i>Trichospermum peekelii</i> ’
* <i>mari(a)sapa</i>	‘ <i>Syzygium</i> sp.’
* <i>molis</i>	‘citrus fruit or citrus-like fruit, perhaps <i>Clymenia polyandra</i> ’
* <i>m^wala(q)u</i>	‘ <i>Glochidion philippicum</i> ’
* <i>m^walak</i> (?)	‘spider lily, <i>Crinum asiaticum</i> ’
* <i>m^waña</i>	‘ <i>Pandanus</i> sp., perhaps <i>Pandanus conoideus</i> ’
* <i>m^wapo(q)</i>	‘taro, <i>Colocasia esculenta</i> ’
* <i>m^waruqe</i>	‘ <i>Dioscorea</i> sp. or perhaps a cultivar of <i>D. alata</i> ’
* <i>nipus</i>	‘ <i>Cryptocarya</i> sp.’
* <i>ñoñu</i>	‘ <i>Morinda citrifolia</i> ’
* <i>olaña</i>	‘ <i>Campnosperma brevipetiolatum</i> ’
* <i>pakum</i>	‘ <i>Pandanus dubius</i> ’
* <i>pala(η)</i>	‘cut nut, bush nut, <i>Barringtonia novae-hiberniae</i> (green variety?)’
* <i>paliaRua</i>	‘a vine, <i>Merremia peltata</i> ’
* <i>paqo</i>	‘ <i>Heliconia</i> sp.’
* <i>paqu</i>	‘ <i>Kleinhovia hospita</i> ’
* <i>pasa(r,R)</i>	‘ <i>Vitex cofassus</i> ’

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Table 14.6 continued

* <i>pesi</i>	‘a coastal forest tree, perhaps <i>Pongamia pinnata</i> ’
* <i>pi(y)uŋ</i>	‘ <i>Miscanthus floridulus</i> ’
* <i>pijo</i>	‘cane or reed taxon, including <i>Saccharum spontaneum</i> ’
* <i>poi</i>	‘ <i>Pandanus</i> sp., perhaps <i>P. tectorius</i> ’
* <i>poka(q)</i>	‘variety of Malay apple’
* <i>(p,b)oso</i>	‘k.o. taro’
* <i>puRe</i>	‘taxon of beach creepers; perhaps prototypically <i>Ipomoea grandiflora</i> and <i>Ipomoea pes-caprae</i> ’
* <i>p^wa(k,g)e</i>	‘k.o. green vegetable (?)’
* <i>p^wabosi</i>	‘free-standing small or medium-sized <i>Ficus</i> sp., probably <i>F. wassa</i> ’
* <i>p^(w)asa(r,R)</i>	‘large <i>Pandanus</i> sp.’
* <i>p^watika</i>	‘potato yam, aerial yam, <i>Dioscorea bulbifera</i> ’
* <i>p^(w)awa(t)</i>	‘ <i>Cerbera</i> spp., probably <i>C. floribunda</i> and <i>C. manghas</i> ’
* <i>p^wete</i>	‘bird’s nest fern, <i>Asplenium nidus</i> ’
* <i>p^wi(r,R)a</i>	‘ <i>Cananga odorata</i> ’
* <i>qarop</i>	‘ <i>Premna</i> spp.’
* <i>qat(V)</i>	‘ <i>Terminalia</i> sp. with edible nut’
* <i>(q,k)atita</i>	‘the putty nut, probably <i>Parinari laurina</i> and <i>Parinari glaberrima</i> ’
* <i>(q)alipa, *lalipa</i>	‘nut sp., possibly canarium almond, <i>Canarium</i> sp.’ (?)
* <i>qope</i>	‘ <i>Gyrocarpus americanus</i> ’
* <i>quRis</i>	‘ <i>Spondias cytherea</i> ’
* <i>(quta)quta</i>	‘grass and weeds (generic)’
* <i>rabum</i>	‘grass’
* <i>Rigi</i>	‘rosewood, <i>Pterocarpus indicus</i> ’
* <i>sabakap</i>	‘ <i>Alstonia scholaris</i> ’
* <i>sakup</i>	‘banana cultivar with long fruit’ (?)
* <i>seRa</i>	‘ <i>Ficus</i> sp., perhaps <i>F. adenosperma</i> ’
* <i>sila</i>	‘Job’s tears, <i>Coix lachryma-jobi</i> ’
* <i>tamanu</i>	‘ <i>Calophyllum</i> sp.’
* <i>tapa</i>	‘ <i>Ficus tinctoria</i> ’
* <i>tapi(l)</i>	‘puzzlenut tree, <i>Xylocarpus granatum</i> ’ (?)
* <i>tapoRa</i>	‘a nut-bearing tree sp.’
* <i>tawasi</i>	‘ <i>Rhus taitensis</i> ’
* <i>toRu</i>	‘ <i>Cordia subcordata</i> ’
* <i>udu(r,R)</i>	‘ <i>Dioscorea alata</i> cultivar (?)’
* <i>wasa</i>	‘ <i>Abelmoschus manihot</i> ; green vegetables in general’
* <i>wasi-wasi</i>	‘ <i>Abroma augusta</i> ’
* <i>yaŋo</i>	‘turmeric, <i>Curcuma longa</i> ’

Table 14.7: Proto Western Oceanic plant terms with no known external cognates (22 reconstructions)

*bara	‘ <i>Macaranga</i> spp.’
*basi	‘mango’
*baul	‘mangrove, <i>Rhizophora</i> sp. (?)’
*b ^w ana	‘ <i>Intsia bijuga</i> ’
*b ^w atiq	‘banana cultivar’
*gobu	‘ <i>Dioscorea</i> sp.’
*ka(p)ul	‘seed yam’
*kamisa	‘lesser yam, <i>Dioscorea esculenta</i> ’
*kam ^(w) apaR	‘ <i>Cryptocarya</i> sp.’
*kasuwai	‘mango’
*kobo	‘taxon of <i>Macaranga</i> spp.’
*kokoi	‘mushroom sp.’
*[ku,i]Rim(a,o)	‘ <i>Octomeles sumatrana</i> ’
*lapuka	‘k.o. tree with fruit similar to breadfruit, <i>Parartocarpus venenosa</i> ’ (?)
*m ^(w) ali	‘ <i>Derris</i> sp.’
*mamisa	‘lesser yam, <i>Dioscorea esculenta</i> ’
*moke	‘ <i>Pandanus</i> sp.’
*m ^w a(r,R)e	‘taxon including <i>Codiaeum variegatum</i> and <i>Cordyline fruticosa</i> ’
*nagi	‘ <i>Cordia</i> sp.’
*(s,j)a(q,k)umu	‘ <i>Pandanus</i> sp.’
*tabun	‘ <i>Garcinia</i> sp.’
*tabuqaR	‘ <i>Saccharum edule</i> ’

Table 14.8: Proto Eastern Oceanic plant terms with no known external cognates (15 reconstructions)

*bakuRa	‘ <i>Calophyllum</i> sp., probably <i>C. kajewskii</i> ’
*buka	‘taxon of littoral trees, including <i>Pisonia</i> spp. and <i>Gyrocarpus americanus</i> ’
*bulipa	‘ <i>Ficus</i> sp.’
*gama	‘ <i>Finschia cloroxantha</i> ’
*(k)a(r,l)adroŋa	‘ <i>Acalypha</i> sp.’
*koka	‘tree sp., <i>Bischofia javanica</i> ’
*mab ^w e	‘Tahitian chestnut, <i>Inocarpus fagifer</i> ’
*melo	‘ <i>Elaeocarpus angustifolius</i> ’
*milo	‘ <i>Thespesia populnea</i> ’
*m ^w a(q)ele	‘a cycad, <i>Cycas rumphii</i> ’
*pakalo, *p ^w akala (?)	‘ <i>Hibiscus</i> sp.’
*paRage	‘ <i>Pangium edule</i> ’
*pinuaq	‘a nut tree, perhaps <i>Canarium</i> sp. (?)’
*rako	‘ <i>Heliconia</i> sp., usually <i>H. indica</i> ’
*sinu	‘taxon of shrubs whose sap causes irritation, including species of <i>Phaleria</i> ’

Table 14.9: Proto Remote Oceanic plant terms with no known external cognates (6 reconstructions)

* <i>buavu</i>	' <i>Hernandia</i> sp.'
* <i>maRi</i>	'breadfruit'
* <i>sasaRu</i>	' <i>Abelmoschus manihot</i> '
* <i>vaRo</i>	' <i>Neisosperma oppositifolium</i> '
* <i>vuba</i>	'k.o. vine, probably <i>Derris elliptica</i> '
* <i>wasi-wasi</i>	' <i>Sterculia vitiensis</i> '

Appendix A: Data sources and collation

1 Data sources

The subject matter of this volume is quite narrowly constrained. As a result we collated data not only from the sources used for the project generally but also from compilations of plant names in a number of languages. Both the general and the plant name data sources are listed below. The source of an item is generally listed against it in the text only where it is not one of those listed below or where it is an exceptional source for that particular language.

1.1 General sources

Sources are conveniently divided into published and unpublished.

1.1.1 Published sources

In alphabetical sequence of language, published sources are:

Amara	Thurston (1984)
Anejoñ (= Aneityum)	Lynch (2001 <i>c</i>)
Araki	François (2002)
'Are'are	Geerts (1970)
Arosi	Fox (1978)
Asuboa	Tryon & Hackman (1983)
Bareke	Tryon & Hackman (1983)
Bugotu	Ivens (1940)
Carolinian	Jackson & Marck (1991)
Cèmuhî	Rivierre (1994)
Chuukese (= Trukese)	Goodenough & Sugita (1990)
Bauan Fijian (= Standard Fijian)	Capell (1941)
Boumaa Fijian	R. M. W. Dixon (1988)
Dobu	J. W. Dixon (n.d.), Grant (1953)
Fwâi	Haudricourt & Ozanne-Rivierre (1982)
Gapapaiwa	McGuckin & McGuckin (1995)
Gedaged	Mager (1952)
Gela (= Nggela)	Fox (1955)
Ghanongga	Tryon & Hackman (1983)
Hawaiian	Pukui & Elbert (1971)
Iamalele	Beaumont & Beaumont (2007)

Jawe	Haudricourt & Ozanne-Rivierre (1982)
Kairiru	Wivell (1981)
Katazi	Tryon & Hackman (1983)
Kilivila	Senft (1986)
Kiribati (= Gilbertese)	Sabatier (1971), Thaman (1987)
Kokota	Palmer (2004)
Kosraean (= Kusaiean)	Lee (1976)
Kove	Chowning (1996)
Kwaio	Keesing (1975)
Kwamera	Lynch (2001c)
Lau	Fox (1974)
Lenakel	Lynch (1977)
Lewo	Early (n.d.)
Loniu	Hamel (1994)
Lou	Blust (1998a)
Makura	Tryon & Hackman (1983)
Malagheti	Tryon & Hackman (1983)
Maori	Williams (1971)
Maringe (= Cheke Holo = Hograno)	White et al. (1988)
Marovo	Hviding (1995)
Marshallese	Abo et al. (1976)
Minaveha	Nenegemo & Lovell (1995)
Mokilese	Harrison & Albert (1977)
Mota	Codrington & Palmer (1896)
Motu	Lister-Turner & Clark (1954)
Mussau	Blust (1984)
Muyuw	Lithgow & Lithgow (1974)
Nagu	Tryon & Hackman (1983)
Nakanai	Chowning (1996)
Nebao	Tryon & Hackman (1983)
Nehan	Glennon & Glennon (2005)
Nemi	Haudricourt & Ozanne-Rivierre (1982)
Niuean	Sperlich (1997)
Nokuku	Tryon (1976)
North Tanna	Lynch (2001c)
Nyelâyu	Ozanne-Rivierre (1998)
Paamese	T. Crowley (1992)
Pije	Haudricourt & Ozanne-Rivierre (1982)
Ponapean	Rehg & Sohl (1979)
Puluwatese	Elbert (1972)
Rennell and Bellona	Elbert (1975)
Roviana	Waterhouse (1949)
Sa'a and Ulawa	Ivens (1918, 1929)
Samoan	Milner (1966)
Sengseng	Chowning (1996)
Sesake	Tryon (1976)

South Efate	Thieberger (2006 <i>b</i>)
South-west Tanna	Lynch (2001 <i>c</i>)
Sudest	Anderson (1990)
Sye (= Sie, Eromango)	T. Crowley (2000), Lynch (2001 <i>c</i>)
Tanabili	Tryon & Hackman (1983)
Tanema	Tryon & Hackman (1983)
Teanu (= Buma)	Tryon & Hackman (1983)
Tikopia	Firth (1985)
To'aba'ita	František Lichtenberk (2008)
Tolai (= Kuanua, Raluana)	Rickard (1888), Lanyon-Orgill (1962)
Tolo	S. S. Crowley (1986)
Tolomako	Tryon (1976)
Tongan	Churchward (1959)
Ughele	Tryon & Hackman (1983)
Ura	Lynch (2001 <i>c</i>)
Vano	Tryon & Hackman (1983)
Wayan Fijian	Pawley & Sayaba (2003)
Wedau	Jennings (1956)
Whitesands	Lynch (2001 <i>c</i>)
Woleaian	Sohn & Tawerilmang (1976)
Yabem (= Jabêm)	Streicher (1982)

1.1.2 Unpublished sources

1. Manuscript word lists for NE Ambae by Catriona Hyslop, Babatana by Lucy Money, Kiriwina (= Kilivila) by Ralph Lawton, Mekeo by Alan Jones, Molima and Nakanai by Ann Chowning, Mutu by Alice Pomponio, Mwotlap by Alexandre François, Nduke by Ian Scales, Ninigo (= Seimat) by W. Smythe, Tamambo (= Malo) by Dorothy Jauncey, Titan by Claire Bower and Zabana (= Kia) by D. Ama and M. Fitzsimons.
2. Electronic files provided by a number of scholars, some of which are themselves based on a variety of primary sources. The files include:
 - a) The electronic files of lexical data collated during the research leading to the publication of Ross (1988), whose sources are listed in Appendices A and B of that work.
 - b) The electronic files from the *Comparative Austronesian Dictionary* project which resulted in Tryon (1995), which lists its own sources.
 - c) The electronic files of Robert Blust's *Austronesian Comparative Dictionary*, stored at the University of Hawai'i. The version to which we refer dates from 1998, and is abbreviated in this volume as ACD.
 - d) The electronic files of Biggs and Clark's *POLLEX: Proto Polynesian lexicon* on disk at the University of Auckland. We refer mostly to a December 1993 version, abbreviated POLLEX, and occasionally to a June 2006 version, abbreviated POLLEX2, which became available in the closing stages of this volume's preparation.

- e) Electronic files of reconstructions with supporting cognate sets for North/Central Vanuatu (Clark 1996*b*), Southern Vanuatu (Lynch 1996, now published as part of Lynch 2001*c*), and Micronesian (Bender et al. 1983, now included in Bender et al. 2003).
- f) Electronic files of dictionaries in progress provided by Joel Bradshaw (for Numbami), Deborah Hill (for Longgu) and Malcolm Ross (for Takia).
- g) Electronic files of dictionaries in progress kindly made available by members of the Summer Institute of Linguistics. Languages and those who compiled/supplied the dictionary are as follows: Arop-Lokep (Jeffrey and Lucille D’Jernes), Bariai (Steve Gallagher), Bing (Doug Bennett), Bola (Brent Wiebe), Mapos Buang (Bruce Hooley), Iduna (Joyce Hockett), Dami (George Elliott), Dawawa (Martin and Beate Knauber), Gapapaiwa (Ed and Catherine McGuckin), Gumawana (Clif Olson), Hote (Marguerite Muzzey), East Kara (Perry and Virginia Schlie), Kaulong (Craig Throop), Drehet [= Khehek] (Stephan Beard), Lewo (Robert Early), Lou (Robert and Verna Stutzman), Lukep [= Pono] (Jeff and Sissie D’Jernes), Manam (Stephen and Kim Blewett), Mangseng (Lloyd Milligan), Mangap-Mbula (Robert and Salme Bugenhagen), Mengen (Fred Madden), Misima (Bill Callister), Mumeng [Patep] (Linda Vissering and Karen Wilson), Mussau (John Brownie), Nakanai (Ray Johnston), Nehan (John and Ariana Glennon), Nochi (Leland and Laurinda Erickson), Patpatar (Ed Condra), Ramoaaina [= Duke of York] (Lisbeth Fritzell and Robyn Davies), Siar (Larry Erdman), Sinaugoro (Gerhard Tauberschmidt), Sio (Stephen and Dawn Clark), Sissano [Arop] (Stephen Whitacre), Sudest (Mike Anderson), Sursurunga (Don Hutchisson), Takia (Salme Bugenhagen, Judy Rehberg, Curtis Thomas), Tawala (Bryan Ezard), Teop (David Snyder), Tinputz (Roman Hostetler), Titan (Keith Lusk), Tuam (Robert and Salme Bugenhagen).

1.2 Plant name sources

The major source for Vanuatu and New Caledonia was Lynch (2004*a*), which collates data from a variety of sources including Clark (1996*a*) and Lynch (2001*c*). Some items from Vanuatu languages were also taken from Gowers (1976) and Wheatley (1992), and Walsh (2004) provided a number of Raga items.

All or almost all plant names for each of the languages listed below were drawn from the source(s) shown.

Aiwoo	Henderson & Hancock (1988)
Araki	François (2004)
Babatana	McClatchey et al. (2005)
Baluan	McEldowney (1995)
Bipi	O’Collins & Lamothe (1989)
Bola	Kononenko (2005) ¹
Kairiru	Borrell (1989)
Kara (East)	Peekel (1984)

¹ This database is drawn from Floyd (1954), Lentfer (2003) and Powell (1976).

Kiribati	Thaman & Tebano (n.d.)
Kubukota	Raymond & McDougall (2006)
Kwara'ae	Henderson & Hancock (1988), Kwa'ioloa & Burt (2001), Scales (2003)
Lavongai	Holdsworth et al. (1978)
Lihir	S. Foale (2001), Burley (2006)
Lukep (Pono)	Ball & Hughes (1982)
Madak	Peekel (1984)
Maenge	Panoff (1972)
Marovo	Hviding (1990, 2005)
Misima	Kinch (1999)
Mwotlap	François (2004)
Mussau	Lepofsky (1992)
Muyuw	Damon (2004)
Nduke	Scales (2006)
Nendö	Henderson & Hancock (1988)
Nginia	Henderson & Hancock (1988)
Nyindrou	O'Collins & Lamothe (1989)
Patpatar	Peekel (1984)
Petats	Blackwood (1935), Record (1945)
Ririo	McClatchey et al. (2005)
Roviana	Waterhouse (2005)
Saliba	Margetts (2005 <i>a</i>)
Samoan	Whistler (2000)
Santa Ana	Henderson & Hancock (1988)
Sobei	Ajamiseba et al. (1987)
Tangga	Bell (1946), Bell (1947)
Teop	Record (1945)
Tinputz	Blackwood (1935)
Tolai	Peekel (1984)
Tongan	Whistler (1991 <i>b</i>)
Vurës	François (2004)
Wayan Fijian	Gardner & Pawley (2006)
Wedau	Kahn (1986)

Other botanical sources were also used, but yielded so few items that we have shown the source against them in the text.

2 Linnaean terms

It is quite common to find different Linnaean terms in the literature for the same species. I have relied on two internet publications, the International Plant Name Index (IPNI) and the Australian Plant Name Index (APNI) to resolve these conflicts. These sources are listed in the references as IPNI (2004) and APNI (1991) respectively.

3 Collation

The collation stage of the project consisted in the first instance of creating a data base of vocabulary materials in a defined set of semantic domains from Oceanic languages for which data were already available (see §1.1). This data base was kept in text files on Macintosh computers. Files were organised in accordance with a modified version of the Summer Institute of Linguistics' 'standard format' in which fields within each record are labelled with an initial backslash followed by a single letter. In our version of the format, each record was terminated with a carriage return, i.e. each record occupied a single line. Each record contained a single word in a single language with associated information (a code relating to the language's subgroup, a gloss and any other semantic information, the source, and any other notes the researcher chose to add). The Macintosh allowed non-standard characters to be created and viewed on screen. Records were organised on screen into putative cognate sets. The use of text files rather than files in a proprietary database format meant (i) that it was easy to view them on screen; (ii) that it was easy to manipulate them with a variety of text editors and word processors; (iii) that more complex repetitive processes could be performed by writing small programs in the Icon programming language Griswold & Griswold 1990; and (iv) that it was relatively easy to import and reformat other people's data sets and to export collated material into publications in preparation.

Although there are accepted or standard orthographies for a number of the languages from which data are cited here, data were transcribed at the collation stage into a standard orthography (see Ross 1988: 3–4) to enable us to recognise cognates and to spot regular changes more quickly. This orthography is retained in the citation of data in these volumes.

Appendix B: Languages

1 Introduction

In §2 we list in their putative subgroups all the Oceanic languages to which we refer in this volume. The higher-order subgroups are those described in chapter 1, §3.2. Lower-order groups are drawn from the classification in Lynch et al. (2002), and in addition for Western Oceanic from Ross (1988), for Temotu from Ross & Næss (2007), for Southern Oceanic from Lynch (1999, 2000, 2006), for Micronesian from Bender et al. (2003) and for Polynesian from Marck (2000). In §3 we provide an index to §2, followed by maps showing approximate locations of the languages.

