Appendix 1 – List of plants mentioned in the text

Abelmoschus Manihot (L.) Medik – Yellow/edible hibiscus

Acacia leucophloea (Roxb.) Willd. – White-bark acacia

Acalypha sp. – Euphorbiaceae

Acer laurinum Hassk. – Maple

Achras sapota L. – Sapodilla

Actinodaphne sp. – Lauraceae

Aegle marmelos Correa – Bael

Ageratum conyzoides L. – Billygoat weed

Albizia lebbek (L.) Benth. – Indian siris/acacia

Albizia procera (Roxb.) Benth. – Tall Albizia

Albizia saponaria (Lour.) Blume ex Miq. – Whiteflower albizia

Aleurites moluccana (L.) Willd. – Candlenut

Allium ascalonicum L. – Wild onion

Allium cepa L. – Onion

Allium fistulosum L. – Welsh/green onion

Alocasia spp. – Araceae

Alstonia scholaris (L.) R. BR. – Devil tree/dita bark

Amaranthus spinosus L. – Thorny pigweed

Amaranthus viridis L. – Slender amaranth

Anacardium occidentale L. – Cashew

Anamirta cocculus (L.) Wight & Arn. – Fishberry

Ananas comosus (L.) Merr. – Pineapple

Andropogon spp. – Poaceae

Annona muricata L. – Soursop

Annona reticulata L. – Custard apple

Annona squamosa L. – Sugar apple

Antiaris toxicaria Lesch. – Upas tree

Appium graveolens – Celery

Apluda mutica L. – Mauritian grass

Arachis hypogaea L. – Peanut

Areca catechu L. – Betelnut

Arenga pinnata (Wurmb.) Merrill – Gamuti/sugar palm

Argemone sp. – Papaveraceae (Poppy) family

Artocarpus altilis Fosb. – Breadfruit

A. gomezianus wall. ex Trécul – Moraceae

Artocarpus heterophyllus Lam. – Jackfruit

Averrhoa bilimbi L. – Bilimbi/cucumber tree

Averrhoa carambola L. – Carambola/star fruit

Bambusa spp. – Bamboo

Barringtonia asiatica (L.) Kurz – Fish-poison tree

Barringtonia edulis Seem. – Cutnut

Barringtonia procera (Miers) R. Knuth – Cutnut

Bauhinia acuminata L. – White dwarf orchid

Bauhinia tomentosa L. – Yellow bauhinia

Benincasa hispida (Thunb.) Cogn. – Wax gourd

Betula sp. – Betulaceae (birch family)

Bidens sp. – Compositae

Bischofia javanica Blume – Bishopwood/Java cedar

Bixa orellana L. – Annatto

Boehmeria platanifolia Franch. & Savat. – False nettle

Borassus flabellifer L. – Lontar/Palmyra palm

Bothriochloa bladhii Retz. S.T. Blake subsp. *glabra* – Caucasian bluestem

Brachiaria mutica (Forssk.) Stapf – Para grass

Brassica juncea (L.) Czern. – Indian/brown mustard

Buchanania arborescens (Blume) Blume – Little gooseberry tree

Cajanus cajan (L.) Millsp. – Pigeon pea/Red gram

Calamus rotang L. – Rattan palm

Calophyllum inophyllum L. –Alexandrian laurel/Beach mahogany

Camellia sinensis (L.) O. Kuntze. – Tea plant

Canarium asperum Benth. – Canarium

Canarium vulgare L. – Java almond/Chinese olive

Canarium indicum L. – Canarium/Native almond

Canavalia spp. – Fabaceae (bean family)

Capsicum annum L. – Sweet pepper

Carallia brachiata (Lour.) Merr. – False kelat/Billabong tree

Carica papaya – Papaya

C*aryota mitis* Lour. – Fishtail palm

Cassia fistula L. – Golden shower

Cassia occidentalis L. – Coffee senna

Castanopsis spp. – Chestnut family

Casuarina equisetifolia L. – Autralian pine/ironwood

Casuarina junghuhniana Miq. – Forest oak

Ceiba pentandra L. – Kapok tree

Celtis philippensis Blanco – Hard Celtis

Celtis sinensis Pers. – Chinese hackberry

Cenchrus brownie Roem. & Schult. – Fine-bristle sandbur

Chenopodium ambrosioides L. – Mexican tea/wormseed

Chloris elata Desv. – Tall windmill grass

Cinchona succirubra Pav.– Quinine

Cinnamomum zeylanicum Blume. – Cinnamon

Citrullus lanatus (Thunb.) Matsum. & Nakai – Watermelon

Citrus grandis (L.) Osbeck – Pummelo

Citrus reticulata L. – Mandarin/tangerine

Cleistocalyx operculata (Roxb.) Merr. & Perry – Water banyan

Cleome rutidosperma DC. – Fringed spiderflower

Cleome viscosa L. – Tickweed

Clerodendrum sp. – Verbenaceae

Cocculus spp. – Menispermaceae

Cocos nucifera L. – Coconut palm

Coffea arabica L. – Arabica coffee

Coffea liberica W. Bull ex Hiern – Liberian/excelsea coffee

Coffea robusta L. – Congo/robusta coffee

Coix lachryma-jobi L. – Job's tears

Colocasia esculenta var. *antiquorum* Schott & Endl. – Wild taro

Colocasia esculenta (L.) Schott. – Taro

Commelina benghalensis L. – Jio/Benghal dayflower

Corchorus olitorius L. – Jew's mallow/nalta jute

Cordyline fruticosa (L.) A. Chev – Ti plant

Corylus chinensis Franch. – Chinese hazel

Corypha utan Lam. – Gebang palm

Crotalaria bracteata Roxb. Ex DC. – Fabaceae (rattlepod family)