Square brackets enclose the subgroup abbreviations used in the data. Parentheses include dialect names or, where an equals sign is used, an alternative name or names for the language. The difficulty of deciding where the borderline between dialect and language lies, combined with the fact that these volumes contain work by a number of contributors, has resulted in some inconsistency in the naming of dialects in the cognate sets. Some occur in the form ‘Kara (East)’, i.e. the East dialect of the Kara language, or ‘Halia (Haku)’, i.e. the Haku dialect of the Halia language, whilst others are represented simply by the dialect name, e.g. Iduna, noted in the list below as ‘Iduna (= dialect of Bwaidoga)’. Where a language has several dialects, these are shown below in the form ‘Mumeng (Patep, Zenag, Kumaru)’, where Patep, Zenag and Kumaru are dialects of Mumeng.

2 Languages by subgroups

1. Yapese (perhaps more closely related to Admiralties than elsewhere)
2. *St Matthias* [Adm] (perhaps more closely related to Admiralties than elsewhere)
Mussau
3. *Admiralties* [Adm]
 - 3.1. *Western Admiralties*
Aua
Seimat (= Ninigo)
Wuvulu
 - 3.2. *Eastern Admiralties*
 - 3.2.1. *Manus*
Bipi
Drehet (= Ndrehet, Khehek, Levei-Tulu)

Ere
Hus
Kurti
Leipon (= Pitilu)
Likum
Loniu
Nali
Nyindrou
Papitalai
Sori-Harengan
Titan

3.2.2. *Southeast Admiralties*

Baluan
Lenkau
Lou
Nauna
Pak¹

4. *Western Oceanic*

4.1. *New Guinea Oceanic*

4.1.1. *North New Guinea* [NNG]

4.1.1.1. *Schouten*

Ali
Bam
Kaiep
Kairiru
Kis
Manam
Medebur
Sissano (Arop)
Ulau-Suain
Wogeo

4.1.1.2. *Huon Gulf*

4.1.1.2.1. *North Huon Gulf*

Kela
Yabem (= Jabêm)

4.1.1.2.2. *Markham*

Adzera
Labu
Mari
Middle Watut (= Bubwaf) North Watut (= Unank, Onank)
Sirasira
Sukurum

¹ In volume 2 Pak is incorrectly attributed to Eastern Admiralties.

- Wampur
- Yalu
- 4.1.1.2.3. *South Huon Gulf*
 - Hote
 - Kaiwa
 - Kapin
 - Mapos Buang (= dialect of Buang)
 - Misim (= dialect of Hote)
 - Mumeng (Patep, Zenang, Kumaru)
- 4.1.1.2.4. Numbami
- 4.1.1.3. *Ngero/Vitiaz*
 - 4.1.1.3.1. *Ngero*
 - Bariai
 - Gitua
 - Kove
 - Malai
 - Malalamai
 - Mutu
 - Tuam
 - 4.1.1.3.2. *Bel*
 - Bilibil (= Bilbil)
 - Bing (= Biliau)
 - Dami (= Ham)
 - Gedaged
 - Matukar
 - Megiar (= dialect of Takia)
 - Mindiri
 - Takia
 - Riwo (= dialect of Gedaged)
 - Wab
 - 4.1.1.3.3. *Vitiaz Strait* (areal grouping only)
 - Amara
 - Barim
 - Kilenge
 - Lukep (Pono) (= Arop-Lokep)
 - Malasanga
 - Mangap (= Mangap-Mbula, Kaimanga)
 - Mato (= Nenaya, Nengaya)
 - Roinji (= Ronji, Rondi)
 - Sio
 - Tami
 - 4.1.1.3.4. *Southwest New Britain*
 - Akolet
 - Aria
 - Atui

- Kaulong
- Mangseng
- 4.1.1.3.5. *Mengen*
 - Kakuna (= dialect of Mamusi)
 - Longeinga (= Bush Mengen)
 - Maenge (= Coastal Mengen, Poeng)
 - Mamusi
 - Uvol
- 4.1.2. *Sarmi/Jayapura* [SJ] (perhaps part of North New Guinea)
 - 4.1.2.1. *Sarmi*
 - Sobei
 - 4.1.2.2. *Jayapura*
 - Ormu
- 4.1.3. *Papuan Tip* [PT]
 - 4.1.3.1. *Nuclear Papuan Tip*
 - 4.1.3.1.1. *Suauic*
 - 'Auhelawa (= Kurada)
 - Suau (Dau, Kwato Suau, Saliba/Sariba)
 - Tubetube
 - 4.1.3.1.2. *North Mainland/D'Entrecasteaux*
 - 4.1.3.1.2.1. Gumawana (= Gumasi)
 - 4.1.3.1.2.2. *Dobu/Duau*
 - Dobu
 - Duau
 - 4.1.3.1.2.3. *Bwaidoga*
 - Bwaidoga
 - Diodio
 - Iamalele (= Yamalele)
 - Iduna (= dialect of Bwaidoga)
 - Kalokalo
 - Molima
 - 4.1.3.1.2.4. *Kakabai/Dawawa*
 - Dawawa
 - Kakabai (Igora)
 - 4.1.3.1.2.5. *Are/Taupota*
 - Are
 - Boanaki (= Boianaki)
 - Gapapaiwa (= Paiwa)
 - Maisin
 - Minaveha (= Kukuya)
 - Taupota
 - Tawala
 - Ubir
 - Wedau

- 4.1.3.2. *Kilivila/Misima*
 - Budibud
 - Kilivila (= Kiriwina)
 - Misima
 - Muyuw
- 4.1.3.3. *Nimoo/Sudest*
 - Nimoo
 - Sudest (= Pamela), Sudest (Varavarae)
- 4.1.3.4. *Central Papuan*
 - Balawaia (= dialect of Sinaugoro)
 - Doura
 - Gabadi
 - Hula (= dialect of Keapara)
 - Kuni
 - Lala (= Nara, 'Ala'ala, Pokau)
 - Magori
 - Mekeo
 - Motu
 - Roro
 - Taboro (= dialect of Sinaugoro)
- 4.2. *Meso-Melanesian* [MM]
 - 4.2.1. *Bali-Vitu*
 - Bali
 - Vitu
 - 4.2.2. *Willaumez*
 - Bola
 - Bulu
 - Meramera
 - Nakanai (= Lakalai)
 - 4.2.3. *New Ireland/Northwest Solomonian*
 - 4.2.3.1. *Tungag/Nalik family*
 - Kara (East, West)
 - Lavongai (= Tungak, Tungag)
 - Nalik
 - Tiang
 - Tigak
 - 4.2.3.2. *Tabar linkage*
 - Lihir
 - Notsi (= Nochi)
 - Tabar
 - 4.2.3.3. *Madak linkage*
 - Barok
 - Lamasong
 - Madak
 - 4.2.3.4. Tomoip

4.2.3.5. *St George linkage*

4.2.3.5.1. *South New Ireland (areal grouping)*

Bilur

Kandas

Konomala

Label

Minigir (= Vinitiri)

Patpatar

Ramoaina (= Duke of York)

Siar

Sursurunga

Tangga (= Tanga)

Tolai (= Kuanua, Raluana, Tuna), Tolai (Nodup)

4.2.3.5.2. *Northwest Solomonian linkage*

4.2.3.5.2.1. *Nehan/North Bougainville*

Halia (Haku), Halia (Selau)

Nehan

Petats

Solos

Taiof

Teop

Tinputz

4.2.3.5.2.2. *Piva/Banoni*

Banoni

4.2.3.5.2.3. *Mono-Alu/Torau*

Mono-Alu

Torau

Uruava

4.2.3.5.2.4. *Choiseul*

Avasö

Babatana

Ririo

Sisiqa (= Sisingga, Sengga)

Vaghua

Varisi

4.2.3.5.2.5. *New Georgia*

Hoava

Kubukota

Kusaghe

Lungga

Marovo

Nduke

Roviana

Simbo

Vangunu

4.2.3.5.2.6. *Ysabel*

Blablanga

Gao

Kia (= Zabana)

Kokota

Maringe (= Cheke Holo, Hograno)

5. *Southeast Solomonic* [SES]

5.1. *Bugotu/Gela/Guadalcanal*

5.1.1. Bugotu

5.1.2. *Gela/Guadalcanal*

Baegu

Birao

Gela

Lengo

Ghari (= Nginia)

Talise

Tolo

West Guadalcanal

5.2. *Longgu/Malaita/Makira*

5.2.1. Longgu

5.2.2. *Malaita/Makira*

'Are'are

Arosi

Baelelea (= dialect of Lau)

Bauro

Dori'o

Fagani

Kahua

Kwaio

Kwara'ae

Lau

Sa'a

Santa Ana

To'aba'ita (= Toqabaqita)

Ulawa

6. *Temotu* [TM]

6.1. *Reefs and Santa Cruz*

Äiwoo (= Reefs)

Nagu

Natügu (= Malo, Lödäi, Nedö)

6.2. *Utupua/Vanikoro*

Asuboa

Buma (= Teanu)

Nebao (= Aba)

Tanema (= Tanima, Tetau)

Tanibili

Vano (= Vana)

7. *Southern Oceanic*

7.1. *North Vanuatu linkage* [part of NCV]

7.1.1. *Banks and Torres*

Dorig

Hiw (= Siw)

Lakon

Lemerig (= dialect of Merlav)

Lehali

Loh

Merlav

Mota

Mwesen (= Mosina)

Mwotlap (= Motlav)

Vera'a (= Vatrata)

Volow (= dialect of Mwotlap)

Vurës

7.1.2. *Northwest Santo*

Nokuku

Tasmate

Tolomako

7.1.3. *Southeast Santo*

Araki

Aore

Kiai (= Fortsenal)

Morouas

Tamambo (= Tamabo, Malo)

Tambotalo

Tangoa

Wusi

7.1.4. Sakao

7.1.5. *Ambae/Maewo/North Pentecost*

Maewo

Nduindui (= Ngwatua, Duidui)

Northeast Ambae (= NE Aoba)

Raga

7.2. *Nuclear Southern Oceanic*

7.2.1. *Central Vanuatu linkage* [part of NCV]

7.2.1.1. *Malakula*

7.2.1.1.1. *East Malakula linkage*

Atchin

Aulua

- Avava
- Larëvat
- Nese
- Port Sandwich
- Rerep (dialect of Unua)
- Unua
- Uripiv
- 7.2.1.1.2. *West Malakula linkage*
 - Big Nambas (= V'ënen Taut)
 - Naman
 - Nati
 - Neve'ei
 - Labo (= Ninde)
 - Southwest Bay (= Nahavaq)
 - Tape
- 7.2.1.2. *Pentecost*
 - Apma
 - Sa
- 7.2.1.3. *Ambrym/Paama*
 - Lonwolwol
 - N Ambrym
 - Paamese
 - SE Ambrym
- 7.2.1.4. *Epi/Efate*
 - Baki
 - Lewo
 - Nakanamanga (= North Efate)
 - Namakir (= Namakura, Makura)
 - Nguna (= dialect of Nakanamanga)
 - Sesake (= dialect of Nakanamanga)
 - South Efate
- 7.2.2. *Southern Melanesian*
 - 7.2.2.1. *South Vanuatu [SV]*
 - Anejoñ (= Aneityum)
 - Kwamera
 - Lenakel
 - North Tanna
 - South-west Tanna
 - Sye (= Sie, Eromangan)
 - Ura
 - Whitesands
 - 7.2.2.2. *New Caledonia [NCal]*
 - 7.2.2.2.1. *North New Caledonia*
 - Fwâi
 - Jawe

Pije
Pwapwâ
Nemi
Nêlêmwa
Nyelâyu
Paicî
Yuanga

7.2.2.2.2. *South New Caledonia*
Xârâcùù (= Canala)

7.2.2.2.3. *Loyalties*
Dehu (= Drehu)
Iaai

8. *Micronesian* [Mic]

8.1. Nauruan

8.2. *Nuclear Micronesian*

8.2.1. Kosraean (= Kusaeian)

8.2.2. *Central Micronesian*

8.2.2.1. Kiribati (= Kiribatese, Gilbertese)

8.2.2.2. *Western Micronesian*

8.2.2.2.1. Marshallese

8.2.2.2.2. *Chuukic-Ponapeic*

Carolinian

Chuukese (= Trukese)

Mokilese

Mortlockese

Ponapean (= Pohnpeian)

Pulo-Annan (dialect of Sonsorolese)

Puluwatese

Satawalese

Sonsorolese

Ulithian

Woleaian

9. *Central Pacific* [Fij and Pn]

9.1. *Western Fijian linkage*

9.1.1. Rotuman

9.1.2. *Western Fijian languages*

Ba

Lautoka

Nadrogā

Wayan

Yasawa

9.2. *Eastern Fijian/Polynesian linkage*

9.2.1. *Eastern Fijian languages*

Bauan (= Standard Fijian)

Bua

Buca Bay

Kadavu

Lau

9.2.2. *Polynesian*9.2.2.1. *Tongic*

Niuean

Tongan

9.2.2.2. *Nuclear Polynesian*

Anutan

East Uvean

East Futunan

Emae

Pileni

Pukapukan

Rennellese

Tikopia

West Futunan (= Futuna-Aniwa)

West Uvean

Ifira-Mele (= Mele-Fila)

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Kapingamarangi

Luangiua (= Ontong Java)

Nukuoro

Nukuria

Sikaiana

Takuu

Tokelauan

Tuvalu (= Ellicean)

B. *Eastern Polynesian*

a. Rapanui (= Easter Island)

b. *Central Eastern Polynesian*i. *Marquesic*

Hawaiian

Mangarevan

Marquesan

ii. *Tahitic*

Mangaia (= dialect of Rarotongan)

Manihiki

Māori

Rarotongan
Rurutu (= Austral)
Tahitian
Tongarevan (= Penrhyn)
Tuamotuan

3 Language finderlist

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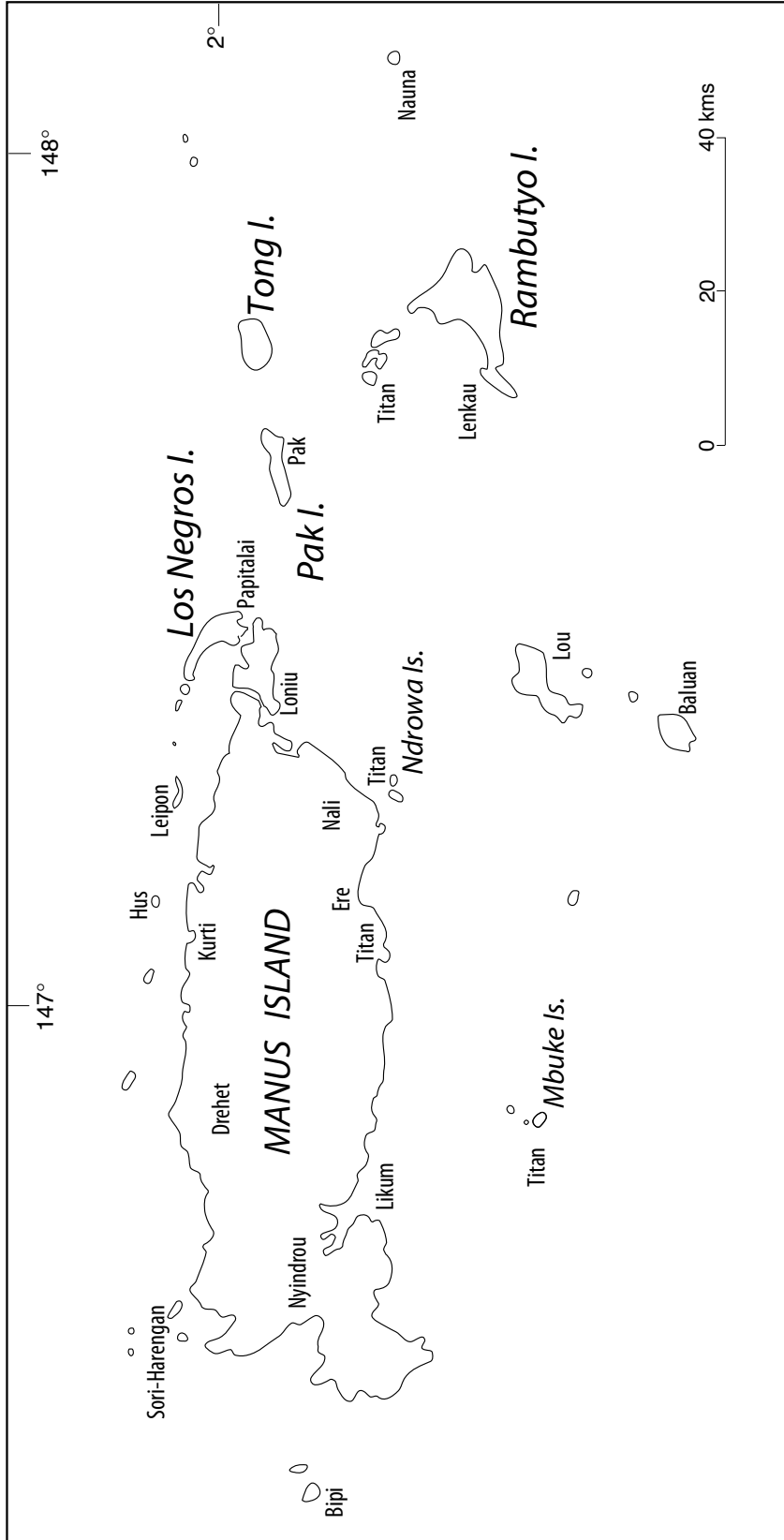
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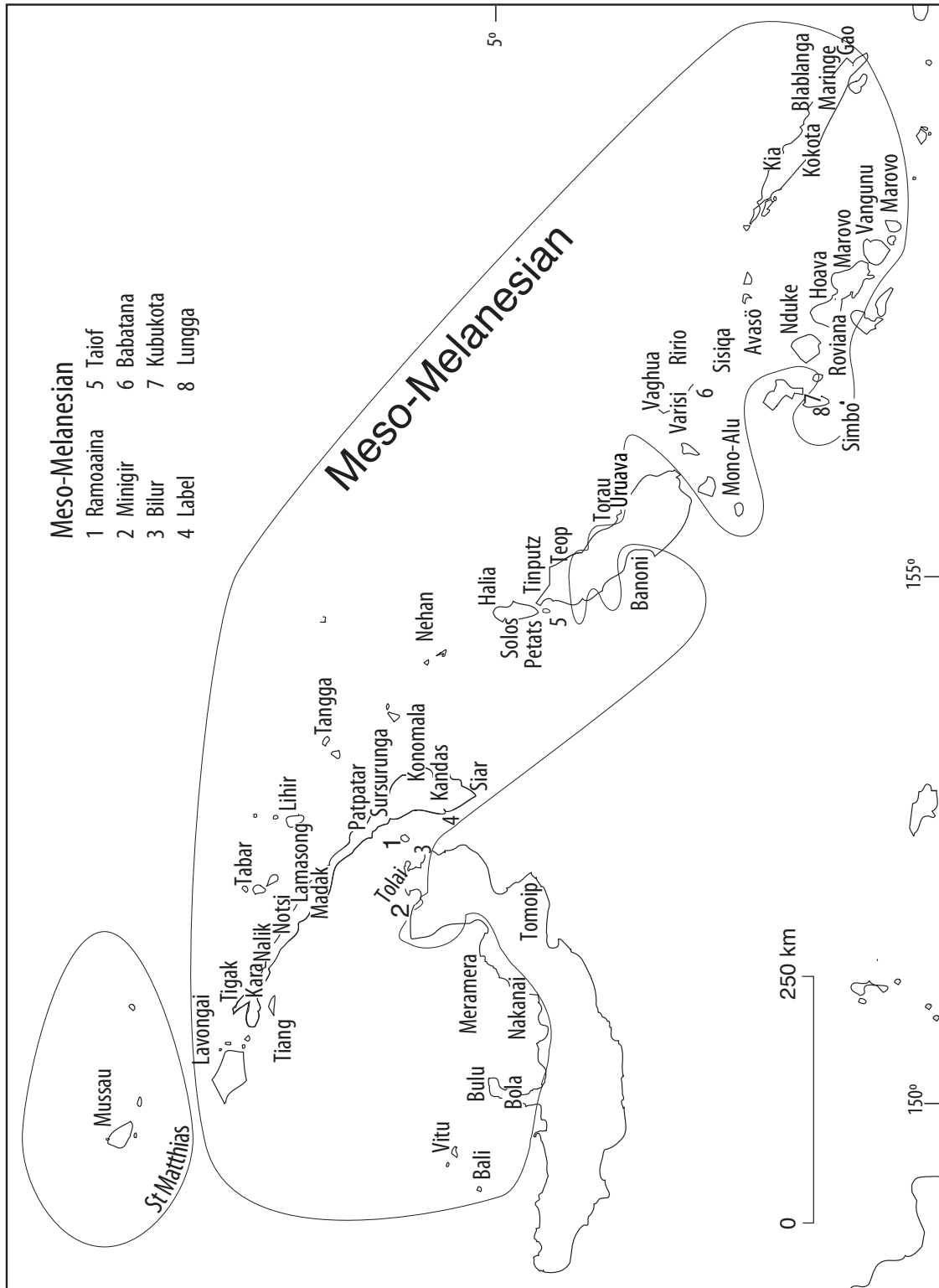
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 Uripiv 7.2.1.1.1.
 Uruava 4.2.3.5.2.3.
 Uvol 4.1.1.3.5.
 V'ënen Taut (= Big Nambas) 7.2.1.1.2.
 Vaghua 4.2.3.5.2.4.
 Vana (= Vano) 6.2.
 Vangunu 4.2.3.5.2.5.
 Vano 6.2.
 Varisi 4.2.3.5.2.4.
 Vatrata (= Vera'a) 7.1.1.
 Vera'a 7.1.1.
 Vinitiri (= Minigir) 4.2.3.5.1.
 Vitu 4.2.1.
 Volow 7.1.1.
 Vurës 7.1.1.
 Wab 4.1.1.3.2.
 Wampur 4.1.1.2.2.
 Watut, North 4.1.1.2.2.
 Wayan 9.1.2.
 Wedau 4.1.3.1.2.5.
 West Futunan 9.2.2.2.
 West Guadalcanal 5.1.2.
 West Uvean 9.2.2.2.