Croton tiglium L. – Purging croton

Cucumis melo L. – Muskmelon

Cucumis sativus L. – Cucumber

Cucurbita maxima Duchesne – Winter squash

Cucurbita moschata Duchesne – Crookneck squash

Cynodon dactylon (L.) Pers. – Bermuda grass

Cyperus compressus L. – Poorland flatsedge

Cyperus iria L. – Ricefield flatsedge

Cyrtosperma merkusii (Hassk.) Schott. – Gallan/swam taro

Dactyloctenium aegyptium (L.) Willd. – Egyptian grass

Dacrycarpus imbricatus (Blume) de Laubenf.) – Podocarpaceae

Desmodium laxiflorum DC. – Spanish clover

Dichanthium caricosum (L.) A. Camus – Nadi bluegrass

Digitaria violascens Link. – Purple crab grass

Digitaria setigera Roth – East Indian crab grass

Dioscorea alata L. – Greater/white/winged yam

Dioscorea esculenta (Lour.) Burkill – Chinese/lesser yam

Dioscorea hispida Dennst. – Asiatic/bitter/wild yam

Dolichos trilobus L. – African gram/three-lobe-leaf cowpea

Dracontomelon dao (Blanco) Merr. & Rolfe – New Guinea/Pacific walnut

Drypetes sp. – Euphorbiaceae

Dysoxylum acutangulum Miq. – Meliaceae

Dysoxylum speciosum Miq. – Meliaceae

Echinochloa colona (L.) Link) – Jungle rice

Echinochloa crusgalli (L.) Beauv. – Barnyardgrass

Ehretia acuminata R. Br. – Koda tree

Elaeis guineensis Jacq. – African oil palm

Elaeocarpus petiolatus (Jack) Wall. – Broad-leafed oil fruit

Eleocharis spp. – Cyperaceae

Eleusine coracana (L.) Gaertn. – Finger millet

Eleusine indica (L.) Gaertn. – Goose grass

Eragrostis elongata (Willd.) J.Jacq. – Long lovegrass

Erythrina variegata L. – Coral tree

Eucalyptus alba Reinw. ex Blume – White eucalyptus

Eucalyptus urophylla S.T. Blake – Timor white gum

Eugeissona spp. – Arecaceae

Euonymus japonicus Thunb. – Japanese spindle tree

Eupatorium lindleyanum DC. – No vernacular name, Asteraceae family

Euphorbia sp. – Euphorbiaceae

Ficus ampelas Burm .f. – Fig

Ficus benghalensis L. – Banyan tree/East Indian fig

Ficus religiosa L. – Bo tree/sacred fig

Fimbristylis globulosa (Retz.) Kunth – Globe fimbry

Galium sp. – Bedstraw, Rubiaceae

Garcinia mangostana L. – Mangosteen

Garuga floribunda Decne – Garuga, Burseraceae

Glochidion zeylanicum Juss. var. *Malayanum* – Glochidion, Euphorbiaceae

Glycine max (L.) Merr. – Soybean

Gomphrena celosioides Mart. – Gomphrena weed

Gossypium sp. – Malvaceae (cotton family)

Grewia spp. – Tiliaceae

Helenium sp. – Asteraceae

Heritiera sp. – Sterculiaceae

Hernandia sp. – Hernandiaceae

Heteropogon contortus (L.) P. Beauv. ex Roem. & Schult. – Black spear grass

Hevea brasiliensis (Willd. ex A. Juss.) Müll.Arg. – Para rubber tree

Hibiscus tiliaceus L. – Sea/beach hibiscus

Homalium tomentosum (Vent.) Benth. – Flacourtiaceae

Hydrangea sp. – Hydrangeaceae

Hypericum japonicum Thunb. – Matted St. John's wort

Indigofera tinctoria L. – True indigo

Inocarpus fagifer (Parkinson) Fosberg – Polynesian/Tahitian chestnut

Intsia bijuga (Colebr.) Kuntze – Moluccan ironwood/Borneo teak

Ipomoea aquatica Forssk. – Water spinach

Ipomoea batatas (L.) Lam. – Sweet potato

Ipomea pes-caprae (L.) R. Br. – Beach morning-glory/railroad vine

Juglan spp. – Walnut family

Lablab purpureus (L.) – Bonavist/hyacinth bean

Lagenaria siceraria (Molina) Standl. – Bottle gourd

Leucaena leucocephala (Lam.) De wit – Lead tree/wild tamarind

Licuala spinosa Thunb. – Mangrove fan palm

Lindera sp. – Lauraceae

Litchi chinensis Sonn. – Lychee

Luffa spp. – Cucurbitaceae

Macropitilium lathyroides (L.) Urb. – Phasemy bean

Madhuca spp. – Spotaceae

Mallotus philippensis Muell. – Kamala tree

Malvastrum sp. – Malvaceae

Mangifera caesia Jack – Binjai

Mangifera indica L. – Mango

Manihot esculenta Crantz – Cassava/manioc

Maranthes corymbosa Blume – Chrysobalanaceae

Melia azedarach L. – Chinaberry/white cedar

Melochia concatenata (L.) – Chocolateweed

Mentha sp. – Mint, Lamiaceae

Metroxylon sagu Rottb. – Sago palm

Millettia xylocarpa Miq. – Fabaceae

Mimosa diplotricha C. Wright – Giant sensitive plant

Mischocarpus australis S. T. Reynolds – Read pear fruit

Mnesithea rottboellioides (R. Br.) de Koning & Sosef – Poaceae

Morinda citrifolia L. – Indian mulberry

Moringa oleifera Lam. – Ben tree/drumstick/horseradish

Mormodica charantia L. – Bitter melon

Musa spp. – Bananas/plantains

Myristica fragrans Houtt. – Nutmeg

Nelumbo spp. – Nymphaeceae/Lotus family

Neonauclea calycina (Bartl. ex DC) Merr. – Hooded bur-flower tree

Neolitsea cassiaefolia Merr. – Grey bollywood

Nicotiana tabacum L. – Tobacco

Nymphaea sp. – Nymphaceae (water lily) family

Oenothera sp. – Onagraceae

Olea paniculata R. Br. – Native olive/maulwood

Oryza sativa L. – Domesticated rice

Oxalis corniculata L. – Creeping wood/yellow sorrel

Pachyrrhizus erosus (L.) Urb. –Yam bean

Pandanus tectorius Parkinson – Screwpine

Pangium edule Reinw. – Football fruit/pangi

Panicum delicatulum Fig. & De Not. – Poaceae

Pennisetum glaucum - (L.)R.Br. – Pearl millet

Panicum miliaceum L. – Broomcorn millet

Pararchidendron pruinosum var. *junghuhnianum* (Benth.) I. C. Nielsen – Mimosaceae

Paspalum conjugatum P. J. Bergius – Buffalo grass

Passiflora quadrangularis L. – Giant granadilla

Perotis hordeiformis Nees – Poaceae

Persea gratissima Gaertn. fil. – Avocado

Persicaria barbata (L.) H.Hara – Joint weed

Phaseolus spp. – Fabaceae (bean family)

Phoenix dactylifera L. – Date palm

Phyllanthus amarus Schumach. & Thonn. – Carry me seed/shatterstone

Phyllanthus urinaria L. – Child-pick-a-back

Physalis sp. – Solanaceae

Pimenta dioica (L.) Merr. – Allspice/pimento

Piper betle L. – Betel pepper/vine

Pisum sativum L. – Pea

Pittosporum moluccanum (Lam.) Miq. – Pittosporaceae

Pollia sp. – Commelinaceae

Polygala sp. – Polygalaceae

Polyscias cumingiana (C. Presl) Fern.-Vill. – Fern-leaf aralia

Pometia pinnata J. R. Forst. & G. Forst. – Oceanic/island lychee

Pongamia pinnata (L.) Pierre – Pongam/Indian beech

Portulaca grandiflora Hook. – Moss rose

Portulaca oleracea L. – Purslane

Pouteria lucuma (Ruiz & Pav.) Kuntze – Lucuma, Sapotaceae

Pouteria obovata (R. Br.) Baehni – Sapotaceae

Pouteria psammophila (Mart.) Radlk. – Sapotaceae

Premna sp. – Verbenaceae

Picrasma quassioides (D.Don.) Benn. – Pricasma

Protium javanicum Burm. f. – Protium, Burseraceae

Prumnopitys amara (Blume) de Laubenf.) – Indian podocarpus

Prunus spp. – Rosaceae (rose family)

Psophocarpus tetragonolobus (L.) D.C. – Winged/Goa/Asparagus bean

Psidium guajava L. – Guava

Psychotria sp. – Rubiaceae

Pterocarpus indicus Willd. – Narra/rosewood

Punica granatum L. – Pomegranate

Putranjiva roxburghii Wall. – Officinal drypetes

Pygeum sp. – Rosaceae

Raphia spp. – Arecaceae family

Rhynchosia minima (L.) DC. – Rhynchosia

Ricinus communis L. – Castor-oil plant/bean

Rubus sp. – Rosaceae (blackberry family)

Saccharum officinarum L. – Sugarcane

Miliusa horsfieldii (Benn.) Baillon ex Pierre) – Annonaceae

Santalum album L. – Sandalwood

Scaevola taccada (Gaertn.) Roxb. – Beach naupaka

Schleichera oleosa (Lour.) Oken – Ceylon oak/Macassar oil tree

Schoenoplectus spp. – Cyperaceae

Schoutenia ovata Korth. – East Indian wood

Scleria lithosperma (L.) Sw. – Slender nutrush

Sesamum indicum L. – Sesame plant

Sesbania grandiflora (L.) Pers. - Corkwood tree/West Indian pea

Setaria glauca (L.) P. Beauv. – Yellow foxtail

Setaria italica (L.) P.Beauv. – Foxtail millet

Setaria parviflora (Poir.) Kerguelen – Knotroot bristle grass

Setaria verticillata(L.) P.Beauv. – Bristly foxtail/rough bristle grass

Setaria viridis (L.) P. Beauv. – Green foxtail

Sida spp. – Malvaceae

Solanum tuberosum L. – Potato

Solidago sp. – Compositae/Asteraceae family

Sorghum bicolor (L.) Moench. – Sorghum

Spilanthes sp. – Compositae/Asteraceae family

Spinacia oleracea L. – Spinach

Spinifex littoreus (Burm. f.) Merr. – Tumbleweed

Sporobolus sp. – Dropseed, Poaceae

Stachytarpheta jamaicensis (L.) Vahl. – Jamaica snakeweed/blue verbena

Sterculia foetida L. – Indian almond/Java olive

Suaeda marítima (L.) Dumort. – Annual sea-blite

Synedrella nodiflora (Linn.) Gaertn. – Synedrella/Cinderella weed

Syzygium cumini (L.) Skeels – Black plum

Syzygium jambos L. Alston – Rose apple/jambos

Syzygium nervosum DC – Syzygium, Myrtaceae

Tamarindus indica L. – Tamarind

Tecoma stans (L.) Juss. ex Kunth – Ginger Thomas, Yellow trumpet bush

Tectona grandis L. f. – Teak

Terminalia catappa L. – Beach/Sea/Indian almond

Terminalia microcarpa Decne. – Indian Mahogany

Tetrameles nudiflora R. Br. –Tetramelaceae/Datiscaceae family

Theobroma cacao L. – Cocoa tree

Thespesia populnea (L.) Soland. ex Correa – Pacific rosewood/portia tree

Timonius timon (Sprengel) Merr. – Liberal

Toona sureni (Blume) Merr. – Indonesian mahogany.