Whitesands 7.2.2.1.
Wogeo 4.1.1.1.
Woleaian 8.2.2.2.2.
Wusi 7.1.3.
Wuvulu 3.1.
Xârâcùù 7.2.2.2.2.
Yabem 4.1.1.2.1.

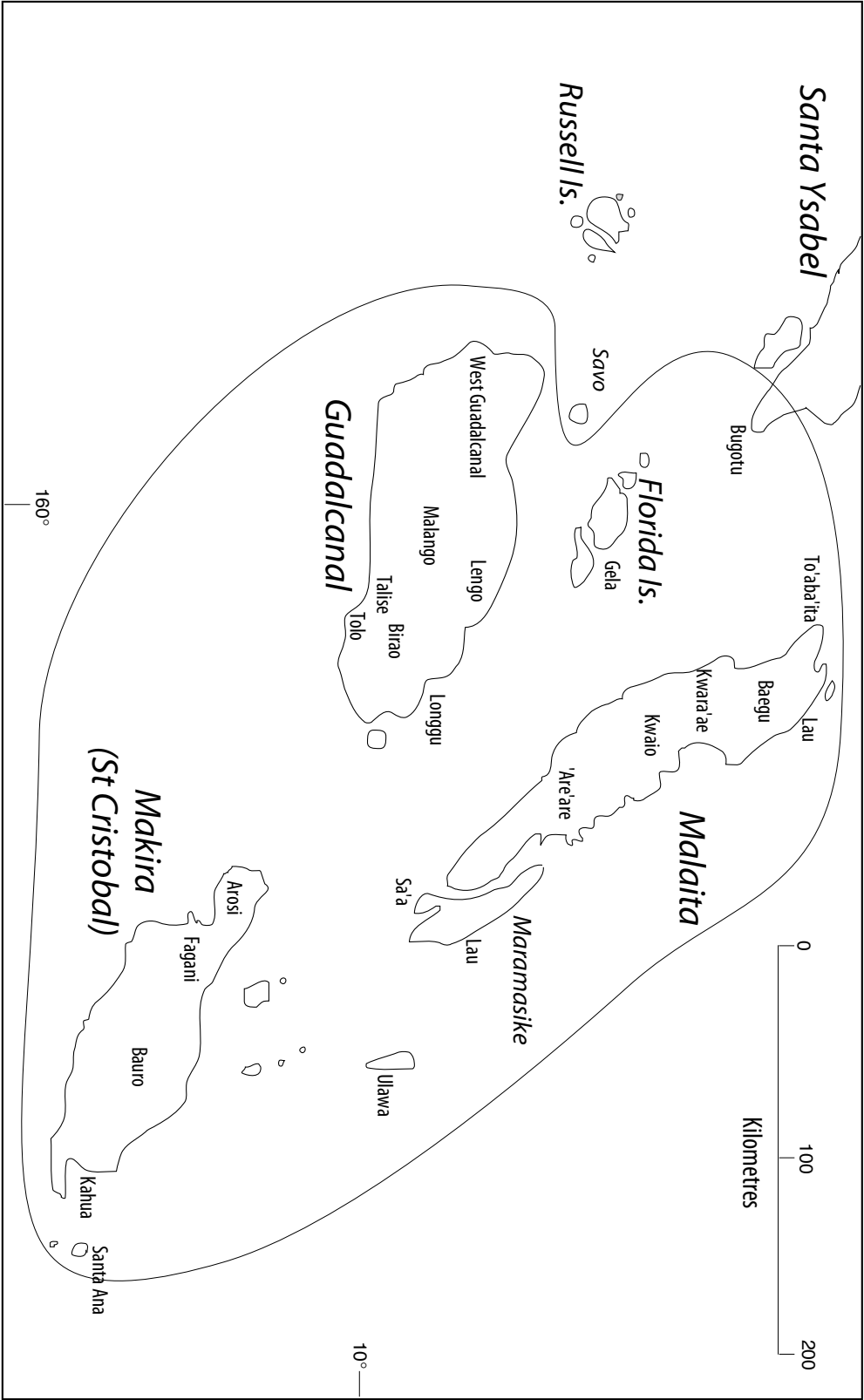
Yalu 4.1.1.2.2.
Yamalele (= Iamalele) 4.1.3.1.2.3.
Yap 1.
Yasawa 9.1.2.
Yuanga 7.2.2.2.1.
Zabana (= Kia) 4.2.3.5.2.6.
Zenag (dialect of Mumeng) 4.1.1.2.3.



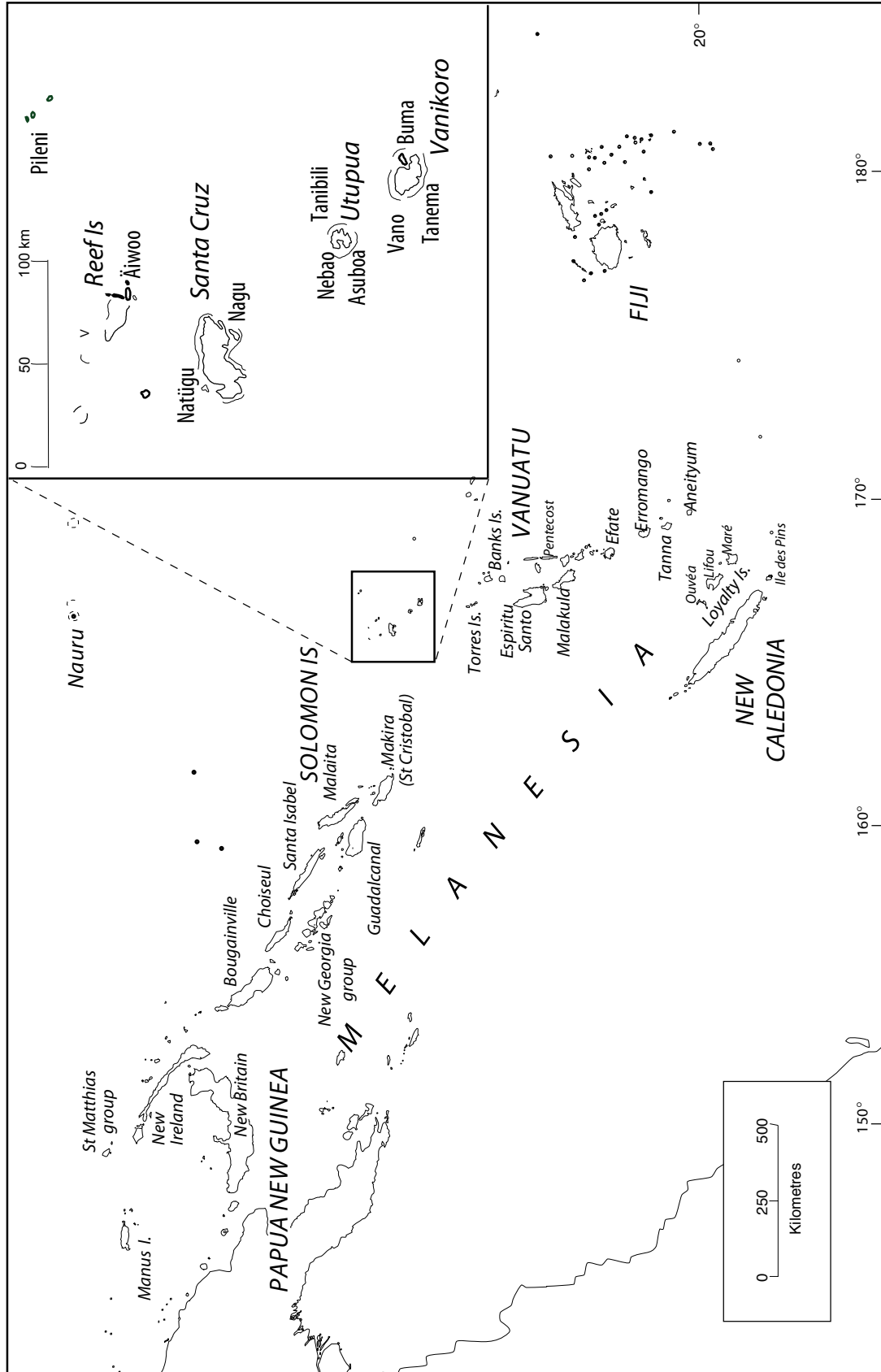
Map 5 Locations of Admiralties (Adm) languages
(for Wuvulu, Aua and Seimat, see Map 6; for Mussau, Emira and Tench, see Map 7)



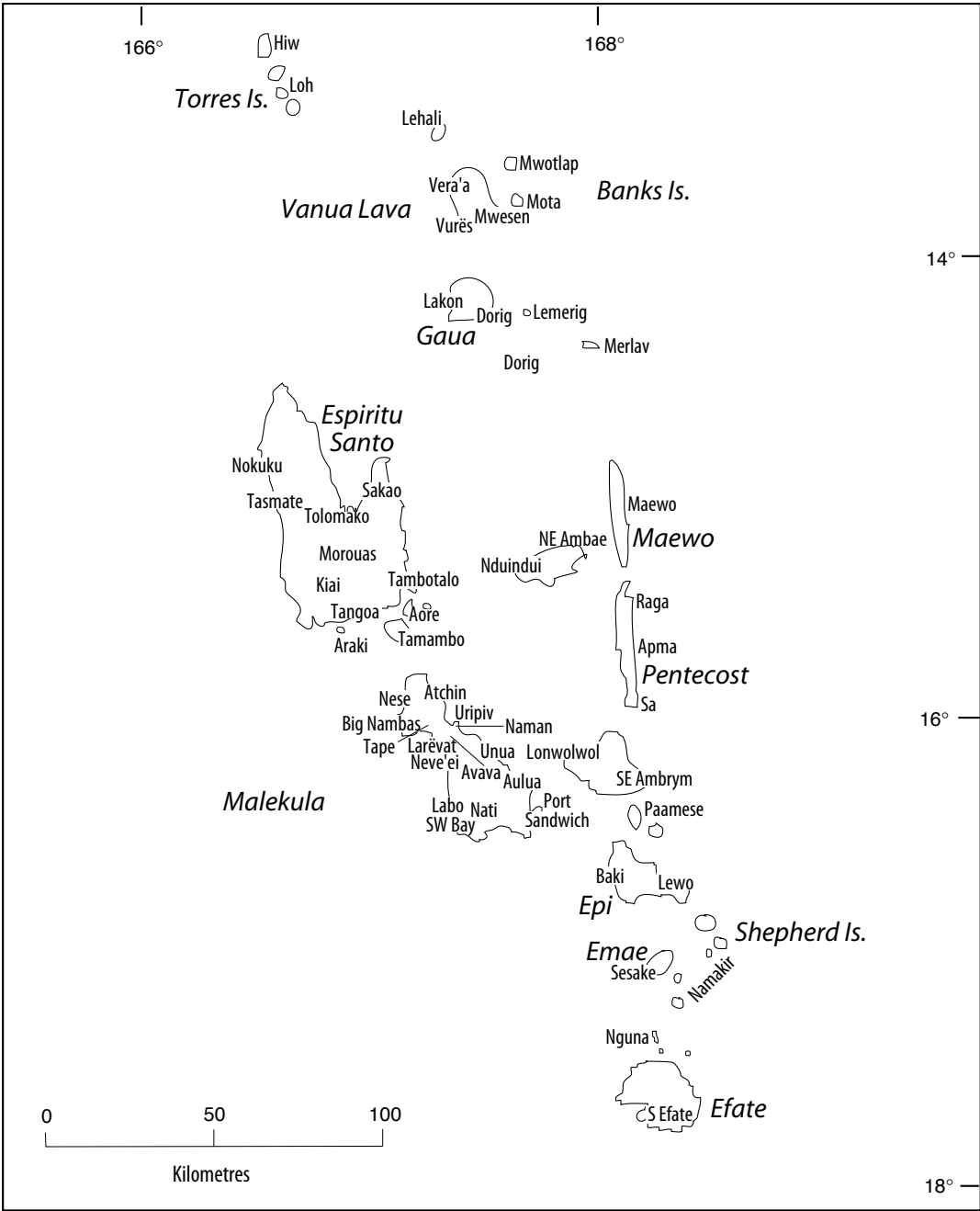
Map 7 Locations of languages of the Meso-Melanesian (MM) cluster and the St. Matthias group



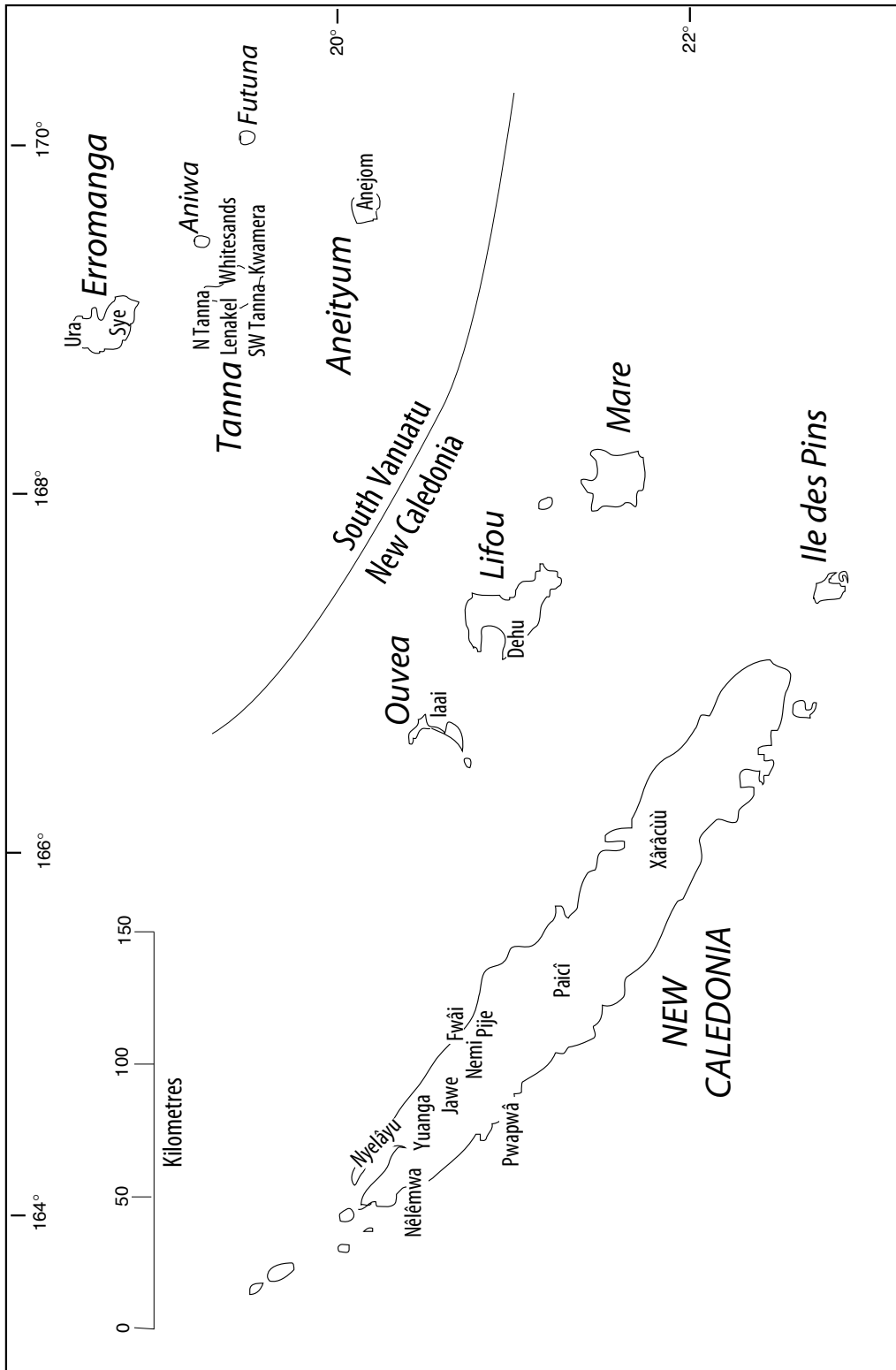
Map 8 Locations of Southeast Solomonian (SES) languages



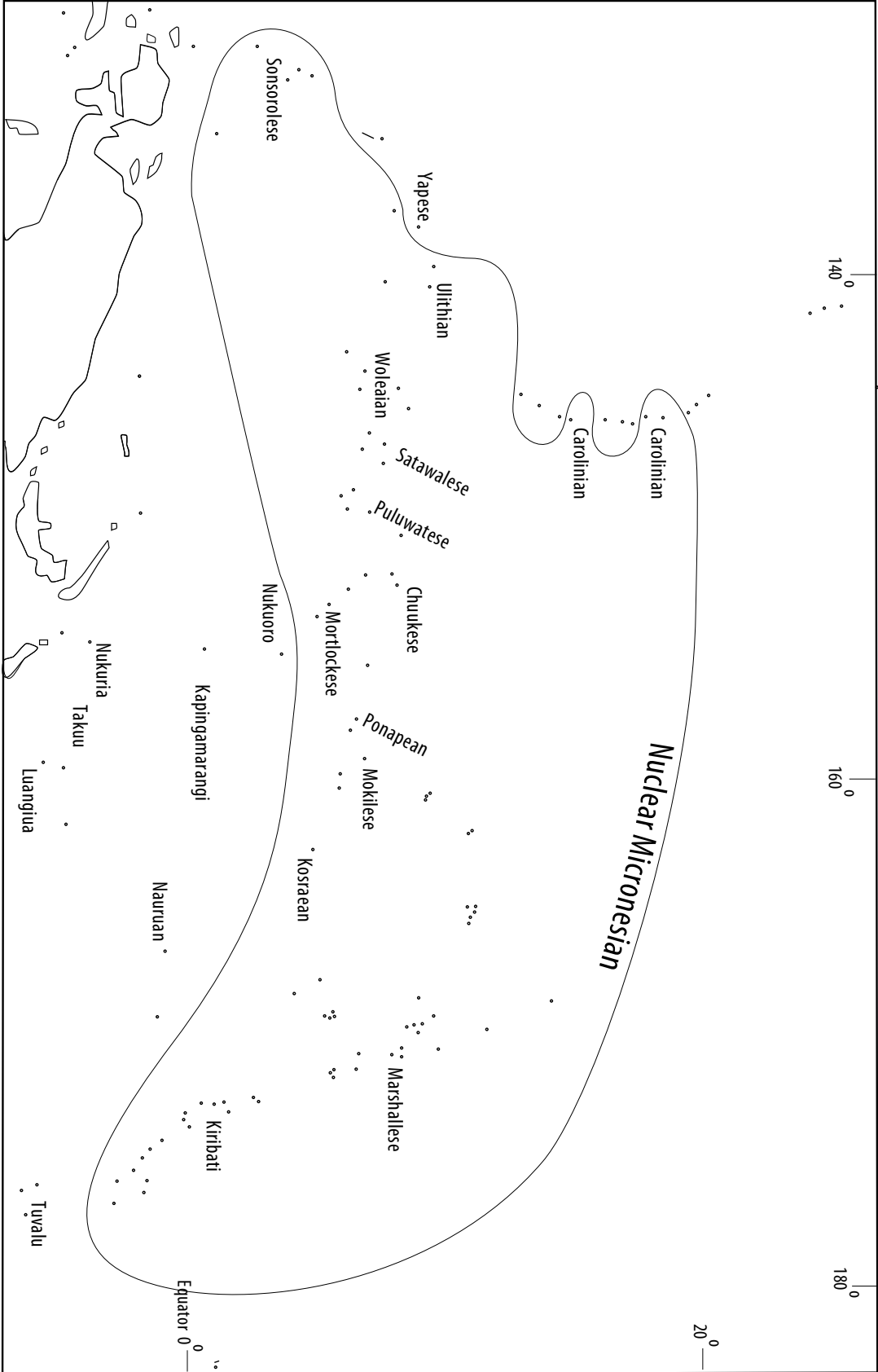
Map 9 Locations of Temotu (TM) languages and Pileni



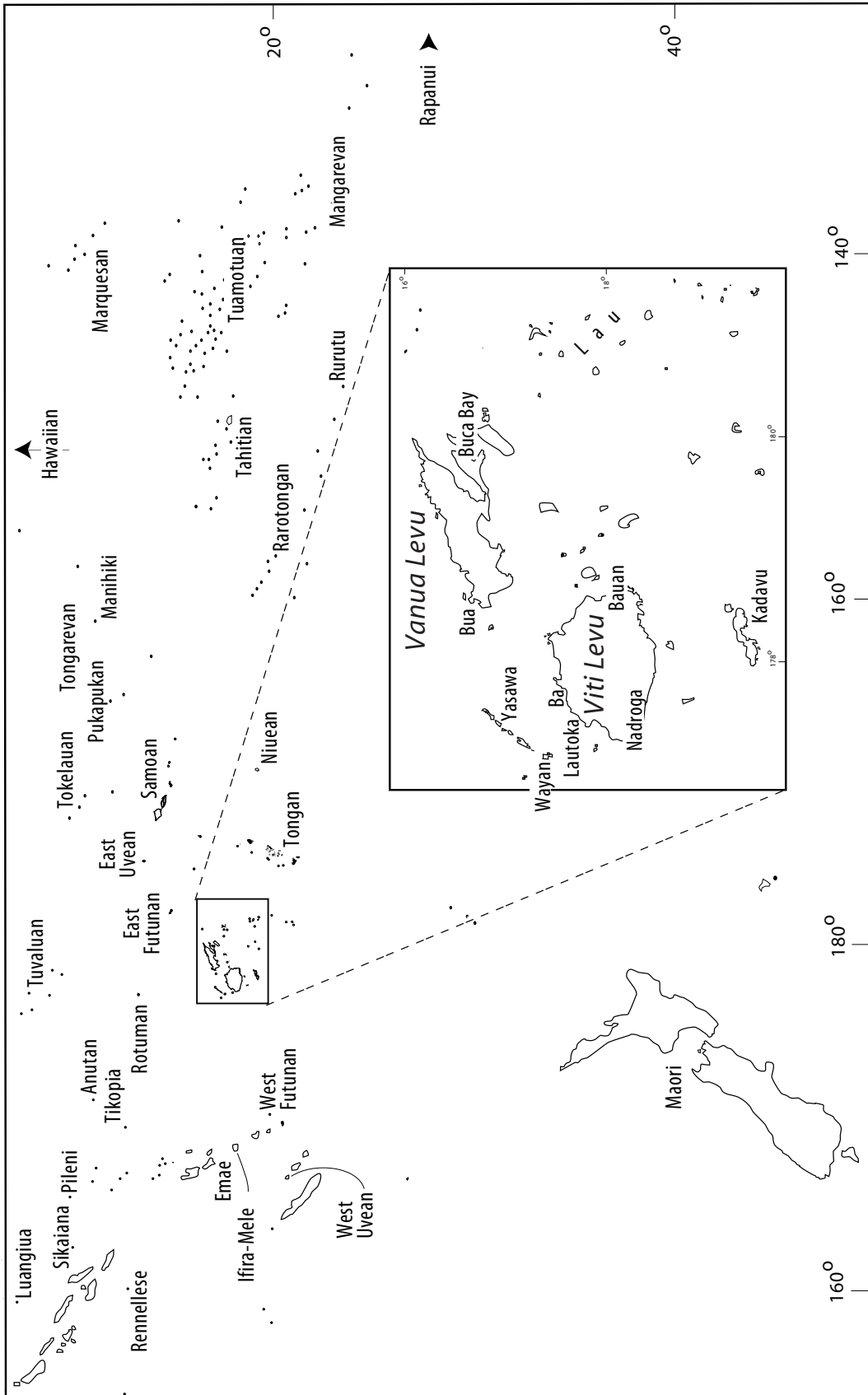
Map 10 Locations of North/Central Vanuatu (NCV) languages



Map 11 Locations of Southern Vanuatu (SV) and New Caledonia (NCal) languages



Map 12 Locations of Yapese, Nauruan, Nuclear Micronesian (Mic) and some Polynesian (Pn) languages



Map 13 Locations of Fijian (Fij) and Polynesian (Pn) languages

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Index of reconstructions by protolanguage

In alphabetising reconstructions under each protolanguage, *a* is treated as *e*, *y* is treated as *g*, *ñ* and *ŋ* as *n*, *ʔ* as *q*, *R* as *r*, superscripted *w* as *w*, and macrons, parentheses and brackets are ignored. Where alternants are shown in parentheses or brackets, e.g. (*r,R*) or [*q,k*], the second alternant is ignored, but is often shown in a crossreferenced entry at the appropriate alphabetic point. PSV reconstructions which consist of **n(V)-* ‘ARTICLE’ + ROOT are alphabetised by the root.

Proto Austronesian (PAN)

- *batu* ‘stone’, 118
- *belit* ‘viscous, sticky’, *see* **bulit*
- *betuŋ* ‘bamboo of very large diameter, probably *Dendrocalamus* sp.’, 402
- *buaq* ‘fruit’, 115, 393
- *bulit* ‘viscous, sticky’, 123
- *dahun* ‘leaf’, 103
- *daqan* ‘branch’, 94
- *daqu* ‘*Dracontomelon dao*’, 194
- *diteq* ‘sticky substance’, 180
- *lateŋ* ‘stinging nettle tree, *Laportea harveyi*’, 232
- *li(ŋ)sa* ‘nit, louse’s egg’, 119
- *nipaq* ‘*Nypa fruticans*’, 182
- *paŋudaL* ‘pandanus’, 328
- *qauR* ‘bamboo sp.’, 400
- *quay* ‘rattan, *Calamus* sp.’, 229
- *suliq* ‘runner, sucker, shoot’, 108
- *tebuS* ‘sugarcane’, 390
- *teŋeR* ‘mangrove, *Bruguiera* spp.’, 176

Proto Malayo-Polynesian (PMP)

- *aRuhu* ‘a shore tree: *Casuarina equisetifolia*’, *see* **[q]aRuhu*
- *anulij* ‘*Pisonia umbellifera*’, 168

- *badak* ‘Zingiberaceae spp. with edible rhizomes’, 415
- *bali(j,z)i* ‘(type of ?) grass’, 75
- *banaRo* ‘*Thespesia populnea*’, 143
- *baRbaR* ‘coral tree, *Erythrina variegata*’, 159
- *baRu* ‘*Hibiscus tiliaceus*’, 138
- *bataŋ* ‘stalk, trunk’, 89
- *ba(y)it* ‘a cycad, *Cycas rumphii*’, 291
- *binu(q)an* ‘*Macaranga* spp., perhaps *M. involucrata*’, 243
- *biRaq* ‘taro sp.’, 272
- *biRuʔ* ‘fan palm, *Licuala rumphii*’, 222
- *bitaquR* ‘*Calophyllum inophyllum*’, 153
- *bituŋ* or **pituŋ* ‘bamboo sp.’, 402
- *buaq* ‘roundish or fruit-like object, including betelnut, *Areca catechu*’, 393
- *bunat* ‘*Derris elliptica*’, 410
- *bunut* ‘coconut husk’, 376
- *butun* ‘a shore tree, *Barringtonia*’, 150
- *buŋa* ‘flower, blossom; to flower, bear flowers; first-born child; skin rash, prickly heat; speckled (of fish)’, 112
- *dalij* ‘buttress roots’, 100
- *damaR* ‘torch, light’, 382

- **daŋkaq* ‘branch’, 95
 **daŋkeq* ‘branch’, 95
 **dapdap* ‘coral tree, *Erythrina* spp.’, 160
 **de(k,g)el* ‘small *Dillenia* species’, 211
 **deRuŋ* ‘*Trema orientalis*’, 248
 **duRi* ‘thorns’, 125
 **guRun* ‘sword grass, *Imperata cylindrica*’, 252
 **huaR* ‘*Flagellaria indica*’, 147
 **hutek* ‘brain, marrow’, 374
 **jabi* ‘*Ficus* sp.’, 309
 **kan-an* ‘dish, plate, meal’, 41
 **kan-en* ‘something to be eaten, food’, 370
 **kanawa* ‘*Cordia* spp.’, 134
 *[*ka*]timun ‘cucurbit (generic); cucumber, *Cucumis sativus*’, 426
 **katipa(l,n)* ‘a palm with black wood, *Caryota* sp.’, 221
 **kayu* ‘tree, wood, timber’, 17, 71
 **kelabuR* ‘large *Dillenia* species’, 193
 **kiRay* ‘*Pandanus* sp.’, 329
 **kulit* (N) ‘skin’, 120
 **kulit-i* (VT) ‘to remove the skin of s.t., to remove bark from a tree’, 120
 **kuluR* ‘breadfruit, *Artocarpus altilis*’, 283
 **laji* ‘tree sp. with poisonous sap, *Antiaris toxicaria* (?)’, 227
 **laqia* ‘ginger, *Zingiber officinale*’, 414
 **mal(u,aw)* ‘tree whose bast is used for barkcloth’, 405
 *(*ma*)Raŋaw ‘dry’, 365
 **meñak* ‘fat, grease’, 372
 **naRa* ‘*Pterocarpus indicus*’, 205
 **ñatuq* ‘a hardwood tree taxon, including at least *Palaquium* spp.’, 337
 **niniq* ‘plant sp., *Donax cannaeformis*, used as material for making baskets’, 225
 **ŋiRaj* *Pemphis acidula*’, 141
 **niuR* ‘coconut, *Cocos nucifera*; ripe coconut (growth stage of *C. nucifera*)’, 356
 **nunuk* ‘banyan, *Ficus benjamina*’, 303
 **p-ab(a)paq* ‘midrib of coconut frond’, 383
 **pa(q)paq* ‘frond of a palm’, 380
 **pahuq* ‘mango, probably *Mangifera indica*’, 341
 **para* ‘coconut embryo’, 373
 **patuRu* ‘a cycad, *Cycas rumphii*’, 290
 **pandan* ‘pandanus’, 328
 **pila(q)u* ‘*Casuarina equisetifolia*’, 158
 **pu-pulu* ‘*Piper betle*’, 394
 **puŋu* ‘bunch, cluster (of grain, fruit, areca nuts, etc.)’, 116
 **punti* ‘banana’, 277
 **puqun* ‘base of tree, source, origin’, 90
 **qadamay* ‘*Pipturus argenteus*’, 245
 **qaRa?* ‘*Ficus* spp.’, 308
 **qaRsam* ‘fern sp.’, 233
 *[*q*]aRuhu ‘a shore tree: *Casuarina equisetifolia*’, 157
 **qatay-qatay* ‘a climbing plant, *Wedelia biflora*’, 133
 **qauR* ‘type of large bamboo’, 400
 **qipil* ‘a hardwood tree, *Intsia bijuga*’, 201
 **qitiŋ* ‘bunch of bananas’, 117
 **qubi* ‘yam’, 260
 **qulu* ‘head; top part; leader, chief; headwaters; handle of a bladed implement; prow of a boat; first, first-born’, 91
 **Rambia* ‘sago palm’, 288
 **Raŋaw* ‘dry’, see *(*ma*)Raŋaw
 **Runut* ‘plant fibres’, 385
 **saŋa* ‘bifurcation, to branch’, 96
 **siRi* ‘*Cordyline* sp., *Dracaena* sp.’, 418
 **suluq* ‘torch’, 381
 **tales* ‘taro, *Colocasia esculenta*’, 266
 **talisay* ‘*Terminalia catappa*’, 324
 **teRas* ‘hard; hardwood’, 200
 **timun* ‘cucurbit (generic); cucumber, *Cucumis sativus*’, see *[*ka*]timun
 **tuba* ‘*Derris* fish poison’, 410
 **tui?* ‘*Dolichandrone spathacea*’, 180
 **wai* ‘mango spp.’, 341
 **wakaR* ‘root’, 99

- **waket* ‘mangrove root’, 103, 175
 **waRej* ‘vine, creeper’, 74
 **zalateŋ* ‘*Laportea* and *Dendrocnide* spp.’,
 232

Proto Central/Eastern Malayo-Polynesian (PCEMP)

- **bail* ‘*Falcataria moluccana* or *Albizia* sp.’, 189
 **bitu* ‘*Imperata cylindrica*’, 252
 **bual(a)* ‘*Caryota* sp.’, 221
 *(*d,r*)*a(d,r)ap* ‘*Hoya* sp.’, 148, see **rarap*
 **ima* ‘*Pandanus* sp. with leaves useful for plaiting’, 333
 **jasi* ‘*Cordia subcordata*’, 136
 **ka(nŋ)aRi* ‘canarium almond, *Canarium* spp.’, 315
 **ka(w)iak* ‘*Albizia* sp.’, 189
 **kaiak* ‘*Albizia* sp.’, see **ka(w)iak*
 **lowaŋa* ‘*Litsea* sp.’, 215
 **Reqi* ‘sword grass, *Imperata cylindrica*’, 251
 **tabuqaR* ‘*Saccharum*’, 301
 **talo* ‘*Calophyllum inophyllum*’, 155

Proto Eastern Malayo-Polynesian (PEMP)

- **kupu* ‘very young coconut’, 367
 **matu(qu)* ‘dry coconut’, 363
 **nasu-nasu* ‘*Scaevola taccada*’, 142
 **qayawan* ‘banyan tree, *Ficus* sp.’, 303
 **tawan* ‘*Pometia pinnata*’, 343
 **tuRi-tuRi* ‘candlenut tree, *Aleurites moluccana*’ (?), 404
 **wakaR-i* ‘root’, 100

Proto Oceanic (POc)

- *[*a*]ñuliŋ ‘*Pisonia* sp.’, 168
 **aRu-taŋis* ‘*Casuarina equisetifolia*’, 158
 **aRu* ‘a shore tree, *Casuarina equisetifolia*’, 157
 **aka(r,R)* ‘root’, 100
 **alipa* ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), see *(*q*)*alipa*, **lalipa*
 **ba(k,g)a* ‘banyan tree, medium-sized *Ficus* spp., not stranglers’, 305
 *[*baR*]baR ‘coral tree, *Erythrina variegata*’, 159

- **baRa-baRa* ‘stem or stalk of non-woody plants, such as taro and banana, probably also the soft stems of leaves’, 92
 **baReko* ‘breadfruit’, 284
 **babak* ‘*Falcataria moluccana*’, 188
 **bai-bai(t)* ‘a cycad, *Cycas rumphii*’, 291
 **bala* ‘taxon including various *Euodia* spp.’ (?), 212
 **bala* ‘tree fern, *Cycas* or *Cyathea* sp.’, see **b^(w)ala*
 **bala(p,b)a(q)* ‘palm branch; midrib of palm frond’, 383
 **baNaRo* ‘*Thespesia populnea*’, see *(*p,b*)*anaRo*
 **baqun* ‘banana cultivar’, 279
 **bauRa* ‘*Ficus* sp.’, perhaps a strangler fig, 309
 **bau* ‘hardwood taxon’, 204
 **bele* ‘*Abelmoschus manihot*’, 295
 **beta* ‘breadfruit’, 285
 **biRi-biRi* ‘*Hernandia nymphaefolia*’, 137
 **bitu(ŋ)* ‘bamboo sp.’, 253, 402
 **bosi* ‘a forest tree with white wood, probably *Euodia elleryana*’, 212
 **boso* ‘k.o. taro’, see *(*p,b*)*oso*
 **botu(ŋ)* ‘large bamboo, presumably *Bambusa* sp.’, 402
 **bou* ‘*Fagraea* spp.’, 162
 *[*bual*]bual ‘species of palm used for making spears and bows; palm-wood spear or bow, probably *Caryota* sp.’, 221
 **buaq* ‘betelnut, areca nut, palm, *Areca catechu*’, 393
 **bue* ‘(made of) bamboo’, 403
 **bulu* ‘*Garcinia* sp., perhaps *G. novoguineensis*’, 225
 **bul[i,u]t* (N) ‘sap (of plant) or other sticky substance’; (VT) ‘be sticky’, 123
 **bulut-i-* (VT) ‘to stick something to something’, 123
 **buRat* ‘*Fagraea berteriana*’, 162

- **b^waji-b^waji* ‘coconut growth stage 4 or 5’, 367
- **b^(w)ala* ‘tree fern, *Cycas* or *Cyathea* sp.’, 300
- **b^wau* ‘bamboo’, 401
- **b^wele* ‘bamboo sp.’, 403
- **b^wera* ‘*Musa* cultivar’, 279
- *(*c,j*)*api* ‘*Ficus* sp.’, 309
- **daRa(q,k)a* ‘wild nutmeg, *Myristica* sp.’, see *(*dr,d*)*aRa(q,k)a*
- **dali-dali* ‘*Hornstedtia lycostoma*’, 228
- **dalo* ‘*Calophyllum inophyllum*’, 155
- **dotoq* ‘sticky liquids including the sap of (some?) trees’; ‘a mangrove tree, probably *Excoecaria agallocha*’, 181, see **dotoq*
- **dradrap* ‘*Hoya* sp.’, 148
- **drala* ‘shrub sp., *Vitex trifolia*’, 146
- *(*dr,d*)*aRa(q,k)a* ‘wild nutmeg, *Myristica* sp.’, 216
- **drokol* ‘small *Dillenia* species’, 211
- **droRu(η)* ‘*Trema orientalis*’, 248
- *(*dr,r*)*uRi* ‘thorns’, 125
- **gal(a,o)* ‘taro leaves’?, 107, 268
- **g(o,u)reη* ‘coconut milk, coconut cream’, 372
- **goRu(s)* ‘dry, of vegetation; coconut growth stage 9 or 10: ripe, perhaps dry and ready to fall’, see *[*ma*]*goRu(s)*
- **guRu(n)* ‘sword grass, *Imperata cylindrica*’, 252
- **gureη* ‘coconut milk, coconut cream’, see **g(o,u)reη*
- **i(u)bu* ‘*Corynocarpus cribbianus*’, 340
- **iguRa* ‘*Ficus* species with sandpapery leaves, either *F. copiosa* or *F. wassa* or both’, 307
- **ima* ‘*Pandanus* sp. with useful leaves’, 333
- **ipi* ‘Tahitian chestnut, *Inocarpus fagifer*’, 318
- **jajal* ‘croton, *Codiaeum variegatum*’, 420
- *[*ja*]*laton* ‘*Laportea* and *Dendrocnide* spp.’, 232
- **jamaR* ‘*Commersonia bartramia*’, 240
- **jamu((q)a)* ‘cluster of flowers or fruit, usually palms’, 116
- **jasi* ‘*Cordia subcordata*’, 136
- **jinu* ‘taxon of shrubs’ (?), 226
- **jiRi* ‘taxon consisting of *Cordyline fruticosa* and *Dracaena angustifolia*’, 418
- **j(o,u)abo* ‘*Caryota* sp.’, 222
- **joRaga* ‘banana, *Fe’i* (?) cultivars’, 278
- **juli(q)* ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’, see *[*s,j*]*juli(q)*
- **juli* ‘to transplant’, see *(*s,j*)*juli*
- **kai(k)* ‘*Albizia* sp.’, 189
- **kaka* ‘young coconut frond; coconut frond netting protecting young frond’, 384
- **kalaka* ‘*Planchonella* sp.’, 203
- **kalaqabusi* ‘*Acalypha* spp.’, see **ka[(r,l)a]qabusi*
- **ka(m^wa)-kam^wa* ‘*Ficus* sp., perhaps *Ficus nodosa*’, 309
- **kananη*, **kanan* ‘staple food; food in general’, 27, 41
- *[*ka*]*ηaRi* ‘canarium almond, *Canarium indicum*’, 315
- **kanawa(n)* ‘*Cordia subcordata*’, 134
- **kani* ‘eat’, 39
- **kanonη* ‘flesh, inner substance, coconut flesh’, 370
- **kapika* ‘Malay apple, rose apple, *Syzygium malaccense*’, 348
- **kaqabusi* ‘*Acalypha* spp.’, see **ka[(r,l)a]qabusi*
- **kara(t)* ‘a small stinging plant, perhaps *Laportea interrupta*’, 233
- **karag^wam* ‘seaweed, seagrass’, 131
- **ka[(r,l)a]qabusi* ‘*Acalypha* spp.’, 238
- **kaRi(q)a* ‘taxon of decorative plants’, 419
- **kaRi(q)ana* ‘*Pandanus lamekotensis*’, 333
- **karut* ‘coconut growth stage 6: green, drinkable’, 363
- *[*ka*]*tim(o,u)n* ‘*Cucumis* spp. (generic?); cucumber, *Cucumis sativus*’, 426