Tragia sp. – Euphorbiaceae

Trapa natans L. – Water caltrop

Trianthema portulacastrum L. – Desert horse-purslane/black pigweed

Trichosanthes spp. – Cucurbitaceae

Triticum sp. – Domesticated wheat, Poaceae

Usnea sp. – Lichen, Parmeliaceae family

Vaccinium varingiifolium (Blume) Miq. – Ericaceae

Verbena sp. – Vervain, Verbenaceae

Vernonia cinerea (L.) Less. – Little ironweed

Viburnum cylindricum Buch.-Ham. ex D. Don – Virbunum, Caprifoliaceae

Vicia faba L. var. *Faba* – Broad bean

Vigna adenantha (G. Mey.) Maréchal et al. – Fabaceae (bean family)

Vigna mungo (L.) Hepper – Black gram/urd bean

Vigna unguiculata (L.) Walp. subsp. *unguiculata* – Cowpea

Vitex pubescens Vahl. – Hairy-leafed molave

Vitis vinifera L. – Common grape vine

Xylosma amara Kds. – Salicaceae

Wendlandia burkillii Cowan – Rubiaceae

Zanthoxylum rhetsa (Roxb.) DC – Indian ivy-rue

Zea mays L. – Maize/corn

Zingiber officinale Rosc. – Ginger

Ziziphus mauritiana Lam. – Indian jujube

Ziziphus timorensis DC. – Ziziphus, Rhamnaceae

Appendix 2 – Ian Glover's radiocarbon dates (Bui Ceri Uato, Lie Siri, Uai Bobo 1 and Uai Bobo 2)

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Square/ Horizon	Depth cm
ANU327	220 ± 80BP	336BP - 57BP	conventional	unidentified wood	N7E1 (6)/VI	50
ANU325	modern	-	conventional	unidentified wood	N6E1 (15)/I	140

Table 2.1: Radiocarbon determinations from Bui Ceri Uato (adapted from Glover 1986:30).

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Square/Horizon	Depth cm
ANU173	2660 ± 110BP	3005BP – 2433BP	conventional	unidentified wood	N1W9 (2)/VI b	10-15
ANU172	3545 ± 120BP	4153BP – 3554BP	conventional	unidentified wood	N1W10 (2)/VI b	10-20
ANU324	1030 ± 70BP*	1086BP – 772BP	conventional	unidentified wood	N5W9 (3)/VI a	10-15
ANU235	3530 ± 90BP	□007BP – 3581BP	conventional	unidentified wood	N4W11 (4)/VI a	20
ANU171	6635 ± 140BP	7757BP – 7265BP	conventional	unidentified wood	S0W4 (6)/V b	70
ANU236	7270 ± 160	8393BP – 7789BP	conventional	unidentified wood	N4W9 (13)/I-III	100

Table 2.2: Radiocarbon determinations from Lie Siri (adapted from Glover 1986:30).

* Date reflecting modern disturbances (Glover 1986:31).

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	□□C method	Material	Square/ Horizon	Depth cm
ANU332*	350 ± 60	506BP – 302BP	conventional	unidentified wood	C (4)/V	30-40
ANU237	2190 ± 80	2344BP – 2000BP	conventional	unidentified wood	D (6)/III c	50
ANU326	2450 ± 95	2745BP – 2340BP	conventional	unidentified wood	K (8)/III b	60
ANU414	3470 ± 110	3991BP – 3463BP	conventional	unidentified wood	K (9)/III a	70

Table 2.3: Radiocarbon determinations from Uai Bobo 1 (adapted from Glover 1986:30).

* Date reflecting modern disturbances (Glover 1986:31).

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Square/ Horizon	Depth cm
ANU239	3740 ± 90	4359BP – 3879BP	conventional	unidentified wood	A (13)/IX	100
ANU187	5520 ± 60	6414BP – 6206BP	conventional	unidentified wood	A (19)/VII	160
ANU328	7010 ± 125	8046BP – 7590BP	conventional	unidentified wood	A (30)/IV	260
ANU238	13,400 ± 520	17,385BP – 14,206BP	conventional	unidentified wood and seed cases*	IK (9)/I	450

Table 2.4: Radiocarbon determinations from Uai Bobo 2 (adapted from Glover 1986:30).

* The seed cases scattered throughout Horizon 1 were identified as *Celtis* sp.

Appendix 3 – Lene Hara radiocarbon dates

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm
ANU11400	1030 ± 60	690BP – 508BP	AMS	marine shell	2	4-8
ANU11419	33,150 ± 550	38641BP – 36736BP*	AMS	marine shell	4 (A)	12-16
ANU11420	30,970 ± 460	35561BP – 34625BP*	AMS	marine shell	4 (B)	12-16
ANU11398	30,110 ± 320	34560BP – 34084BP*	AMS	marine shell	5	16-20
OZF212	4400 ± 40*	4703BP – 4415BP	AMS	marine shell	7	24-28
ANU11399	32,440 ± 400	37804BP – 36144BP*	AMS	marine shell	10	36-40
OZF213	3620 ± 40*	3629BP – 3403BP	AMS	marine shell	10	36-40
ANU11397	30,990 ± 340	35478BP – 34667BP*	AMS	marine shell	14 (A)	52-56
ANU11418	34,650 ± 630	40726BP – 38875BP*	AMS	marine shell	14 (B)	52-56
ANU11401	30,950 ± 360	35467BP – 34638BP*	AMS	marine shell	18	68-75

Table 2.5: Radiocarbon dates from Lene Hara, square A (after O'Connor *et al*. 2002, O'Connor *et al*. 2002b). * 68% range cal BP, using CalPal 2005 (online version).