- **kati(p)al* ‘a palm with black wood, *Caryota* sp.’, 221
- **katita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, see *(q,k)atita
- **kawaRi* ‘root(s) with special properties: one or more of *Zingiber zerbumbet*, *Piper subbullatum*, and various fish-poison plants’, 396
- **kayu* ‘tree or shrub: generic name for plants with woody stems and branches, probably not including palms or tree-ferns; wood, stick’, 17, 44, 71
- **kayu gone* ‘*Heritiera littoralis*’, 45, 182
- **kiRe* ‘coastal *Pandanus* sp., probably *Pandanus tectorius*’, 329
- **koka* ‘*Macaranga* spp.’, 243
- **koma(r,R)(o,u)* ‘*Endospermum* sp.’, 198
- **kopu* ‘bamboo sp.’, 402
- **koRa* ‘wild mango, *Mangifera minor*’, 341
- **kubu* ‘coconut growth stage 3, 4 or 5: young and green’, 367
- **kulapu(R)* ‘*Dillenia schlechteri*’, 193
- **kulit* (N) ‘skin (of animals, people, fruit), bark (of trees)’, 120
- **kulit-i-* (VT) ‘to skin s.t., to remove bark from a tree’, 120
- **kulo* ‘stem of fruit, especially banana’, 117
- **kulu* ‘coconut growth stage 9: ripe, flesh hardened’, 364
- **kuluR* ‘breadfruit, *Artocarpus altilis*’, 150, 283
- **kurat* ‘the dye produced from *Morinda citrifolia*’, 408
- **kusaq* ‘k.o. edible greens’, 298
- **kuta* ‘staple food’ or ‘eat’?, 42
- **lalipa* ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), see *(q)alipa, *lalipa
- **lali(c,t)* ‘buttress roots’, 100
- **lalom* ‘inside’, 100
- **laqia* ‘ginger, *Zingiber officinale* (?)’, 414
- **latoŋ* ‘*Laportea* and *Dendrocnide* spp.’, see *[ja]latoŋ
- **limut* ‘generic term for mosses, algae and seaweeds’, 77
- **lowaŋa* ‘*Litsea* sp.’, 215
- **lumut* ‘generic term for mosses, algae and seaweeds’, 77
- *[ma-]goRu(s) ‘dry, of vegetation; coconut growth stage 9 or 10: ripe, perhaps dry and ready to fall’, 368
- **ma(i)tagaR(a)* ‘*Kleinhovia hospita*’, 213
- **mala-* ‘resembling’, 49
- **malo-* ‘breadfruit flower, breadfruit core’, 120
- **malo* ‘paper mulberry, *Broussonetia papyrifera*; barkcloth, loincloth’, 405
- **mapuqan* ‘*Flueggea flexuosa*’ (?), 164
- **maqota* ‘*Dysoxylum* spp.’, 196
- **maRakita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 220
- **maRako* ‘*Trichospermum peekelii*’, 248
- *[ma-]raŋo ‘become withered (of vegetation)’, 365
- **maRaŋo* ‘coconut growth stage 9: ripe, flesh hardened (or stage 10: dry and ready to fall)’, 365
- **mari(a)sapa* ‘*Syzygium* sp.’, 350
- **ma-saŋa* ‘to be branching or forked (VI); branch (of tree, river, path), fork, crotch (N)’, 96
- **mase* ‘wild mulberry, paper mulberry, *Broussonetia papyrifera*’, see *m^(w)ase
- **maso(q)u* ‘wild cinnamon, *Cinnamomum* sp., probably *C. xanthoneuron*; possibly also *Cananga odorata*’, see *m^(w)aso(q)u
- **matagaR(a)* ‘*Kleinhovia hospita*’, see *ma(i)tagaR(a)
- **matuqu* ‘coconut growth stage 9: ripe, flesh hardened’, 357, 363
- **molis* ‘citrus fruit or citrus-like fruit, perhaps *Clymenia polyandra*’, 339
- **moñak* ‘fat, oil, cream, coconut cream; tasty’, 372

- **m*^w*alak* (?) ‘spider lily, *Crinum asiaticum*’, 422
- **m*^w*ala(q)u* ‘*Glochidion philippicum*’, 241
- **m*^w*aña* ‘*Pandanus* sp., perhaps *Pandanus conoideus*’, 332
- **m*^w*apo(q)* ‘taro, *Colocasia esculenta*’, 256, 267
- **m*^w*aruqe* ‘*Dioscorea* sp. or perhaps a cultivar of *D. alata*’, 261
- **m*^(w)*ase* ‘wild mulberry, paper mulberry, *Broussonetia papyrifera*’, 406
- **m*^(w)*aso(q)u* ‘wild cinnamon, *Cinnamomum* sp., probably *C. xanthoneuron*; possibly also *Cananga odorata*’, 192
- **namo* ‘coconut water’ or ‘coconut growth stage: 3, 4 or 5: young and green’, 370
- **naRa* ‘*Pterocarpus indicus*’, 205
- **ñaRi* ‘canarium almond, *Canarium indicum*’, see *[*ka*]*ñaRi*
- **na[su]-nasu* ‘*Scaevola taccada*’, 142
- **ñatuq* ‘*Burckella obovata*’, 337
- **ñau* ‘gnaw’, 39
- **ni* ASSOCIATIVE following a zero-valency noun (cf **qi*, 48)
- **nini(q)* ‘shrub, *Donax cannaeformis*’, 225
- **nipaq* ‘*Nypa fruticans*’, 182
- **nipus* ‘*Cryptocarya* sp.’, 210
- **ñiRac* ‘*Pemphis acidula*’, 141
- **niuR* ‘coconut palm and/or fruit, *Cocos nucifera*’, 356
- **no(k,g)o* ‘midrib or spine of coconut leaflet; broom made therefrom’, 384
- **ñoñu* ‘*Morinda citrifolia*’, 408
- **ñuliñ* ‘*Pisonia* sp.’, see *[*a*]*ñuliñ*
- **nunuk* ‘fig trees, *Ficus* taxon’, 303
- **olaña* *Camptosperma brevipetiolatum*, 191
- **padran* ‘coastal pandanus, *Pandanus tectorius*; pandanus (generic)’, 328
- **pail* ‘*Falcataria moluccana*’, 189
- **pakum* ‘*Pandanus dubius*’, 331
- **pala(η)* ‘cut nut, bush nut, *Barringtonia novae-hiberniae* (green variety?)’, 321
- **pali[s,j]i* ‘generic term for grasses and other grass-like plants’, 75, 249
- **paliaRua* ‘a vine, *Merremia peltata*’, 234
- **pañan* ‘eat INTRANSITIVE, feed TRANSITIVE’, 39
- *(*p,b*)*anaRo* ‘*Thespesia populnea*’, 143
- *[*pa*]*paq[a-]* ‘frond of a palm’ (?), 380
- **paqo* ‘*Heliconia* sp’, 421
- **paqu* ‘*Kleinhovia hospita*’, 214
- **para(k)* ‘Zingiberaceae spp. with edible rhizomes’, 415
- **paraq* ‘spongy mass inside sprouting nut; brain’, 373
- **paRu* ‘*Hibiscus tiliaceus*’, 138
- **pasa(r,R)* ‘*Vitex cofassus*’, 206
- **pasa(r,R)* ‘large *Pandanus* sp.’, see **p*^(w)*asa(r,R)*
- **pasa* ‘*Cerbera* sp.’, 178
- **pata(η)* ‘tree trunk’, 89
- **patu* ‘stone, rock; seed’, 118
- **pau(q)* ‘mango, *Mangifera* sp. (not *indica*)’, 341
- **pawa(t)* ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’, see **p*^(w)*awa(t)*
- **pele* ‘nut’ ?, 322
- **pesi* ‘a coastal forest tree, perhaps *Pongamia pinnata*’, 170
- **pijo* ‘cane or reed taxon, including *Saccharum spontaneum*’, 252, 254
- **pila(q)u* ‘*Casuarina equisetifolia*’, 158
- **pinu(q)an* ‘*Macaranga* spp., perhaps *M. involucrata*’, 243
- **piRaq* ‘giant taro, elephant ear taro, *Alocasia macrorrhizos*’, 272
- **piRu(q)* ‘fan palm, *Licuala* sp.’, 222
- **pitaquR* ‘*Calophyllum inophyllum*’, 153
- **pitu* ‘*Imperata cylindrica*’, 252
- **pi(y)uñ* ‘*Miscanthus floridulus*’, 253
- **poipoi* ‘*Pandanus* sp., perhaps *P. tectorius*’, 329
- **poka(q)* ‘variety of Malay apple’, 350
- **polo* ‘coconut growth stage 6: green, drinkable’ (?), 363

- **(p,b)oso* ‘k.o. taro’, 273 133
 **poto(k)* ‘thorn, barb of stingray’, 125
 **puaq* ‘fruit: generic for fruit as a part of plants, the seed and its envelope (N); to bear fruit (v)’, 115
 **pudi* ‘banana, *Musa* cultivars’, 277
 **pulu* ‘betel pepper, *Piper betle*’, see **[pu-]pulu*
 **puna(t)* ‘vine used for fish poison, probably *Derris elliptica*’, 410
 **punut* ‘coconut husk, fibres on coconut husk’, 376
 **[pu-]pulu* ‘betel pepper, *Piper betle*’, 394
 **puqu(n)* ‘base of tree; source, origin’, 90
 **puqu(n)* ‘tree, shrub’, 47
 **puRe* ‘taxon of beach creepers; perhaps prototypically *Ipomoea grandiflora* and *Ipomoea pes-caprae*’, 132
 **puro* ‘squeeze coconut milk onto food’, 371
 **puro-ŋ* ‘coconut pulp; pudding made by squeezing’; perhaps ‘grind’, 314, 371
 **putun* ‘*Barringtonia asiatica*’, 150
 **puŋa* ‘flower, blossom’, 112
 **puŋu* ‘bunch or cluster of fruit or nuts’, 116
 **p^wabosi* ‘freestanding small or medium-sized *Ficus* sp., probably *F. wassa*’, 307
 **p^wa(k,g)e* ‘k.o. green vegetable (?)’, 296
 **[p^wano]p^wano* ‘*Guettarda speciosa*’, 165
 **p^(w)asa(r,R)* ‘large *Pandanus* sp.’, 334
 **p^wasepe* ‘*Dioscorea alata* variety (?)’, 262
 **p^watika* ‘potato yam, aerial yam, *Dioscorea bulbifera*’, 262
 **p^(w)atoRu* ‘a cycad, *Cycas rumphii*’, 290
 **p^(w)awa(t)* ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’, 179
 **p^wenu(t)* ‘coconut husk’, 377
 **p^wer(e)* ‘to sprout, grow’, 111
 **p^wete* ‘bird’s nest fern, *Asplenium nidus*’, 235
 **p^wi(r,R)a* ‘*Cananga odorata*’, 209
 **p^wiras* ‘pithy ball inside sprouted coconut’, 375
 **(q)a-b^waji* ‘coconut growth stage 2: very small newly formed fruit’, 362
 **qa(l,R)a* ‘*Ficus* sp.’, 308
 **(q)alipa*, **lalipa* ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), 317
 **qaram^waqi* ‘*Pipturus argenteus*’, 245
 **qarop* ‘*Premna* spp.’, 171
 **qasam* ‘fern used for tying and binding, *Lygodium circinnatum*’, 233
 **(qate-)qate* ‘*Wedelia biflora*’,
 **(q,k)atita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218
 **qatV* ‘*Terminalia* sp. with edible nut’, 326
 **qauR* ‘bamboo spp.’, 400
 **qayawan* ‘*Ficus* strangler fig taxon’, 303
 **qi* ASSOCIATIVE following a monovalent noun (cf **ni*, 48
 **qili* (N) ‘sprout, shoot (esp. of banana or taro)’, 110
 **qipil* ‘a taxon of hardwood trees including *Intsia bijuga* and *Casuarina equisetifolia*’, 201, 318
 **qitiŋ* ‘a hand or bunch of bananas’, 117
 **qone* ‘sand, sandy beach’, 181
 **qone-qone* ‘sandy’, 181
 **qope* ‘*Gyrocarpus americanus*’, 166
 **qulu-* ‘head, top part, hair of the head’, 91
 **quma* ‘garden, plantation’, 27, 34
 **qupi* ‘greater yam, *Dioscorea alata*; yam (generic)’, 260
 **quRis* ‘*Spondias cytherea*’, 345
 **(quta)quta* ‘grass and weeds (generic)’, 249
 **qutan* ‘bushland, hinterland; inland’, 27, 34

- **qutok* ‘brain, pith, marrow’, 374
 **qu(w)e* ‘rattan, *Calamus* spp.’, 229
 **Rabia* ‘sago, *Metroxylon* spp., mainly *Metroxylon sagu* (syn. *Metroxylon rumphii*)’, 288
 **rabum* ‘grass’, 249
 **raga(q)* ‘branch’, 95
 **rako(q)* ‘branch, twig’, 95
 **rama* ‘shoot, new leaf, seedling’, 111
 **ramaR* ‘coconut leaf used as a torch when fishing’, 382
 **Ramut* ‘fine, hair-like roots’, 101
 **raŋo* ‘become withered (of vegetation)’, see *[*ma-*]raŋo
 **raqan* ‘branch of tree or other plant’, 94
 **raqu(p)* ‘New Guinea walnut, *Dracontomelon dao*’, 194
 **rarap* ‘coral tree, *Erythrina* spp.’, 160
 **raun* ‘leaf, general term for leaves of all types of plants’, 47, 103
 **Reqi* ‘sword grass, *Imperata cylindrica*’, 251
 **Rigi* ‘rosewood, *Pterocarpus indicus*’, 205
 **Runut* ‘sheath around base of coconut frond, used as strainer’, 385
 **ruRi* ‘thorns’, see *(*dr,r*)uRi
 **sabakap* ‘*Alstonia scholaris*’, 187
 **sakup* ‘banana cultivar with long fruit (?)’, 278
 **sana* ‘fork (in tree), forked stick or post, crotch’, 96
 **saRum* ‘needle, tattooing needle (typically made from wing-bone of flying fox)’, 126
 **sasaRi* ‘midrib of coconut frond’, 383
 **see* ‘flower’, 113
 **seRa* ‘*Ficus* sp., perhaps *F. adenosperma*’, 309
 **sila* ‘Job’s tears, *Coix lachryma-jobi*’, 253
 *(*s,j*)*uli* ‘to transplant’, 110
 *[*s,j*]ul*i(q)* ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’, 108
 **sulu(q)* ‘dry coconut leaf torch; dry coconut leaf’, 381
 **suRuq* ‘sap, soup, drinkable liquid derived from plants, fruits or trees’, 369
 **tab^wa* ‘coconut growth stage 12: sprouted’, 366
 **talise* ‘*Terminalia catappa*’, 324
 **taliŋa* ‘ear; generic term for mushrooms and fleshy fungi; jelly fungus’, 78, 235
 **talo(s)* ‘taro, *Colocasia esculenta*’, 256, 266
 **talun* ‘old garden, fallow land, land returning to secondary growth’, 35
 **tamaji* ‘additional ingredients to accompany starchy food’, 27, 43
 **tamanu* ‘*Calophyllum* sp.’, 154
 **tapi(l)* ‘puzzlenut tree, *Xylocarpus granatum*’ (?), 183
 **tapoRa* ‘a nut-bearing tree sp.’, 326
 **tawan* ‘*Pometia pinnata*’, 343
 **tawasi* ‘*Rhus taitensis*’, 247
 **tana* ‘*Ficus tinctoria*’, 308
 **tim(o,u)n* ‘*Cucumis* spp. (generic?); cucumber, *Cucumis sativus*’, see *[*ka*]tim(o,u)n
 **topu* ‘sugarcane, *Saccharum officinarum*’, 390
 **tonoR* ‘mangrove, *Bruguiera* spp.; mangroves (generic)’, 176
 **toRas* ‘a taxon of hardwood trees including *Intsia bijuga*’ (?), 156, 200
 **toRu* ‘*Cordia subcordata*’, 135
 **tubuq* ‘(plant) sprout, grow’, 366
 **tui* ‘*Dolichandrone spathacea*’, 180
 **tupa* ‘climbing shrubs, *Derris* spp.’, 170, 410
 **tupul* ‘to send out new growth’, 111
 **tuRi-tuRi* ‘candlenut tree, *Aleurites moluccana*’ (?), 404
 **udu(r,R)* ‘*Dioscorea alata* cultivar (?)’, 262
 **up(e,a)* ‘taro seedling’, 111
 **usiri* ‘palm frond or midrib of a frond’ (?), 380

- **uso* ‘umbilical cord, core innards or digestive organs of a shellfish’, 92
 **waR[e]* ‘*Flagellaria indica*’, 147
 **waRoc* ‘generic term for vines and creepers, plants with creeping or climbing growth structure; string, rope’, 74, 131
 **wai*, **waiwai* ‘mango (generic)’, 341
 **wakaR* ‘roots (in general)’, 99
 **wakaRi-* ‘root’, 100
 **wako(t)* ‘mangrove root’, 103, 175
 **walasi* ‘tree sp. with poisonous sap, *Semecarpus forstenii*’, 227
 *[*waRu*]*waRu* (?) ‘primary forest’, 35
 **wasa* ‘*Abelmoschus manihot*; green vegetables in general’, 294
 **wasi-wasi* ‘*Abroma augusta*’, 223, 335
 **yaŋo* ‘turmeric, *Curcuma longa*’, 412
 **yaŋo-yaŋo* ‘yellow’, 413
- Early Oceanic**
 **aruq* ‘pumpkin, *Cucurbita moschata* ?’, see **waluq* OR *[*w*]*aruq*
 **waluq* OR *[*w*]*aruq* ‘pumpkin, *Cucurbita moschata* ?’, 425
 *[*w*]*aruq* ‘pumpkin, *Cucurbita moschata* ?’, see **waluq* OR *[*w*]*aruq*
- Proto Admiralty (PAdm)**
 **cay* ‘*Syzygium* sp. with large red fruit’, 350
 **kanana* ‘food’, 41
 **kani-an* ‘staple food’, 41
 **lalato*, **ñalato* ‘*Laportea* and *Dendrocnide* spp.’, 232
 **moña* ‘pandanus with long red or yellow fruit, probably *Pandanus conoideus*’, 332
 **ñalato* ‘*Laportea* and *Dendrocnide* spp.’, see **lalato*, **ñalato*
 **puto-* ‘spongy mass inside sprouting nut’, 375
 **qaiwa* ‘banyan, *Ficus* spp.’, 303
- Proto Western Oceanic (PWoc)**
 **bara* ‘*Macaranga* spp.’, 244
 **basi* ‘mango’, 342
 **baul* ‘mangrove, *Rhizophora* sp. (?)’, 175
 **bita* ‘dry coconut frond, dry coconut frond torch; fish at night’, 383
 **b^wana* ‘*Intsia bijuga*’, 202
 **b^watiq* ‘banana cultivar’, 279
 **daki* ‘dry coconut leaf torch’, 382
 **gawa* ‘spongy mass inside sprouting nut; sprouted coconut’, 376
 **gobu* ‘*Dioscorea* sp.’, 264
 **iRim(a,o)* ‘*Octomeles sumatrana*’, 189
 *[*ja*]*latoŋ* ‘nettle tree, *Dendrocnide* sp., perhaps *D. warburgii*’, 232
 **ja(q,k)umu* ‘*Pandanus* sp.’, see *(*s,j*)*a(q,k)umu*
 **jakumu* ‘*Pandanus* sp.’, see *(*s,j*)*a(q,k)umu*
 **jim^waR* or **jimiR* ‘sap used for caulking’, 242
 **ka(p)ul* ‘seed yam’, 265
 **kalijo* ‘edible kernel of breadfruit segments’, 119
 **kamisa* ‘lesser yam, *Dioscorea esculenta*’, 263
 **kam^(w)apaR* ‘*Cryptocarya* sp.’, 210
 **kapika* ‘*Syzygium malaccense*’, 348
 **kasuwai* ‘mango’, 342
 **katita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218
 **kaul* ‘seed yam’, see **ka(p)ul*
 **kobo* ‘taxon of *Macaranga* spp.’, 244
 **kokoi* ‘mushroom sp.’, 236
 **kuRim(a,o)*, **iRim(a,o)* ‘*Octomeles sumatrana*’, 190
 **lamati* ‘dry coconut flesh’, 371
 **lapuka* ‘k.o. tree with fruit similar to breadfruit, *Parartocarpus venenosa* (?)’, 352
 **latoŋ* ‘nettle tree, *Dendrocnide* sp., perhaps *D. warburgii*’, see *[*ja*]*latoŋ*
 **mali* ‘*Derris* sp.’, see **m^(w)ali*
 **mamisa* ‘lesser yam, *Dioscorea esculenta*’, 264
 **moke* ‘*Pandanus* sp.’, 334
 **m^(w)ali* ‘*Derris* sp.’, 411
 **m^wa(r,R)e* ‘taxon including *Codiaeum variegatum* and *Cordyline fruticosa*’, 418
 **nagi* ‘*Cordia* sp.’, 136

- **pagal* ‘palm frond’ (?), 380
 **pinuaq* ‘a nut tree, perhaps *Canarium* sp. (?)’, 316
 **pudi-pudi* ‘wild banana’, 50
 **p^wiga* ‘coconut growth stage 3, 4 or 5: young and green’, 368
 *[*qa*]p^wasu ‘taro leaves’ ?, 269
 **rap* ‘coral tree, *Erythrina* spp.’, 160
 *(*s,j*)a(*q,k*)umu ‘*Pandanus* sp.’, 334
 **tabun* ‘*Garcinia* sp.’, 226
 **tabuqaR* ‘*Saccharum edule*’, 301
- Proto New Guinea Oceanic (PNGOc)**
 **domu* ‘seagrass sp., perhaps *Enhalus*’, 131
 **kunuR* ‘breadfruit’, 284
 **sab^wa(r,R)i* ‘*Calophyllum* sp.’, 156
- Proto North New Guinea**
 **kani-ŋa* ‘food’, 41
- Proto Papuan Tip**
 **kani-kani* ‘staple food’, 41
- Proto Meso-Melanesian (PMM)**
 **bu(y)ap* ‘*Calophyllum inophyllum*’, 154
 **kaqabusi* ‘*Acalypha* spp.’, 238
 **k<in>ani* ‘staple food’, 42
 **p(i,u)lakis* ‘*Kleinhovia hospita*’, 214
 **siqa(r,R)(a)* ‘betel pepper, *Piper betle*’, 395
 **tita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 220
- Proto NW Solomonian**
 **bosi* ‘*Euodia* spp.’, 212
- Proto Eastern Oceanic (PEOc)**
 **aladroŋa* ‘*Acalypha* sp.’, see *(*k*)a(*r,l*)adroŋa
 **aradroŋa* ‘*Acalypha* sp.’, see *(*k*)a(*r,l*)adroŋa
 **bakuRa* ‘*Calophyllum* sp., probably *C. kajewskii*’, 154
 **biRi-biRi* ‘k.o. shore tree, *Hernandia nymphaefolia*’, 137
 **bulipa* ‘*Ficus* sp.’, 310
 **gama* ‘*Finschia cloroxantha*’, 351
 **ipi* ‘Tahitian chestnut, *Inocarpus fagifer*’, 318
 *[*ja*]lato ‘nettle tree, *Dendrocnide* sp.’, 232
 *(*k*)aladroŋa ‘*Acalypha* sp.’, see *(*k*)a(*r,l*)adroŋa
- **kalaqabusi* ‘*Acalypha* sp.’, see *(*k*)a(*r,l*)aqabusi
 *(*k*)a(*r,l*)adroŋa ‘*Acalypha* sp.’, 239
 **ka(r,l)aqabusi* ‘*Acalypha* sp.’, 238
 **kapika* ‘*Syzygium malaccense*’, 349
 **kirip^wa* ‘coconut growth stage 2: very small newly formed fruit’, 362
 **koka* ‘tree sp., *Bischofia javanica*’, 208, 243
 **kurat* ‘*Morinda citrifolia*’, 408
 **lato* ‘nettle tree, *Dendrocnide* sp.’, see *[*ja*]lato
 **lisa* ‘nit, louse egg; seed’, 119
 **mab^we* ‘Tahitian chestnut, *Inocarpus fagifer*’, 319
 **melo* ‘*Elaeocarpus angustifolius*’, 197
 **milo* ‘*Thespesia populnea*’, 143
 **m^wa(q)ele* ‘a cycad, *Cycas rumphii*’, 291
 **m^waŋV* ‘pandanus leaf’, 332
 **ñatuaq* ‘*Burckella obovata*’, 338
 **pakalo*, **p^wakala* (?) ‘*Hibiscus* sp.’, 140
 **pala* ‘cut nut, bush nut, *Barringtonia* sp.’, 322
 **paRage* ‘*Pangium edule*’, 336
 **paRu* ‘*Hibiscus tiliaceus*’, 139
 **piRu(q)* ‘fan palm, umbrella palm’, 222
 **piRo* ‘*Saccharum* sp.’, 254
 **putu(n)* ‘*Barringtonia asiatica*’, 151
 *[*qa*]ŋaRi ‘canarium almond, *Canarium* spp.’, 315
 **qatita* ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218
 **rako* ‘*Heliconia* sp., usually *H. indica*’, 421
 **rarap* ‘Indian coral tree, *Erythrina variegata*’, 160
 *[*re*]rej^wa ‘yellow material, prepared turmeric (?)’, 413
 **sinu* ‘taxon of shrubs whose sap causes irritation, including species of *Phaleria*’, 226
 **talise* ‘*Terminalia catappa*’, 325
 **tapoRa* ‘*Terminalia* spp.’, 326
 **tawan* ‘*Pometia pinnata*’, 343
 **toŋoR* ‘mangrove’, 177

*toRa(s) ‘a hardwood tree, *Intsia bijuga*’, 200

*yaRu ‘*Casuarina equisetifolia*’, 157

Proto SE Solomonic

*(q)one-(q)one ‘*Heritiera littoralis*’, 182

*vayalo ‘*Hibiscus tiliaceus*’, 140

Proto Malaita–Makira

*[walu]walu ‘the world; uncultivated bush, 35

Proto Remote Oceanic (PROc)

*baga ‘*Ficus* spp.; generic for *Ficus*?’, 305

*bala ‘*Cyathea* sp.’, see *b^(w)ala

*buavu ‘*Hernandia* sp.’, 138

*buka ‘taxon of littoral trees, including *Pisonia* spp. and *Gyrocarpus americanus*’, 168

*b^(w)ala ‘*Cyathea* sp.’, 300

*damu ‘*Dioscorea* sp.’, 264

*kawa ‘kava’; presumably also ‘ginger, fish-poison plants’, 397

*kilit ‘skin, bark’, 122

*maRi ‘breadfruit’, 285

*m^wala(q)u ‘*Glochidion* spp.’, 241

*m^wanaya ‘grass’, 250

*Raka ‘k.vine, *Pueraria lobata*’, 274

*raqu ‘dragon plum tree, *Dracontomelon dao*’, 194

*sasaRu ‘*Abelmoschus manihot*’, 295

*vaRo ‘*Neisosperma oppositifolium*’, 167

*vitaquR ‘*Calophyllum inophyllum*’, 153

*vuba ‘k.o. vine, probably *Derris elliptica*’, 411

*wasi-wasi ‘*Sterculia vitiensis*’, 224, 335

Proto Southern Oceanic (PSOc)

*(b(a,o))bosi ‘*Ficus* sp.’, 308

*b^weta ‘taro, *Colocasia esculenta*’, 268

*diŋori(q) ‘*Cananga odorata*’, 209

*(la)lawis ‘*Polyscias* sp.’, 299

*mab^(w)ola ‘*Garcinia* sp.’, 226

*m^walak ‘spider lily, *Crinum asiaticum*’, 422

*numo ‘*Diospyros* spp.’, 211

*rivu-rivu ‘small or medium-sized free-standing *Ficus* sp.’, 310

*va(i,y)u ‘*Pandanus* sp.’, 330

*vato ‘*Neisosperma oppositifolium*’, 167

*vayu ‘*Pandanus* sp.’, see *va(i,y)u

*walasi ‘*Semecarpus vitiensis*’, 228

Proto North/Central Vanuatu (PNCV)

*bei ‘*Polyscias scutellaria*’, 299

*biri-biri ‘k.o. shore tree, *Hernandia nymphaefolia*’, 137

*bue ‘(made of) bamboo’, 403

*buliva ‘*Ficus scabra*’, 310

*b^wakala ‘*Hibiscus* sp.’, 140

*(dr,d)aRa(q,k)(a,i) ‘wild nutmeg, *Myristica* sp.’, 217

*ga-lato ‘nettle tree’, 232

*katabola ‘*Dracontomelon dao*’, 195

*kea ‘kava; sour, bitter’, 397

*keka ‘cockscomb plant, *Amaranthus tricolor*’, 297

*k<in>ani-ana ‘staple food’, 42

*lalaso ‘*Polyscias scutellaria*’ (?), 299

*ma(t,d)aga ‘*Kleinhovia hospita*’, 213

*madaga ‘*Kleinhovia hospita*’, see *ma(t,d)aga

*malausi ‘*Garuga floribunda*’, 199

*mal-mali ‘*Garuga floribunda*’, 347

*mali ‘*Spondias cytherea*’, 347

*ma(t,d)aga ‘*Kleinhovia hospita*’, 213

*matala ‘*Kleinhovia hospita*’, 214

*(q)ove ‘*Gyrocarpus americanus*’, 166

*raa, *ra-ra- ‘branch’, 94

*tavaya ‘bottle gourd, *Lagenaria siceraria*’, 423

*usi ‘*Spondias cytherea*’, 199, 346

*vera ‘*Abelmoschus manihot*’, 295

*vuabu ‘*Barringtonia asiatica*’, 151

Proto South Melanesian

*n(e,i)mo ‘*Diospyros* spp.’, 211

Proto South Vanuatu (PSV)

*n-ban ‘banana (generic)’, 279

*nə-b^wal ‘*Hibiscus* sp.’, 140

*b^watyV ‘yam sp.’, see *(nə-tai-)b^watyV

*na-bVbosi *Ficus* sp.’, 308

*na-b^wus(Vn) ‘whitewood, *Alphitonia zizyphoides*’, 212

*na-dani ‘wild nutmeg, *Myristica fatua*’, see *na-(dr,d)ani

*ne-dyol ‘*Dillenia biflora*’, 211

- **na-dona*(q) ‘mangrove, *Rhizophora* spp.’, 177
 **na-(dr,d)ani* ‘wild nutmeg, *Myristica fatua*’, 217
 **na-gam* ‘*Finschia cloroxantha*’, see **na-(i)gam*
 **na-yaviy* ‘*Syzygium malaccense*’, 349
 **na-yilas* ‘*Semecarpus vitiensis*’, 228
 **na-yniab*^wus ‘*Acalypha* sp.’, 238
 **na-yura*(t,c) ‘*Morinda citrifolia*’, 409
 **na-(i)gam* ‘*Finschia cloroxantha*’, 351
 *(i)tuv ‘*Derris* sp. usually *trifoliata*’, 410
 **na-ju*(v,w)as ‘*Elaeocarpus angustifolius*’, see **na-(s,j)u*(v,w)as
 **na-mel*(p)au ‘*Glochidion* spp.’, 241
 **ne-molis* ‘citrus fruit’, 339
 **n-mob*^wol ‘*Garcinia* sp.’, 226
 **nə-ntaw* ‘*Dysoxylum* sp.’, 196
 **-m*^wariq ‘*Dioscorea* sp.’, 261
 **na-nas* ‘tree sp., *Scaevola* sp.’, 142
 **na-ntawa*(n) ‘*Pometia pinnata*’, 343
 **na-rap* ‘Indian coral tree, *Erythrina variegata*’, 160
 **na-r*(o,u)r(o,u)(q) ‘pumpkin, gourd’, 425
 **na-(s,j)u*(v,w)as ‘*Elaeocarpus angustifolius*’, 197
 *(nə-tai-)b^watyV ‘yam sp.’, 263
 **nə-talis* ‘*Terminalia catappa*’, 325
 **na-təŋ* ‘*Ficus* sp.’, 309
 **na-tetaq* ‘*Excoecaria agallocha*’, 181
 **tuv* ‘*Derris* sp. usually *trifoliata*’, see *(i)tuv
 **na-va*(i,y)u ‘*Pandanus* sp.’, 330
 **na-(v,w)an*(vu) (?) ‘*Guettarda speciosa*’, 165
 **nə-vau* ‘*Hibiscus tiliaceus*’, 139
 **na-vəraq* ‘sprouting coconut and/or its pith’, 373
 **na-viris* ‘*Spondias cytherea*’, 345
 **na-(v)iuŋ* ‘wild cane’, 253
 **na-vup* ‘k.o. vine’, 411
 **nə-vutoy* ‘brain’, 375
 **na-wan*(vu) (?) ‘*Guettarda speciosa*’, see **na-(v,w)an*(vu)
 **nə-was* ‘*Abelmoschus manihot*’, 295
 **nə-yatuq* ‘*Burckella obovata*’, 338

Proto Erakor-Tafea

**tuan* ‘*Dysoxylum* spp.’, 196

Proto Micronesian (PMic)

- **ar*(e,o)ŋ, **ar*(e,o)ŋu- ‘coconut cream, scraped coconut meat’, 372
 **cen* ‘*Tournefortia argentea*’, 145
 **fadoka* ‘planted thing, cultivated plants’, 71
 **fadok*(-i) ‘to plant (s.t.)’, 71
 **fara* ‘core (of breadfruit, coconut, pandanus)’, 374
 **manu* ‘pandanus leaf’, 107, 332
 **na-nasu* ‘*Scaevola* sp.’, 143
 **noko* ‘midrib of a coconut frond or leaf’, 384
 **piji-piji* ‘*Hernandia nymphaefolia*’, 138
 **pir*, **piri*- ‘growth or lump under the skin, spongy core of mature coconut’, 375
 **p*^were ‘to sprout, blossom’, 111
 **taliŋa ni para* ‘fungus growing on tree trunks’ (lit. ‘ear of thunder’), 236
 **upa* ‘*Derris* vine’, 411
 **walu* ‘vegetation, forest’, 35

Proto Chuukic-Ponapeic

**p*^wulaka ‘swamp taro, *Cyrtosperma merkusii*’, 270

Proto Chuukic

- **adi-adi* ‘*Wedelia biflora*’, 133
 **kulu* ‘*Barringtonia asiatica*’, 283

Proto Western Micronesian

**m*^waku-*m*^waku ‘arrowroot, *T. leontopetaloides*’, 274

Proto Central Pacific (PCP)

- **abia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’, 288
 **aro-aro* ‘*Premna* spp.’, 171
 **bau* ‘hardwood taxon’ (see above), 204
 **bitu* ‘bamboo sp., probably *Schizostachyum glaucifolium*’, 402
 **bua-bua* ‘*Guettarda speciosa* or *Fagraea* sp.’, 163
 **buka* ‘taxon of littoral trees, including *Pisonia* spp., *Hernandia nymphaefolia* and *Gyrocarpus americanus*’, 168

- **bibī* ‘*Hernandia* spp.’, 138
 **dilo* ‘*Calophyllum inophyllum*’, 155
 **doi* ‘*Alphitonia* spp.’, 239
 **jī* ‘taxon consisting of *Cordyline fruticosa* and *Dracaena angustifolia*’, 419
 **kalaka* ‘*Planchonella* sp.’, 203
 **ka(r,l)aqabusi* ‘*Acalypha* spp.’, 238
 **kavika* ‘*Syzygium malaccense*’, 349
 **kawa* ‘kava, *Piper* sp., fish-poison plants; sour, bitter’; probably also ‘*Zingiber* spp.’, 397
 **koka* ‘tree sp., *Bischofia javanica*’, 208, 243
 **legi-legi* ‘puzzlenut tree, *Xylocarpus granatum*’, 183
 **loŋo-loŋo* ‘a cycad, *Cycas rumphii*’, 291
 **mako* ‘*Trichospermum richii*’, 249
 **manauī* ‘*Garuga floribunda*’, 199
 **m*^(w)*aso-koi* ‘perfume tree, *Cananga odorata*’, 192
 **nas(e,i)* ‘edible roots of certain plants?’, 224
 **ŋi(a)-ŋia* ‘*Pemphis acidula*’, 141
 **qarom*^(ē,ā) ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, 246
 **qayawa* ‘*Ficus* spp.’, 304
 **raqu* ‘dragon plum tree, *Dracontomelon vitiense*’, see *(*tawa*)*raqu*
 **rewa* ‘tree, *Cerbera* sp., probably *Cerbera odollam*’, 179
 **sea* ‘tree, *Parinari insularum*’, 220
 **sei* ‘flower, especially as an ornament’, 113
 **talise* ‘*Terminalia catappa*’, 325
 **tawa* ‘*Pometia pinnata*’, 343
 *(*tawa*)*raqu* ‘dragon plum tree, *Dracontomelon vitiense*’, 195
 **toŋo* ‘mangrove, probably *Bruguiera gymnorrhiza*; mangroves (generic)’, 177
 **tui-tui* ‘candlenut tree, *Aleurites moluccana*’, 404
 **usi* ‘*Euodia hortensis*’, 212
 **vau* ‘*Hibiscus tiliaceus*’, 139
 **vaŋ(o,u)* ‘wax gourd, *Benincasa hispida*’, 424
 **vesi* ‘a coastal forest tree taxon including *Pongamia pinnata* and *Intsia bijuga*’, 170
 **vetaqu* ‘*Calophyllum inophyllum*’, 153
 **viu* ‘fan palm, umbrella palm, *Pritchardia pacifica*’, 223
 **wī* ‘*Spondias cytherea*’, 345
- Proto Polynesian (PPn)**
 **alo-alo* ‘*Premna* sp.’, 171
 *(*f,p*)*ano* ‘*Guettarda speciosa*’, 165
 **fesi* ‘*Intsia bijuga*’, 170
 **kaka* ‘clothlike fibre surrounding base of coconut fronds’, 385
 *[*ka*-]*jkano* ‘flesh, seed’, 371
 **kau* ‘wood, timber, stalk, stem, handle’, 17
 **kawa* ‘kava; sour, bitter’, 397
 **kawa-sasa* ‘a creeper used to poison fish’, 397
 **kawa-susu* ‘shrub sp., *Tephrosia* sp., used to poison fish’, 398
 **lala* ‘shrub, probably *Vitex* sp.’, 146
 **leki-leki* ‘puzzlenut tree, *Xylocarpus* sp.’, 183
 **malo* ‘barkcloth loin garment’, 406
 **maŋa* ‘branch, fork; branching, forked’, 97
 **mā-soaʔa* ‘Polynesian arrowroot, *Tacca* sp.’, 274
 **mosokoi* ‘*Cananga odorata*’, 193
 **nas(e,i)* ‘giant fern, *Angiopteris evecta*, with edible root’, 224
 **ŋasu* ‘a seaside shrub, *Scaevola* sp.’, 143
 **ŋatae* ‘Indian coral tree, *Erythrina variegata*’, 160
 **palalafa* ‘stalk and midrib of a coconut frond’, 383
 **pano* ‘*Guettarda speciosa*’, see *(*f,p*)*ano*
 **pi-pi* ‘k.o. shore tree, *Hernandia nymphaefolia*’, 138
 **pia* ‘Polynesian arrowroot, *Tacca leontopetaloides*’, 288
 **pou-muli* ‘*Flueggea flexuosa*’, 162

- **pua* ‘taxon including *Fagraea berteroana* and *Guettarda speciosa*’, 163
- **pua-pua* ‘*Guettarda speciosa*’, 163
- **puka-tea* ‘*Pisonia* sp. or spp.’, 170
- **q[a,o]loŋā* ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, 246
- **qāwa* ‘banyan tree, *Ficus prolixa* (?)’, 304
- **qoloŋā* ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, see **q[a,o]loŋā*
- **quto* ‘brain; pith of a tree; inner part of something; spongy mass in sprouting coconut’, 375
- **raʔakau* ‘generic term for tree or woody plant; wood, timber; generic for all plants’, 73
- **sinu* ‘*Phaleria* sp.’, 226
- **tahi* ‘heartwood, including that of *Cordia subcordata*’, 91, 136
- **tausinu* ‘*Tournefortia argentea*’, 145
- **tawahi* ‘*Rhus taitensis*’, 247
- **toa* ‘*Casuarina equisetifolia*’, 201
- **walo-walo* *Premna* spp.’, 172
- **wao* ‘forest’, 35

Proto Nuclear Polynesian

- **kawa-kawa qatua* ‘a shrub or vine, *Piper* sp.’, 397
- **kawa-pui* ‘a plant, *Zingiber* sp.’, 398
- **tai-tea* ‘sapwood’ (**tea* ‘white’), 92
- **tausinu* ‘*Tournefortia argentea*’, 145
- **tausunu* ‘*Tournefortia argentea*’, 145

Proto Eastern Polynesian

- **fue* ‘gourd, *Lagenaria siceraria*’, 132

Alphabetical index of reconstructions

In alphabetising reconstructions, *a* is treated as *e*, *y* is treated as *g,ñ* and *ŋ* as *n*, *ʔ* as *q*, *R* as *r*, superscripted *w* as *w*, and macrons, parentheses and brackets are ignored. Where alternants are shown in parentheses or brackets, e.g. (*r,R*) or [*q,k*], the second alternant is ignored, but is often shown in a crossreferenced entry at the appropriate alphabetic point. PSV reconstructions which consist of **n(V)-* ‘ARTICLE’ + ROOT are alphabetised by the root.