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm**
ANU12138	18,740 ± 400	22606BP – 20633BP	AMS	marine shell	2	
ANU12141	18,380 ± 220	22028BP – 20663BP	AMS	marine shell	5	
ANU12139	23,790 ± 210	29132BP – 28285BP*	AMS	marine shell	10	
ANU12142	25,770 ± 630	31336BP – 29994BP*	AMS	marine shell	15	

Table 2.6: Radiocarbon dates from Lene Hara, square B (O'Connor, pers. comm.). * 68% range cal BP, using CalPal 2005 (online version) ** Spit depths averaged 2-4 centimeters.

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm**
ANU12059	3820 ± 80	3984BP – 3552BP	AMS	marine shell	18	
ANU12060	3650 ± 70	3735BP – 3375BP	AMS	marine shell	20	

Table 2.7: Radiocarbon dates from Lene Hara, square D (O'Connor, pers. comm.). * 68% range cal BP, using CalPal 2005 (online version) ** Spit depths averaged 2-4 centimeters.

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm
ANU12140	1170 ± 190	1133BP – 431BP	AMS	marine shell	5	15
ANU12136	3305 ± 190	3597BP – 2714BP	AMS	marine shell	10	30
ANU12041	3850 ± 70	4003BP – 3609BP	AMS	marine shell	16	65
ANU12042	4370 ± 70	4774BP – 4344BP	AMS	marine shell	20	80
ANU12045	5270 ± 80	5839BP – 5466BP	AMS	marine shell	23	95
ANU12044	6200 ± 90	6863BP – 6425BP	AMS	marine shell	30	125
ANU12043	6140 ± 100	6803BP – 6335BP	AMS	marine shell	35	155
OZG894	6890 ± 50*	7501BP – 7294BP	AMS	marine shell	35	155
OZG895	7830 ± 50**	8387BP – 8178BP	AMS	marine shell	41	180
NZA17000	9741 ± 60*	10782BP – 10476BP	AMS	marine shell	42	185
ANU12040	10,050 ± 80	11199BP – 10748BP	AMS	marine shell	42	185

Table 2.8: Radiocarbon dates from Lene Hara, square F. Spit 18 corresponds to the lowest level with pottery. * Date on fishhook ** Date on shell bead (O'Connor & Veth 2005).

Appendix 4 – Macha Kuru 1 and 2 radiocarbon dates

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm*
ANU11835	4650 ± 70	5087BP – 4676BP	AMS	marine shell	5	
NZA16135	5005 ± 40	5456BP – 5273BP	AMS	marine shell	8	
NZA17007	3776 ± 40	3834BP – 3595BP	AMS	marine shell	12	
ANU11632	3840 ± 70	3985BP – 3598BP	AMS	marine shell	14	
ANU11790	7000 ± 70	7622BP – 7376BP	AMS	marine shell	15	
ANU11625	690 ± 60	477BP – 231BP	AMS	marine shell	19	
OZF782	5720 ± 50	6256BP – 5992BP	AMS	marine shell	25	
ANU11624	5230 ± 80	5812BP – 5423BP	AMS	marine shell	27	
ANU11623	5630 ± 120	6276BP – 5749BP	AMS	marine shell	31	
OZF783	4300 ± 50	4565BP – 4262BP	AMS	marine shell	35	

Table 2.9: Radiocarbon dates from Macha Kuru 1, square A (O'Connor, pers. comm.).

* Spit depths averaged 2-4 centimeters.

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm*
ANU11834	4420 ± 70	4791BP – 4412BP	AMS	marine shell	3	
ANU11622	4760 ± 110	5317BP – 4774BP	AMS	marine shell	5	
ANU11621	5620 ± 60	6172BP – 5894BP	AMS	marine shell	7	
ANU11620	4970 ± 70	5480BP – 5061BP	AMS	marine shell	9	
ANU11619	4640 ± 70	5063BP – 4641BP	AMS	marine shell	11	
ANU11618	5240 ± 70	5762BP – 5441BP	AMS	marine shell	14	
ANU11617	5010 ± 90	5572BP – 5112BP	AMS	marine shell	18	
ANU11789	5090 ± 100	5661BP – 5217BP	AMS	marine shell	20	
ANU11616	13,690 ± 130	16259BP – 15280BP	AMS	marine shell	21	
OZF784	9940 ± 60	11103BP – 10671BP	AMS	marine shell	25	

Table 2.10: Radiocarbon dates from Macha Kuru 1, square AA (O'Connor, pers. comm.).

* Spit depths averaged 2-4 centimeters.

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm***
OZG536	7610 ± 50	8484BP – 8344BP	AMS	*Celtis* sp. seed	3	
NZA16136	2450 ± 40	2254BP – 1977BP	AMS	marine shell	10	
NZA17007	3776 ± 40	3834BP – 3595BP	AMS	marine shell	12	
OZG538	3190 ± 40	3132BP – 2862BP	AMS	marine shell	13	
OZG537	2510 ± 50	2451BP – 2744BP	AMS	*Celtis* sp. seed	13	
NZA18656	8966 ± 55	9827BP – 9503BP	AMS	marine shell	15	
NZA17008	10,292 ± 60	11425BP – 11156BP	AMS	marine shell	17	
OZG896	4490 ± 40	4808BP – 4554BP	AMS	marine shell	24	
NZA17009	10,078 ± 60	11207BP – 10884BP	AMS	marine shell	25	
Wk10051	2967 ± 58	2964BP – 3271BP	AMS	dog bone	25	
NZA16137	9650 ± 55	10616BP – 10374BP	AMS	marine shell	26	
OZG899	9190 ± 50	10160BP – 9810BP	AMS	marine shell	31	
OZG897	9260 ± 60*	10219BP – 9894BP	AMS	marine shell	32	
NZA17001	9205 ± 55*	10176BP – 9822BP	AMS	marine shell	32	
NZA16138	11,173 ± 55	12870BP – 12709BP	AMS	marine shell	32	
OZG898	9260 ± 50*	10204BP – 9913BP	AMS	marine shell	35	
OZG737	26,690 ± 170	31740BP – 31157BP*	AMS	*Celtis* sp. seed	36	
NZA16177	31,060 ± 310	35501BP – 34716BP*	AMS	marine shell	41	
NZA16178	31,660 ± 320	36109BP – 35076BP*	AMS	marine shell	44	
OZF785	32,220 ± 300	37359BP – 35911BP*	AMS	marine shell	47	

Table 2.11: Radiocarbon dates from Macha Kuru 2, square D. * Dates on shell bead (O'Connor, pers. comm.) ** 68% range cal BP, using CalPal 2005 (online version) *** Spit depths averaged 2-4 centimeters.

Appendix 5 – Tulupunu (test pit 2) radiocarbon dates

Reference	^{14}C uncal.BP	^{14}C cal.BP (95.4% prob.)	^{14}C method	Material	Spit/ Layer	Depth cm
Wk22809	847 ± 30	800BP – 680BP	AMS	cf. *Erythrina variegata* seed	3/1	30/35
NZA16504	1150 ± 40	1174BP – 962BP	AMS	unidentified wood	4/1	35/40
NZA16630	4123 ± 45	4827BP – 4516BP	AMS	*Celtis* sp. seed	8/2	45/50
Wkk22810	3037 ± 30	3360BP – 3160BP	AMS	cf. *Colocasia esculenta*	10/3	55/60
NZA16428	4409 ± 45	5069BP – 4857BP	AMS	unidentified wood	11/3	60/65
NZA16429	4083 ± 40	4708BP – 4436BP	AMS	unidentified wood	13/3	65/70
NZA16631	5792 ± 45	6721BP – 6474BP	AMS	*Celtis* sp. seed	15,16/3	75/80
NZA16608	5592 ± 40	6111BP – 5890BP	AMS	marine shell	17/3	75/80
NZA16632	5628 ± 45	6493BP – 6302BP	AMS	*Celtis* sp. seed	17/3	75/80
NZA16609	4818 ± 40	5259BP – 4967BP	AMS	marine shell	20/3C	85/100
NZA16430	9892 ± 60	11345BP – 11185BP	AMS	unidentified wood	22/3CD	105/110
NZA16610	11,702 ± 95	13334BP – 12975BP	AMS	marine shell	25/3E	130/140
NZA16633	13,695 ± 70	16937BP – 15976BP	AMS	*Celtis* sp. seed	27,28/3E	140/160

Table 2.12: Radiocarbon dates from Telupunu, test pit 2 (Spriggs, pers. comm.).

Appendix 6 – Jerimalai (squares A and B) radiocarbon dates

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm
Wk19224	2570 ± 34	2758BP – 2696BP	AMS	unidentified wood	3	6
Wk19225	3245± 39	3561BP – 3385BP	AMS	unidentified wood	5	9
Wk18154	5341 ± 41	5834BP – 5598BP	AMS	marine shell	6	11
Wk18155	5567 ± 44	6100BP – 5866BP	AMS	marine shell	12	30
Wk17829	5549 ± 62	6113BP – 5762BP	AMS	marine shell	13	34
Wk19226	5909 ± 40	6420BP – 6245BP	AMS	marine shell	21	52
Wk18156	10,110 ± 79	11242BP – 10875BP	AMS	marine shell	26	64
Wk17830	19,952 ± 235	23944BP – 22582BP	AMS	marine shell	27	66
Wk19227	13,658 ± 91	16145BP – 15308BP	AMS	marine shell	38	88
Wk17831	38,255 ± 596	43415BP – 42146BP*	AMS	marine shell	46	112

Table 2.13: Radiocarbon dates from Jerimalai, square A (O'Connor, pers. comm. – only Wk17831 has been published so far, in O'Connor 2007). * 68% range cal BP, using CalPal 2005 (online version).

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Spits	Depth cm
Wk19228	124 ± 32	151BP – 53BP	AMS	unidentified wood	3	7
Wk19229	4962 ± 50	5453BP – 5168BP	AMS	marine shell	4	9
Wk19230	4580 ± 42	4897BP – 4640BP	AMS	marine shell	9	20
Wk18157	4867 ± 42	5292BP – 5032BP	AMS	marine shell	16	38
Wk18158	5595 ± 43	6121BP – 5887BP	AMS	marine shell	21	50
Wk18159	5694 ± 45	6224BP – 5971BP	AMS	marine shell	23	54
Wk17832	5939 ± 45	6454BP – 6264BP	AMS	marine shell	33	78
Wk19136	6118 ± 41*	6653BP – 6434BP	AMS	marine shell	39	90
Wk19231	8879 ± 78	9772BP – 9392BP	AMS	marine shell	40	91
Wk18160	14,007 ± 146	16715BP – 15669BP	AMS	marine shell	49	113
Wk19232	35,387 ± 534	41210BP – 39297**	AMS	marine shell	56	130
Wk17833	37,267 ± 453	42372BP – 41606BP**	AMS	marine shell	66	172

Table 2.14: Radiocarbon dates from Jerimalai, square B. * Date on shell bead (O'Connor, pers. comm.; only Wk17833 has been published so far, in O'Connor 2007). ** 68% range cal BP, using CalPal 2005 (online version).