- **abia*, PCP, ‘Polynesian arrowroot, *Tacca leontopetaloides*’, 288
- **adi-adi*, Proto Chuukic, ‘*Wedelia biflora*’, 133
- **aka(r,R)*, POc, ‘root’, 100
- **aladroŋa*, PEOc, ‘*Acalypha* sp.’, see **(k)a(r,l)adroŋa*
- **alipa*, POc, ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), see **(q)alipa*, **lalipa*
- **alo-alo*, PPn, ‘*Premna* sp.’, 171
- *[*a*]ñuliŋ, POc, ‘*Pisonia* sp.’, 168
- **anuliŋ*, PMP, ‘*Pisonia umbellifera*’, 168
- **aradroŋa*, PEOc, ‘*Acalypha* sp.’, see **(k)a(r,l)adroŋa*
- **ar(e,o)ŋ*, **ar(e,o)ŋu-*, PMic, ‘coconut cream, scraped coconut meat’, 372
- **aro-aro*, PCP, ‘*Premna* spp.’, 171
- **aRu*, POc, ‘a shore tree, *Casuarina equisetifolia*’, 157
- **aRuhu*, PMP, ‘a shore tree: *Casuarina equisetifolia*’, see **[q]aRuhu*
- **aruq*, Early Oceanic, ‘pumpkin, *Cucurbita moschata* ?’, see **waluq* OR **[w]aruq*
- **aRu-taniŋ*, POc, ‘*Casuarina equisetifolia*’, 158
- **bVbosi, na-*, PSV, *Ficus* sp.’, 308
- **babak*, POc, ‘*Falcataria moluccana*’, 188
- **(b(a,o))bosi*, PSOc, ‘*Ficus* sp.’, 308
- **badak*, PMP, ‘Zingiberaceae spp. with edible rhizomes’, 415
- **baga*, PROc, ‘*Ficus* spp.; generic for *Ficus*?’, 305
- **bai-bai(t)*, POc, ‘a cycad, *Cycas rumphii*’, 291
- **bail*, PCEMP, ‘*Falcataria moluccana* or *Albizia* sp.’, 189
- **ba(k,g)a*, POc, ‘banyan tree, medium-sized *Ficus* spp., not stranglers’, 305
- **bakuRa*, PEOc, ‘*Calophyllum* sp., probably *C. kajewskii*’, 154
- **bala*, POc, ‘taxon including various *Euodia* spp.’ (?), 212
- **bala*, POc, ‘tree fern, *Cycas* or *Cyathea* sp.’, see **b^(w)ala*
- **bala*, PROc, ‘*Cyathea* sp.’, see **b^(w)ala*
- **bala(p,b)a(q)*, POc, ‘palm branch; midrib of palm frond’, 383
- **bali(j,z)i*, PMP, ‘(type of ?) grass’, 75
- **-ban, n-*, PSV, ‘banana (generic)’, 279
- **banaRo*, PMP, ‘*Thespesia populnea*’, 143
- **banaRo*, POc, ‘*Thespesia populnea*’, see **(p,b)anaRo*

- **baqun*, POc, ‘banana cultivar’, 279
- **baRa-baRa*, POc, ‘stem or stalk of non-woody plants, such as taro and banana, probably also the soft stems of leaves’, 92
- **bara*, PWOC, ‘*Macaranga* spp.’, 244
- *[*baR*]baR, POc, ‘coral tree, *Erythrina variegata*’, 159
- **baRbaR*, PMP, ‘coral tree, *Erythrina variegata*’, 159
- **baReko*, POc, ‘breadfruit’, 284
- **baRu*, PMP, ‘*Hibiscus tiliaceus*’, 138
- **basi*, PWOC, ‘mango’, 342
- **bataŋ*, PMP, ‘stalk, trunk’, 89
- **batu*, PAn, ‘stone’, 118
- **bau*, PCP, ‘hardwood taxon’ (see above), 204
- **bau*, POc, ‘hardwood taxon’, 204
- **baul*, PWOC, ‘mangrove, *Rhizophora* sp. (?)’, 175
- **bauRa*, POc, ‘*Ficus* sp.’, perhaps a strangler fig, 309
- **ba(y)it*, PMP, ‘a cycad, *Cycas rumphii*’, 291
- **bei*, PNCV, ‘*Polyscias scutellaria*’, 299
- **bele*, POc, ‘*Abelmoschus manihot*’, 295
- **belit*, **bulit*, PAn, ‘viscous, sticky’, 123
- **beta*, POc, ‘breadfruit’, 285
- **betuŋ*, PAn, ‘bamboo of very large diameter, probably *Dendrocalamus* sp.’, 402
- **bibi*, PCP, ‘*Hernandia* spp.’, 138
- **binu(q)an*, PMP, ‘*Macaranga* spp., perhaps *M. involucrata*’, 243
- **biRaq*, PMP, ‘taro sp.’, 272
- **biRi-biRi*, PEOc, ‘k.o. shore tree, *Hernandia nymphaefolia*’, 137
- **biRi-biRi*, POc, ‘*Hernandia nymphaefolia*’, 137
- **biri-biri*, PNCV, ‘k.o. shore tree, *Hernandia nymphaefolia*’, 137
- **biRu?*, PMP, ‘fan palm, *Licuala rumphii*’, 222
- **bita*, PWOC, ‘dry coconut frond, dry coconut frond torch; fish at night’, 383
- **bitaquR*, PMP, ‘*Calophyllum inophyllum*’, 153
- **bitu*, PCEMP, ‘*Imperata cylindrica*’, 252
- **bitu*, PCP, ‘bamboo sp., probably *Schizostachyum glaucifolium*’, 402
- **bitu(ŋ)*, POc, ‘bamboo sp.’, 253, 402
- **bo-bosi*, PSOC, ‘*Ficus* sp.’, see *(*b(a,o)*)*bosi*
- **bosi*, POc, ‘a forest tree with white wood, probably *Euodia elleryana*’, 212
- **bosi*, PSOC, ‘*Ficus* sp.’, see *(*b(a,o)*)*bosi*
- **bosi*, Proto NW Solomonian, ‘*Euodia* spp.’, 212
- **boso*, POc, ‘k.o. taro’, see *(*p,b*)*oso*
- **botu(ŋ)*, POc, ‘large bamboo, presumably *Bambusa* sp.’, 402
- **bou*, POc, ‘*Fagraea* spp.’, 162
- **buabua*, PCP, ‘*Guettarda speciosa* or *Fagraea* sp.’, 163
- **bual(a)*, PCEMP, ‘*Caryota* sp.’, 221
- *[*bual*]bual, POc, ‘species of palm used for making spears and bows; palm-wood spear or bow, probably *Caryota* sp.’, 221
- **buabq*, PAn, ‘fruit’, 115, 393
- **buabq*, PMP, ‘roundish or fruit-like object, including betelnut, *Areca catechu*’, 393
- **buabq*, POc, ‘betelnut, areca nut, palm, *Areca catechu*’, 393
- **buavvu*, PROc, ‘*Hernandia* sp.’, 138
- **bue*, PNCV, ‘(made of) bamboo’, 403
- **bue*, POc, ‘(made of) bamboo’, 403
- **buka*, PCP, ‘taxon of littoral trees, including *Pisonia* spp., *Hernandia nymphaefolia* and *Gyrocarpus americanus*’, 168
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 **jiRi*, POc, ‘taxon consisting of *Cordyline fruticosa* and *Dracaena angustifolia*’, 418
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 **joRaga*, POc, ‘banana, *Fe’i* (?) cultivars’, 278
 **juli*, POc, ‘to transplant’, see *(*s,j*)*juli*
 **juli(q)*, POc, ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’, see *[*s,j*]*juli(q)*

- *-ju(v,w)as, na-, PSV, ‘*Elaeocarpus angustifolius*’, see *na-(s,j)u(v,w)as
- *kaiak, PCEMP, ‘*Albizia* sp.’, see *ka(w)iak
- *kai(k), POc, ‘*Albizia* sp.’, 189
- *kaka, POc, ‘young coconut frond; coconut frond netting protecting young frond’, 384
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- *kalaqabusi, POc, ‘*Acalypha* spp.’, see *ka[(r,l)a]qabusi
- *kalijo, PWOC, ‘edible kernel of breadfruit segments’, 119
- *kamisa, PWOC, ‘lesser yam, *Dioscorea esculenta*’, 263
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- *kam^(w)apaR, PWOC, ‘*Cryptocarya* sp.’, 210
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- *kanana, PAdm, ‘food’, 41
- *ka(nj)aRi, PCEMP, ‘canarium almond, *Canarium* spp.’, 315
- *[ka]ŋaRi, POc, ‘canarium almond, *Canarium indicum*’, 315
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- *kan-en, PMP, ‘something to be eaten, food’, 370
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- *kanon, POc, ‘flesh, inner substance, coconut flesh’, 370
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- *karaŋ^wam, POc, ‘seaweed, seagrass’, 131
- *ka(r,l)aqabusi, PCP, ‘*Acalypha* spp.’, 238
- *ka(r,l)aqabusi, PEOc, ‘*Acalypha* sp.’, 238
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- *kara(t), POc, ‘a small stinging plant, perhaps *Laportea interrupta*’, 233
- *kaRi(q)a, POc, ‘taxon of decorative plants’, 419
- *kaRi(q)ana, POc, ‘*Pandanus lamekotensis*’, 333
- *karut, POc, ‘coconut growth stage 6: green, drinkable’, 363
- *kasuwai, PWOC, ‘mango’, 342
- *katabola, PNCV, ‘*Dracontomelon dao*’, 195
- *[ka]tim(o,u)n, POc, ‘*Cucumis* spp. (generic?); cucumber, *Cucumis sativus*’, 426
- *[ka]timun, PMP, ‘cucurbit (generic); cucumber, *Cucumis sativus*’, 426
- *kati(p)al, POc, ‘a palm with black wood, *Caryota* sp.’, 221
- *katipa(l,n), PMP, ‘a palm with black wood, *Caryota* sp.’, 221
- *katita, POc, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, see *(q,k)atita

- **katita*, PWOC, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218
- **kau*, PPn, ‘wood, timber, stalk, stem, handle’, 17
- **kaul*, PWOC, ‘seed yam’, see **ka(p)ul*
- **kavika*, PCP, ‘*Syzygium malaccense*’, 349
- **kawa*, PCP, ‘kava, *Piper* sp., fish-poison plants; sour, bitter’; probably also ‘*Zingiber* spp.’, 397
- **kawa*, PPn, ‘kava; sour, bitter’, 397
- **kawa*, PROc, ‘kava’; presumably also ‘ginger, fish-poison plants’, 397
- **kawa-kawa qatua*, Proto Nuclear Polynesian, ‘a shrub or vine, *Piper* sp.’, 397
- **kawa-pui*, Proto Nuclear Polynesian, ‘a plant, *Zingiber* sp.’, 398
- **kawaRi*, POc, ‘root(s) with special properties: one or more of *Zingiber zerumbet*, *Piper subbullatum*, and various fish-poison plants’, 396
- **kawa-sasa*, PPn, ‘a creeper used to poison fish’, 397
- **kawa-susu*, PPn, ‘shrub sp., *Tephrosia* sp., used to poison fish’, 398
- **ka(w)iak*, PCEMP, ‘*Albizia* sp.’, 189
- **kayu*, PMP, ‘tree, wood, timber’, 17, 71
- **kayu*, POc, ‘tree or shrub: generic name for plants with woody stems and branches, probably not including palms or tree-ferns; wood, stick’, 17, 44, 71
- **kayu qone*, POc, ‘*Heritiera littoralis*’, 45, 182
- **kea*, PNCV, ‘kava; sour, bitter’, 397
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- **k<in>ani-ana*, PNCV, ‘staple food’, 42
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- **kiRe*, POc, ‘coastal *Pandanus* sp., probably *Pandanus tectorius*’, 329
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- **koka*, PCP, ‘tree sp., *Bischofia javanica*’, 208, 243
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- **koka*, POc, ‘*Macaranga* spp.’, 243
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- **koma(r,R)(o,u)*, POc, ‘*Endospermum* sp.’, 198
- **kopu*, POc, ‘bamboo sp.’, 402
- **koRa*, POc, ‘wild mango, *Mangifera minor*’, 341
- **kubu*, POc, ‘coconut growth stage 3, 4 or 5: young and green’, 367
- **kulapu(R)*, POc, ‘*Dillenia schlechteri*’, 193
- **kulit*, PMP, (N) ‘skin’, 120
- **kulit*, POc, (N) ‘skin (of animals, people, fruit), bark (of trees)’, 120
- **kulit-i-*, POc, (VT) ‘to skin s.t., to remove bark from a tree’, 120
- **kulit-i*, PMP, (VT) ‘to remove the skin of s.t., to remove bark from a tree’, 120
- **kulo*, POc, ‘stem of fruit, especially banana’, 117
- **kulu*, POc, ‘coconut growth stage 9: ripe, flesh hardened’, 364
- **kulu*, Proto Chuukic, ‘*Barringtonia asiatica*’, 283
- **kuluR*, PMP, ‘breadfruit, *Artocarpus altilis*’, 283
- **kuluR*, POc, ‘breadfruit, *Artocarpus altilis*’, 150, 283
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- **kurat*, POc, ‘the dye produced from *Morinda citrifolia*’, 408
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 *laji, PMP, ‘tree sp. with poisonous sap, *Antiaris toxicaria* (?)’, 227
 *lala, PPn, ‘shrub, probably *Vitex* sp.’, 146
 *lalaso, PNCV, ‘*Polyscias scutellaria*’ (?), 299
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 *lalipa, POc, ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), see *(q)alipa, *lalipa
 *lalom, POc, ‘inside’, 100
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 *laqia, POc, ‘ginger, *Zingiber officinale* (?)’, 414
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 *lato, PEOc, ‘nettle tree, *Dendrocnide* sp.’, see *[ja]lato
 *latoŋ, POc, ‘*Laportea* and *Dendrocnide* spp.’, see *[ja]latoŋ
 *latoŋ, PWoc, ‘nettle tree, *Dendrocnide* sp., perhaps *D. warburgii*’, see *[ja]latoŋ
 *lawis, PSOc, ‘*Polyscias* sp.’, see *(la)lawis
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 *leki-leki, PPn, ‘puzzlenut tree, *Xylocarpus* sp.’, 183
 *limut, POc, ‘generic term for mosses, algae and seaweeds’, 77
 *li(ŋ)sa, PAn, ‘nit, louse’s egg’, 119
 *lisa, PEOc, ‘nit, louse egg; seed’, 119
 *loŋo-loŋo, PCP, ‘a cycad, *Cycas rumphii*’, 291
 *lowaŋa, PCEMP, ‘*Litsea* sp.’, 215
 *lowaŋa, POc, ‘*Litsea* sp.’, 215
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 *mali, PWoc, ‘*Derris* sp.’, see *m^(w)ali
 *mal-mali, PNCV, ‘*Garuga floribunda*’, 347
 *malo-, POc, ‘breadfruit flower, breadfruit core’, 120
 *malo, POc, ‘paper mulberry, *Broussonetia papyrifera*; barkcloth, loin-cloth’, 405
 *malo, PPn, ‘barkcloth loin garment’, 406
 *mal(u,aw), PMP, ‘tree whose bast is used for barkcloth’, 405
 *mamisa, PWoc, ‘lesser yam, *Dioscorea esculenta*’, 264
 *manau, PCP, ‘*Garuga floribunda*’, 199
 *maŋa, PPn, ‘branch, fork; branching, forked’, 97
 *maŋu, PMic, ‘pandanus leaf’, 107, 332
 *mapuqan, POc, ‘*Flueggea flexuosa*’ (?), 164
 *maqota, POc, ‘*Dysoxylum* spp.’, 196
 *maRakita, POc, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 220
 *maRako, POc, ‘*Trichospermum peekelii*’, 248
 *(ma)Raŋaw, PMP, ‘dry’, 365
 *[ma-]raŋo, POc, ‘become withered (of vegetation)’, 365

- **maRaŋo*, POc, ‘coconut growth stage 9: ripe, flesh hardened (or stage 10: dry and ready to fall)’, 365
- **maRi*, PROc, ‘breadfruit’, 285
- **mari(a)sapa*, POc, ‘*Syzygium* sp.’, 350
- **ma-saŋa*, POc, ‘to be branching or forked (VI); branch (of tree, river, path), fork, crotch (N)’, 96
- **mase*, POc, ‘wild mulberry, paper mulberry, *Broussonetia papyrifera*’, see **m^(w)ase*
- **mā-soaʔa*, PPn, ‘Polynesian arrowroot, *Tacca* sp.’, 274
- **maso-koi*, PCP, ‘perfume tree, *Cananga odorata*’, see **m^(w)aso-koi*
- **maso(q)u*, POc, ‘wild cinnamon, *Cinnamomum* sp., probably *C. xanthoneuron*; possibly also *Cananga odorata*’, see **m^(w)aso(q)u*
- **ma(t,d)aga*, PNCV, ‘*Kleinhovia hospita*’, 213
- **matagaR(a)*, POc, ‘*Kleinhovia hospita*’, see **ma(i)tagaR(a)*
- **matala*, PNCV, ‘*Kleinhovia hospita*’, 214
- **matu(qu)*, PEMP, ‘dry coconut’, 363
- **matuqu*, POc, ‘coconut growth stage 9: ripe, flesh hardened’, 357, 363
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- **meñak*, PMP, ‘fat, grease’, 372
- **milo*, PEOc, ‘*Thespesia populnea*’, 143
- *-*mob^wol*, n-, PSV, ‘*Garcinia* sp.’, 226
- **moke*, PWOC, ‘*Pandanus* sp.’, 334
- *-*molis*, ne-, PSV, ‘citrus fruit’, 339
- **molis*, POc, ‘citrus fruit or citrus-like fruit, perhaps *Clymenia polyantra*’, 339
- **moña*, PAdm, ‘pandanus with long red or yellow fruit, probably *Pandanus conoideus*’, 332
- **moñak*, POc, ‘fat, oil, cream, coconut cream; tasty’, 372
- **mosokoi*, PPn, ‘*Cananga odorata*’, 193
- *-*mtaw*, nə-, PSV, ‘*Dysoxylum* sp.’, 196
- **m^waele*, PEOc, ‘a cycad, *Cycas rumphii*’, see **m^wa(q)ele*
- **m^waku-m^waku*, Proto Western Micronesian, ‘arrowroot, *T. leontopetaloides*’, 274
- **m^walak*, POc, (?) ‘spider lily, *Crinum asiaticum*’, 422
- **m^walak*, PSOC, ‘spider lily, *Crinum asiaticum*’, 422
- **m^wala(q)u*, POc, ‘*Glochidion philippicum*’, 241
- **m^wala(q)u*, PROc, ‘*Glochidion* spp.’, 241
- **m^(w)ali*, PWOC, ‘*Derris* sp.’, 411
- **m^waŋV*, PEOc, ‘pandanus leaf’, 332
- **m^wanaya*, PROc, ‘grass’, 250
- **m^waña*, POc, ‘*Pandanus* sp., perhaps *Pandanus conoideus*’, 332
- **m^wapo(q)*, POc, ‘taro, *Colocasia esculenta*’, 256, 267
- **m^wa(q)ele*, PEOc, ‘a cycad, *Cycas rumphii*’, 291
- **m^wa(r,R)e*, PWOC, ‘taxon including *Cordia* *variegatum* and *Cordyline fruticosa*’, 418
- *-*m^wariq*, PSV, ‘*Dioscorea* sp.’, 261
- **m^waruqe*, POc, ‘*Dioscorea* sp. or perhaps a cultivar of *D. alata*’, 261
- **m^(w)ase*, POc, ‘wild mulberry, paper mulberry, *Broussonetia papyrifera*’, 406
- **m^(w)aso-koi*, PCP, ‘perfume tree, *Cananga odorata*’, 192
- **m^(w)aso(q)u*, POc, ‘wild cinnamon, *Cinnamomum* sp., probably *C. xanthoneuron*; possibly also *Cananga odorata*’, 192
- **nagi*, PWOC, ‘*Cordia* sp.’, 136
- **ñalato*, PAdm, ‘*Laportea* and *Dendrocnide* spp.’, see **lalato*, **ñalato*
- **namo*, POc, ‘coconut water’ or ‘coconut growth stage: 3, 4 or 5: young and green’, 370
- **naRa*, PMP, ‘*Pterocarpus indicus*’, 205
- **naRa*, POc, ‘*Pterocarpus indicus*’, 205
- **ŋaRi*, POc, ‘canarium almond, *Canarium indicum*’, see *[*ka*]ŋaRi

- *-nas, na-, PSV, 'tree sp., *Scaevola* sp.', 142
- *nas(e,i), PCP, 'edible roots of certain plants?', 224
- *nas(e,i), PPn, 'giant fern, *Angiopteris evecta*, with edible root', 224
- *-nasu, na-, PMic, '*Scaevola* sp.', 143
- *-nasu, na-, POc, '*Scaevola taccada*', see *na[su]-nasu
- *na[su]-nasu, POc, '*Scaevola taccada*', 142
- *nasu-nasu, PEMP, '*Scaevola taccada*', 142
- *ņasu, PPn, 'a seaside shrub, *Scaevola* sp.', 143
- *ņatae, PPn, 'Indian coral tree, *Erythrina variegata*', 160
- *(nə-tai-)b^watyV, PSV, 'yam sp.', 263
- *ņatuq, PEOc, '*Burckella obovata*', 338
- *ņatuq, PMP, 'a hardwood tree taxon, including at least *Palaquium* spp.', 337
- *ņatuq, POc, '*Burckella obovata*', 337
- *ņau, POc, 'gnaw', 39
- *n(e,i)mo, Proto South Melanesian, '*Diospyros* spp.', 211
- *ni, POc, ASSOCIATIVE following a zero-valency noun (cf *qi, 48)
- *ņi(a)-ņia, PCP, '*Pemphis acidula*', 141
- *nini(q), POc, 'shrub, *Donax cannaeformis*', 225
- *niniq, PMP, 'plant sp., *Donax cannaeformis*, used as material for making baskets', 225
- *nipaq, PAn, '*Nypa fruticans*', 182
- *nipaq, POc, '*Nypa fruticans*', 182
- *nipus, POc, '*Cryptocarya* sp.', 210
- *ņiRac, POc, '*Pemphis acidula*', 141
- *ņiRaj, PMP, '*Pemphis acidula*', 141
- *niuR, PMP, 'coconut, *Cocos nucifera*; ripe coconut (growth stage of *C. nucifera*)', 356
- *niuR, POc, 'coconut palm and/or fruit, *Cocos nucifera*', 356
- *no(k,g)o, POc, 'midrib or spine of coconut leaflet; broom made therefrom', 384
- *noko, PMic, 'midrib of a coconut frond or leaf', 384
- *ñoñu, POc, '*Morinda citrifolia*', 408
- *-ntawa(n), na-, PSV, '*Pometia pinnata*', 343
- *ñuliņ, POc, '*Pisonia* sp.', see *[a]ñuliņ
- *numo, PSOc, '*Diospyros* spp.', 211
- *nunuk, PMP, 'banyan, *Ficus benjamina*', 303
- *nunuk, POc, 'fig trees, *Ficus taxon*', 303
- *olaņa, POc, '*Camptosperma brevipetiolatum*', 191
- *ove, PNCV, '*Gyrocarpus americanus*', see *(q)ove
- *padran, POc, 'coastal pandanus, *Pandanus tectorius*; pandanus (generic)', 328
- *pagal, PWOC, 'palm frond' (?), 380
- *pahuq, PMP, 'mango, probably *Mangifera indica*', 341
- *pail, POc, '*Falcataria moluccana*', 189
- *pakalo, *p^wakala (?), PEOc, '*Hibiscus* sp.', 140
- *pakum, POc, '*Pandanus dubius*', 331
- *pala, PEOc, 'cut nut, bush nut, *Barringtonia* sp.', 322
- *palalafa, PPn, 'stalk and midrib of a coconut frond', 383
- *pala(ņ), POc, 'cut nut, bush nut, *Barringtonia novae-hiberniae* (green variety?)', 321
- *p<ab>a(q)paq, PMP, 'midrib of coconut frond', 383
- *paliaRua, POc, 'a vine, *Merremia peltata*', 234
- *pali[s,j]i, POc, 'generic term for grasses and other grass-like plants', 75, 249
- *paņan, POc, 'eat INTRANSITIVE, feed TRANSITIVE', 39
- *(p,b)anaRo, POc, '*Thespesia populnea*', 143
- *pandan, PMP, 'pandanus', 328
- *pano, PPn, '*Guettarda speciosa*', see *(f,p)ano
- *paņudaL, PAn, 'pandanus', 328