Appendix 7 – Peter Lape's radiocarbon dates

Site	Sample material	Lab no.	Method	^{14}C uncal.BP	^{14}C cal.BP (95.4% prob.)
Tutuala	earthenware	U1117	TS	135 ± 15*	150BP – 130BP
Lorilata	wood charcoal	Beta-184711	AMS	240 ± 30	318BP – 269P
Lorilata	earthenware	U1118	TL	371 ± 81*	452BP – 290BP
Lorilata	earthenware	U1119	TL	131 ± 35	170BP – 95BP
Lorilata	earthenware	U1119	OSL	303 ± 40	343BP – 263BP
Lopomalai	earthenware	U1207	TL	259 ± 50**	309BP – 209BP
Lopomalai	earthenware	U1207	OSL	40 ± 11	51BP – 29BP
Lopomalai	earthenware	U1208	TL	505 ± 122	627BP – 383BP
Lopomalai	earthenware	U1208	OSL	57 ± 11	68BP – 46BP
Ili Mimiraka	marine shell	Beta-197355	C14	1430 ± 60	1136BP – 845BP
Ili Mimiraka	earthenware	U1209	TL	485 ± 63	558BP – 442BP
Ili Mimiraka	earthenware	U1209	OSL	3885 ± 399	4280BP – 3480BP
Ili Mimiraka	earthenware	U1116	TL	420 ± 110	530BP – 310BP
Ili Mimiraka	earthenware	U1116	OSL	1010 ± 100	1110BP – 810BP
Mua Mimiraka	earthenware	U1211	TL	3634 ± 650**	4284BP – 3634BP
Mua Mimiraka	earthenware	U1211	OSL	1374 ± 228	1602BP – 1374BP
Tutunchau	wood charcoal	Beta-197356	AMS	170 ± 30	228BP – 133BP
Tutunchau	marine shell	Beta-197357	AMS	1650 ± 40	1290BP – 1113BP
Tutunchau	earthenware	U1210	TL	532 ± 200*	732BP – 332BP
Ili Kerekere	earthenware	U1115	TL	361 ± 39	400BP – 320BP
Ira Ara	marine shell	Beta-214263	AMS	600 ± 40	331BP – 104BP
Ira Ara	charcoal	Beta-214264	AMS	80 ± 40	147BP – 14BP
Ira Ara	human bone	Beta-214265	AMS	360 ± 50	510BP – 300BP
Ira Ara	charcoal	Beta-214266	AMS	310 ± 40	478BP – 297BP
Lekpaturen	charcoal	Beta-196470	AMS	310 ± 40	478BP – 297BP
Lekpaturen	charcoal	NTU-4533	C14	< 200	150BP – 0
Lekpaturen	charcoal	NTU-4475	C14	300 ± 55	498BP – 282BP
Lekpaturen	charcoal	NTU-4546	C14	1290 ± 60	1301BP – 1072BP
Malarahun	charcoal	NTU-4674	C14	410 ± 60	531BP – 417BP
Bukit Aiteas	charcoal	NTU-4669	C14	410 ± 40	523BP – 426BP
Bukit Aiteas	marine shell	NTU-4729	C14	1310 ± 40	935BP – 748BP
Bukit Aiteas	charcoal	NTU-4656	C14	780 ± 55	796BP – 651BP

Table 2.15: Radiocarbon dates obtained by Peter Lape for sites investigated in the Eastern part of East Timor (adapted from Lape 2006:288; Lape & Chin-Yung 2008:17) *No OSL signal ** Poor TL plateau.

Appendix 8 – Helen Selimiotis' dates for Bui Ceri Uato

Reference	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	^{14}C method	Material	Horizon	Depth cm
ANU11741	6600 ± 100	7330BP – 6868BP	conventional	marine shell	VIII	20-30
ANU11740	8490 ± 70	9323BP – 8954BP	conventional	marine shell	VII	20-50
ANU11739	5250 ± 60	5740BP – 5468BP	conventional	marine shell	VI	45-70
ANU11742	340 ± 60	505BP – 5297BP	conventional	charcoal	VI	45-55
ANU11879	9600 ± 80	10591BP – 10247BP	conventional	marine shell	V	60-90
ANU11878	11,590 ± 90	13236BP – 12921BP	conventional	marine shell	IV	75-100
ANU11877	11,380 ± 90	13081BP – 12828BP	conventional	marine shell	III	80-110
ANU11737	10,490 ± 100	12007BP – 11255BP	conventional	marine shell	II	95-130
ANU11738	26,520 ± 340	31657BP – 30828BP*	conventional	marine shell	I	120-145

Table 2.16: New radiocarbon dates from Bui Ceri Uato, originally excavated by Ian Glover (adapted from Selimiotis 2006:367; calibrated dates are given with no regional deltaR correction factor). * 68% range cal BP, using CalPal 2005 (online version).

Appendix 9 – Ian Glover's identified plant remains from Timor

Identification	Status	Square/Horizon	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	Mid-point in years BP
Cocculus sp.	Possible	N6W1 (5)/VII	*		**
Areca	Fair	N6W1/VII	*		**

Table 3.1: Plant remains from Bui Ceri Uato (adapted from Glover 1986:229). * The sample yielded a modern date. ** Proposed date by Glover for Horizon VII is 0-2500 years BP. A date on shellfish of 8490 ± 70 (9323 – 8954 cal BP, at 2σ) was obtained by Selimiotis (2006:367) for the same horizon.