- *[pa]paq[a-], POc, ‘frond of a palm’ (?), 380
- *paqo, POc, ‘*Heliconia* sp’, 421
- *pa(q)paq, PMP, ‘frond of a palm’, 380
- *paqu, POc, ‘*Kleinhovia hospita*’, 214
- *para, PMP, ‘coconut embryo’, 373
- *paRage, PEOc, ‘*Pangium edule*’, 336
- *para(k), POc, ‘Zingiberaceae spp. with edible rhizomes’, 415
- *paraq, POc, ‘spongy mass inside sprouting nut; brain’, 373
- *paRu, PEOc, ‘*Hibiscus tiliaceus*’, 139
- *paRu, POc, ‘*Hibiscus tiliaceus*’, 138
- *pasa, POc, ‘*Cerbera* sp.’, 178
- *pasa(r,R), POc, ‘*Vitex cofassus*’, 206
- *pasa(r,R), POc, ‘large *Pandanus* sp.’, see *p^(w)asa(r,R)
- *pata(η), POc, ‘tree trunk’, 89
- *patuRu, PMP, ‘a cycad, *Cycas rumphii*’, 290
- *patu, POc, ‘stone, rock; seed’, 118
- *pau(q), POc, ‘mango, *Mangifera* sp. (not *indica*)’, 341
- *pawa(t), POc, ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’, see *p^(w)awa(t)
- *pele, POc, ‘nut’ ?, 322
- *pesi, POc, ‘a coastal forest tree, perhaps *Pongamia pinnata*’, 170
- *pia, PPn, ‘Polynesian arrowroot, *Tacca leontopetaloides*’, 288
- *pijo, POc, ‘cane or reed taxon, including *Saccharum spontaneum*’, 252, 254
- *p(i,u)lakis, PMM, ‘*Kleinhovia hospita*’, 214
- *pila(q)u, PMP, ‘*Casuarina equisetifolia*’, 158
- *pila(q)u, POc, ‘*Casuarina equisetifolia*’, 158
- *piji-piji, PMic, ‘*Hernandia nymphaefolia*’, 138
- *pinuaq, PWOC, ‘a nut tree, perhaps *Canarium* sp. (?)’, 316
- *pinu(q)an, POc, ‘*Macaranga* spp., perhaps *M. involucrata*’, 243
- *pi-pi, PPn, ‘k.o. shore tree, *Hernandia nymphaefolia*’, 138
- *pir, *piri-, PMic, ‘growth or lump under the skin, spongy core of mature coconut’, 375
- *piRaq, POc, ‘giant taro, elephant ear taro, *Alocasia macrorrhizos*’, 272
- *piRu(q), PEOc, ‘fan palm, umbrella palm’, 222
- *piRu(q), POc, ‘fan palm, *Licuala* sp.’, 222
- *piso, PEOc, ‘*Saccharum* sp.’, 254
- *pitaquR, POc, ‘*Calophyllum inophyllum*’, 153
- *pitu, POc, ‘*Imperata cylindrica*’, 252
- *pi(y)uη, POc, ‘*Miscanthus floridulus*’, 253
- *poipoi, POc, ‘*Pandanus* sp., perhaps *P. tectorius*’, 329
- *poka(q), POc, ‘variety of Malay apple’, 350
- *polo, POc, ‘coconut growth stage 6: green, drinkable’ (?), 363
- *(p,b)oso, POc, ‘k.o. taro’, 273
- *poto(k), POc, ‘thorn, barb of stingray’, 125
- *pou-muli, PPn, ‘*Flueggea flexuosa*’, 162
- *pua, PPn, ‘taxon including *Fagraea berteroana* and *Guettarda speciosa*’, 163
- *pua-pua, PPn, ‘*Guettarda speciosa*’, 163
- *puaq, POc, ‘fruit: generic for fruit as a part of plants, the seed and its envelope (N); to bear fruit (v)’, 115
- *pudi-pudi, PWOC, ‘wild banana’, 50
- *pudi, POc, ‘banana, *Musa* cultivars’, 277
- *puka-tea, PPn, ‘*Pisonia* sp. or spp.’, 170
- *pulu, POc, ‘betel pepper, *Piper betle*’, see *[pu-]pulu
- *puŋa, POc, ‘flower, blossom’, 112
- *puna(t), POc, ‘vine used for fish poison, probably *Derris elliptica*’, 410
- *punti, PMP, ‘banana’, 277
- *puŋu, PMP, ‘bunch, cluster (of grain, fruit, areca nuts, etc.)’, 116
- *puŋu, POc, ‘bunch or cluster of fruit or nuts’, 116

- **punut*, POc, ‘coconut husk, fibres on coconut husk’, 376
- *[*pu-]pulu*, POc, ‘betel pepper, *Piper betle*’, 394
- **pu-pulu*, PMP, ‘*Piper betle*’, 394
- **puqu(n)*, POc, ‘base of tree; source, origin’, 90
- **puqu(n)*, POc, ‘tree, shrub’, 47
- **puqun*, PMP, ‘base of tree, source, origin’, 90
- **puRe*, POc, ‘taxon of beach creepers; perhaps prototypically *Ipomoea grandiflora* and *Ipomoea pes-caprae*’, 132
- **puro*, POc, ‘squeeze coconut milk onto food’, 371
- **puro-ŋ*, POc, ‘coconut pulp; pudding made by squeezing’; perhaps ‘grind’, 314, 371
- **puto-*, PAdm, ‘spongy mass inside sprouting nut’, 375
- **putu(n)*, PEOc, ‘*Barringtonia asiatica*’, 151
- **putun*, POc, ‘*Barringtonia asiatica*’, 150
- **p^wabosi*, POc, ‘freestanding small or medium-sized *Ficus* sp., probably *F. wassa*’, 307
- **p^wa(k,g)e*, POc, ‘k.o. green vegetable (?)’, 296
- *[*p^wano*]*p^wano*, POc, ‘*Guettarda speciosa*’, 165
- **p^w(a)asa(r,R)*, POc, ‘large *Pandanus* sp.’, 334
- **p^wasepe*, POc, ‘*Dioscorea alata* variety (?)’, 262
- **p^watika*, POc, ‘potato yam, aerial yam, *Dioscorea bulbifera*’, 262
- **p^w(a)awa(t)*, POc, ‘*Cerbera* spp., probably *C. floribunda* and *C. manghas*’, 179
- **p^wenu(t)*, POc, ‘coconut husk’, 377
- **p^wer(e)*, POc, ‘to sprout, grow’, 111
- **p^were*, PMic, ‘to sprout, blossom’, 111
- **p^wete*, POc, ‘bird’s nest fern, *Asplenium nidus*’, 235
- **p^wiga*, PWOc, ‘coconut growth stage 3, 4 or 5: young and green’, 368
- **p^wi(r,R)a*, POc, ‘*Cananga odorata*’, 209
- **p^wiras*, POc, ‘pithy ball inside sprouted coconut’, 375
- **p^wulaka*, Proto Chuukic-Ponapeic, ‘swamp taro, *Cyrtosperma merkusii*’, 270
- **p^w(a)atoRu*, POc, ‘a cycad, *Cycas rumphii*’, 290
- *(*q*)*a-b^waji*, POc, ‘coconut growth stage 2: very small newly formed fruit’, 362
- **qadamay*, PMP, ‘*Pipturus argenteus*’, 245
- **qaiwa*, PAdm, ‘banyan, *Ficus* spp.’, 303
- **qa(l,R)a*, POc, ‘*Ficus* sp.’, 308
- *(*q*)*alipa*, **lalipa*, POc, ‘nut sp., possibly canarium almond, *Canarium* sp.’ (?), 317
- **q[a,o]loŋā*, PPn, ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, 246
- *[*qa*]*ŋaRi*, PEOc, ‘canarium almond, *Canarium* spp.’, 315
- *[*qa*]*p^wasu*, PWOc, ‘taro leaves’ ?, 269
- **qaram^waqi*, POc, ‘*Pipturus argenteus*’, 245
- **qaRa?*, PMP, ‘*Ficus* spp.’, 308
- **qarom^w(ē,ā)*, PCP, ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, 246
- **qarop*, POc, ‘*Premna* spp.’, 171
- **qaRsam*, PMP, ‘fern sp.’, 233
- *[*q*]*aRuhu*, PMP, ‘a shore tree: *Casuarina equisetifolia*’, 157
- **qasam*, POc, ‘fern used for tying and binding, *Lygodium circinnatum*’, 233
- **qatV*, POc, ‘*Terminalia* sp. with edible nut’, 326
- **qatay-qatay*, PMP, ‘a climbing plant, *Wedelia biflora*’, 133
- *(*qate-*)*qate*, POc, ‘*Wedelia biflora*’, 133
- *(*q,k*)*atita*, POc, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218

- **qatita*, PEOc, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 218
- **qauR*, PAn, ‘bamboo sp.’, 400
- **qauR*, PMP, ‘type of large bamboo’, 400
- **qauR*, POc, ‘bamboo spp.’, 400
- **qāwa*, PPn, ‘banyan tree, *Ficus prolixa* (?)’, 304
- **qayawa*, PCP, ‘*Ficus* spp.’, 304
- **qayawan*, PEMP, ‘banyan tree, *Ficus* sp.’, 303
- **qayawan*, POc, ‘*Ficus* strangler fig taxon’, 303
- **qi*, POc, ASSOCIATIVE following a monovalent noun (cf **ni*, 48)
- **qili*, POc, (N) ‘sprout, shoot (esp. of banana or taro)’, 110
- **qipil*, PMP, ‘a hardwood tree, *Intsia bijuga*’, 201
- **qipil*, POc, ‘a taxon of hardwood trees including *Intsia bijuga* and *Casuarina equisetifolia*’, 201
- **qipil*, POc, ‘ironwood, *Intsia bijuga*’, 318
- **qitiŋ*, PMP, ‘bunch of bananas’, 117
- **qitiŋ*, POc, ‘a hand or bunch of bananas’, 117
- **qoloŋā*, PPn, ‘shrub or tree sp., *Pipturus* sp.; bark used for cordage’, see **q[a,o]loŋā*
- **(q)one-(q)one*, Proto SE Solomonic, ‘*Heritiera littoralis*’, 182
- **qone*, POc, ‘sand, sandy beach’, 181
- **qone-qone*, POc, ‘sandy’, 181
- **qope*, POc, ‘*Gyrocarpus americanus*’, 166
- **(q)ove*, PNCV, ‘*Gyrocarpus americanus*’, 166
- **quay*, PAn, ‘rattan, *Calamus* sp.’, 229
- **qubi*, PMP, ‘yam’, 260
- **qulu-*, POc, ‘head, top part, hair of the head’, 91
- **qulu*, PMP, ‘head; top part; leader, chief; headwaters; handle of a bladed implement; prow of a boat; first, first-born’, 91
- **quma*, POc, ‘garden, plantation’, 27, 34
- **qupi*, POc, ‘greater yam, *Dioscorea alata*; yam (generic)’, 260
- **quRis*, POc, ‘*Spondias cytherea*’, 345
- **qutan*, POc, ‘bushland, hinterland; inland’, 27, 34
- **(quta)quta*, POc, ‘grass and weeds (generic)’, 249
- **quto*, PPn, ‘brain; pith of a tree; inner part of something; spongy mass in sprouting coconut’, 375
- **qutok*, POc, ‘brain, pith, marrow’, 374
- **qu(w)e*, POc, ‘rattan, *Calamus* spp.’, 229
- **raa*, **ra-ra-*, PNCV, ‘branch’, 94
- **Rabia*, POc, ‘sago, *Metroxylon* spp., mainly *Metroxylon sagu* (syn. *Metroxylon rumphii*)’, 288
- **rabum*, POc, ‘grass’, 249
- **raga(q)*, POc, ‘branch’, 95
- **Raka*, PROc, ‘k.vine, *Pueraria lobata*’, 274
- **rako*, PEOc, ‘*Heliconia* sp., usually *H. indica*’, 421
- **rako(q)*, POc, ‘branch, twig’, 95
- **rama*, POc, ‘shoot, new leaf, seedling’, 111
- **ramaR*, POc, ‘coconut leaf used as a torch when fishing’, 382
- **Rambia*, PMP, ‘sago palm’, 288
- **Ramut*, POc, ‘fine, hair-like roots’, 101
- **Raŋaw*, PMP, ‘dry’, see *(*ma*)*Raŋaw*
- **raŋo*, POc, ‘become withered (of vegetation)’, see **[ma-]raŋo*
- **-rap, na-*, PSV, ‘Indian coral tree, *Erythrina variegata*’, 160
- **rap*, PWOC, ‘coral tree, *Erythrina* spp.’, 160
- **raʔakau*, PPn, ‘generic term for tree or woody plant; wood, timber; generic for all plants’, 73
- **raqan*, POc, ‘branch of tree or other plant’, 94
- **raqu*, PCP, ‘dragon plum tree, *Dracontomelon vitiense*’, see *(*tawa*)*raqu*
- **raqu*, PROc, ‘dragon plum tree, *Dracontomelon dao*’, 194

- **raqu(p)*, POc, ‘New Guinea walnut, *Dracontomelon dao*’, 194
- **rarap*, PEOc, ‘Indian coral tree, *Erythrina variegata*’, 160
- **rarap*, POc, ‘coral tree, *Erythrina* spp.’, 160
- **raun*, POc, ‘leaf, general term for leaves of all types of plants’, 103
- **raun*, POc, ‘leaf’, 47
- **rej^wa*, PEOc, ‘yellow material, prepared turmeric (?)’, see *[*re*]rej^wa
- **Reqi*, PCEMP, ‘sword grass, *Imperata cylindrica*’, 251
- **Reqi*, POc, ‘sword grass, *Imperata cylindrica*’, 251
- *[*re*]rej^wa, PEOc, ‘yellow material, prepared turmeric (?)’, 413
- **rewa*, PCP, ‘tree, *Cerbera* sp., probably *Cerbera odollam*’, 179
- **Rigi*, POc, ‘rosewood, *Pterocarpus indicus*’, 205
- **rivu-rivu*, PSoc, ‘small or medium-sized freestanding *Ficus* sp.’, 310
- *-*r(o,u)r(o,u)(q)*, na-, PSV, ‘pumpkin, gourd’, 425
- **Runut*, PMP, ‘plant fibres’, 385
- **Runut*, POc, ‘sheath around base of coconut frond, used as strainer’, 385
- **ruRi*, POc, ‘thorns’, see *(*dr,r*)uRi
- **sabakap*, POc, ‘*Alstonia scholaris*’, 187
- **sab^wa(r,R)i*, PNGOc, ‘*Calophyllum* sp.’, 156
- **sakumu*, PWOC, ‘*Pandanus* sp.’, see *(*s,j*)a(*q,k*)umu
- **sakup*, POc, ‘banana cultivar with long fruit’ (?), 278
- **saŋa*, PMP, ‘bifurcation, to branch’, 96
- **saŋa*, POc, ‘fork (in tree), forked stick or post, crotch’, 96
- *(*s,j*)a(*q,k*)umu, PWOC, ‘*Pandanus* sp.’, 334
- **saRum*, POc, ‘needle, tattooing needle (typically made from wing-bone of flying fox)’, 126
- **sasaRi*, POc, ‘midrib of coconut frond’, 383
- **sasaRu*, PROc, ‘*Abelmoschus manihot*’, 295
- **sea*, PCP, ‘tree, *Parinari insularum*’, 220
- **see*, POc, ‘flower’, 113
- **sei*, PCP, ‘flower, especially as an ornament’, 113
- **seRa*, POc, ‘*Ficus* sp., perhaps *F. adenosperma*’, 309
- **sila*, POc, ‘Job’s tears, *Coix lachrym-jobi*’, 253
- **sinu*, PEOc, ‘taxon of shrubs whose sap causes irritation, including species of *Phaleria*’, 226
- **sinu*, PPn, ‘*Phaleria* sp.’, 226
- **siqa(r,R)(a)*, PMM, ‘betel pepper, *Piper betle*’, 395
- **siRi*, PMP, ‘*Cordyline* sp., *Dracaena* sp.’, 418
- *[*s,j*]uli(*q*), POc, ‘banana or taro sucker, slip, cutting, shoot (i.e. propagation material)’, 108
- *(*s,j*)uli, POc, ‘to transplant’, 110
- **suliq*, PAn, ‘runner, sucker, shoot, 108
- **sulu(q)*, POc, ‘dry coconut leaf torch; dry coconut leaf’, 381
- **suluq*, PMP, ‘torch’, 381
- **suRuq*, POc, ‘sap, soup, drinkable liquid derived from plants, fruits or trees’, 369
- *-(*s,j*)u(*v,w*)as, na-, PSV, ‘*Elaeocarpus angustifolius*’, 197
- **tabun*, PWOC, ‘*Garcinia* sp.’, 226
- **tabuqaR*, PCEMP, ‘*Saccharum*’, 301
- **tabuqaR*, PWOC, ‘*Saccharum edule*’, 301
- **tab^wa*, POc, ‘coconut growth stage 12: sprouted’, 366
- **tahi*, PPn, ‘(heart)wood’, 91
- **tahi*, PPn, ‘heartwood, including that of *Cordia subcordata*’, 136
- **tai-tea*, Proto Nuclear Polynesian, ‘sapwood’ (**tea* ‘white’), 92
- **tales*, PMP, ‘taro, *Colocasia esculenta*’, 266
- **taliŋa ni para*, PMic, ‘fungus growing on tree trunks’ (lit. ‘ear of thunder’), 236

- **taliŋa*, POc, ‘ear; jelly fungus’, 235
 **taliŋa*, POc, ‘generic term for mushrooms and fleshy fungi; ear’, 78
 **-talis*, nə-, PSV, ‘*Terminalia catappa*’, 325
 **talisay*, PMP, ‘*Terminalia catappa*’, 324
 **talise*, PCP, ‘*Terminalia catappa*’, 325
 **talise*, PEOc, ‘*Terminalia catappa*’, 325
 **talise*, POc, ‘*Terminalia catappa*’, 324
 **talo*, PCEMP, ‘*Calophyllum inophyllum*’, 155
 **talo(s)*, POc, ‘taro, *Colocasia esculenta*’, 256, 266
 **talun*, POc, ‘old garden, fallow land, land returning to secondary growth’, 35
 **tamaji*, POc, ‘additional ingredients to accompany starchy food’, 27, 43
 **tamanu*, POc, ‘*Calophyllum* sp.’, 154
 **-təŋ*, na-, PSV, ‘*Ficus* sp.’, 309
 **təŋa*, POc, ‘*Ficus tinctoria*’, 308
 **təpi(l)*, POc, ‘puzzlenut tree, *Xylocarpus granatum*’ (?), 183
 **təpoRa*, PEOc, ‘*Terminalia* spp.’, 326
 **təpoRa*, POc, ‘a nut-bearing tree sp.’, 326
 **tausinu*, PPn, ‘*Tournefortia argentea*’, 145
 **tausinu*, Proto Nuclear Polynesian, ‘*Tournefortia argentea*’, 145
 **tausunu*, Proto Nuclear Polynesian, ‘*Tournefortia argentea*’, 145
 **tavaya*, PNCV, ‘bottle gourd, *Lagenaria siceraria*’, 423
 **tawa*, PCP, ‘*Pometia pinnata*’, 343
 **tawahi*, PPn, ‘*Rhus taitensis*’, 247
 **tawan*, PEMP, ‘*Pometia pinnata*’, 343
 **tawan*, PEOc, ‘*Pometia pinnata*’, 343
 **tawan*, POc, ‘*Pometia pinnata*’, 343
 *(*tawa*)*raqu*, PCP, ‘dragon plum tree, *Dracontomelon vitiense*’, 195
 **tawasi*, POc, ‘*Rhus taitensis*’, 247
 **tebuS*, PAn, ‘sugarcane’, 390
 **teŋeR*, PAn, ‘mangrove, *Bruguiera* spp.’, 176
 **teRas*, PMP, ‘hard; hardwood’, 200
 **-tetaq*, na-, PSV, ‘*Excoecaria agallocha*’, 181
 **tim(o,u)n*, POc, ‘*Cucumis* spp. (generic?); cucumber, *Cucumis sativus*’, see *[ka]tim(o,u)n
 **timun*, PMP, ‘cucurbit (generic); cucumber, *Cucumis sativus*’, see *[ka]timun
 **tita*, PMM, ‘the putty nut, probably *Parinari laurina* and *Parinari glaberrima*’, 220
 **toa*, PPn, ‘*Casuarina equisetifolia*’, 201
 **toŋo*, PCP, ‘mangrove, probably *Bruguiera gymnorrhiza*; mangroves (generic)’, 177
 **toŋoR*, PEOc, ‘mangrove’, 177
 **toŋoR*, POc, ‘mangrove, *Bruguiera* spp.; mangroves (generic)’, 176
 **topu*, POc, ‘sugarcane, *Saccharum officinarum*’, 390
 **toRa(s)*, PEOc, ‘a hardwood tree, *Intsia bijuga*’, 200
 **toRas*, POc, ‘a taxon of hardwood trees including *Intsia bijuga*’ (?), 200
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