Identification	Status	Square/Horizon	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	Mid-point in years BP
Cocos	Good	D/VII			
Zea	Good				
Zea	Good	A/VII			*
Garcinia	Good				
Cocos	Good				
Annona	Good				
Celtis	Good	A/VIb	2660 ± 110BP	3005BP – 2433BP	
			3545 ± 120BP	4153BP – 3554BP	
Celtis	Good	ABE/VIa	1030 ± 70BP	1086BP – 772BP	
			3530 ± 140BP	4007BP – 3581BP	
Celtis	Good	ABDF/Vc			5500
Celtis	Good	ABDEF/Vb	6635 ± 140BP	7757BP – 7265BP	
Celtis	Good	DEF/Va			
Celtis	Good	ABD/IVb			
Celtis	Good	A/IVa			7000
Arachis	Possible	B/IVb			
Celtis	Good	B/III	7270 ± 160BP	8393BP – 7789BP	7400 BP
Celtis	Good	BDF/II			? 9000 BP

Table 3.2: Plant remains from Lie Siri (adapted from Glover 1986:229). * Suggested maximum range is 2000 BP.

Identification	Status	Square/Horizon	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	Mid-point in years BP
Cocos	Good	VIII			? 650
Lagenaria	Possible				
Zea	Good				
Arachis	Good	VII			? 850
Areca	Possible				
Lagenaria	Possible				
Arachis	Good	VI			? 1400
Bambusa	Possible				
Gramineae		C (4)/V	350 ± 60 BP	506BP – 302BP	? 1800
Celtis	Good	D (6)/IIIc	2190 ± 80 BP	2344BP – 2000BP	
		K (8)/IIIb	2450 ± 95 BP	2745BP – 2340BP	
		K (9)/IIIa	3470 ± 90 BP	3991BP – 3463BP	
Celtis	Good	II			? 5500
Piper	Possible				
Celtis	Good	I			? 8200
Piper	Fair				

Table 3.3: Plant remains from Uai Bobo 1 (adapted from Glover 1986:230).

Identification	Status	Square/Horizon	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	Mid-point in years BP
Aleurites	Good	XIII			700
Bambusa	Probable	XII			1500
Prunus	Possible				
Inocarpus	Good				
Celtis	Good	XI			2000
Celtis	Good	X			3500
Setaria	Possible				
Seed case	-	IX	3740 ± 90BP	4359BP – 3879BP	
Celtis	Good	VII	5520 ± 60BP	6414BP – 6206BP	
Celtis	Good	VI			6200
Cucurbitaceae	Possible	B (29)/V			6600
Inocarpus	Possible				
Celtis	Good	IV	7010 ± 125BP	8046BP – 7590BP	7800
Celtis	Possible	III			9900
Celtis	Good	II			11.400
Piper	Possible				
Coix	Good	IK(8)/I	13,400 ± 520BP	17,385BP – 14,206BP	
Celtis	Probable				

Table 3.4: Plant remains from Uai Bobo 2 (adapted from Glover 1986:230).

Appendix 10 – Plant remains from Batu Ejaya 2 and Ulu Leang 1, Sulawesi

Identifications	Period Modern
Aleurites moluccana	x
Elaeocarpus sp.	x
Arecaceae (poss. Calamoideae)	x
Cocos nucifera	x

Table 3.5: Plants remains from Batu Ejaya 2 in Sulawesi (cf. McConnell in Di Lello 1997).

Identifications	Period 11,000 – 3500 uncal BP
Cyperus sp.	x
Tragia sp.	x
Polygala sp.	x
Ficus sp.	x
Solanum sp.	x
Canarium sp.	x
Bidens sp.	x
Panicum sp.	x
Oryza sativa	x*

Table 3.6: Plants remains from Ulu Leang 1 in Sulawesi (Glover 1979).

*see text for problems with dating the rice remains.

Appendix 11 – Plant remains from Lubuk and Bekes, Philippines

^{14}C uncal BP **^{14}C cal BP (95.4% prob.)**	450 ± 50 BP 552BP – 426BP
Identifications	
Vigna sp.	x
Pisum	x
Canavalia sp	x
Sorghum sp.	x*

Table 3.7: Plant remains from Lubuk, Luzon, in the Philippines (Bodner 1986). * *Sorghum* sp. was said to be the most conspicuous.

^{14}C uncal BP **^{14}C cal BP (95.4% prob.)**	1390 ± 60 BP 1404BP – 1226BP
Identifications	
Pandanus sp.	x
Amaranthus sp.	x
Vigna sp.	x
Sorghum sp.	x
Setaria sp.	x
Brassicaceae	x

Table 3.8: Plant remains frm Bekes (Luzon) in the Philippines (Bodner 1986).

Appendix 12 – Plant remains from Santiago Church and Osmeña Park

^{14}C cal BP	Period I 350BP – 50BP	Period II 550BP – 350BP	Period III 850BP – 650BP	Period IV pre- 1450BP – 950BP
Identifications				
Acalypha sp.	1			
Cleome sp.	2		1	4
Crotalaria sp.			2	4
Echinochloa sp.	1			
Euphorbia sp.		1		
Nymphaea sp.	9	12	10	13
Oryza sp.	3		1	
Panicum sp.	9		2	4
Portulaca sp.	2			1
Scleria sp.				1
Setaria sp.		1		

Table 3.9: Plant remains from Santiago Church in the Philippines (adapted from Gunn 1997:230-239).

^{14}C cal BP	Period I 350BP – 50BP	Period II 550BP – 350BP	Period III 850BP – 650BP	Period IV pre- 1450BP – 950BP
Identifications				
Acalypha sp.	3			
Andropogon sp.	1		1	
Argemone sp.		2		
Crotalaria sp.		1		
Euphorbia sp.	21	6	2	3
Galium sp.		1		
Mentha sp.	1			
Panicum sp.	42	23	8	13
Paspalum sp.	2	1		
Physalis sp.		1		
Rubus sp.	1			
Setaria sp.	5			
Solanum sp.	8	1	1	

Table 3.10: Plant remains from Osmeña Parkin the Philippines (adapted from Gunn 1997:230-239).

Appendix 13 – Victor Paz's identified plant remains

	Age range
	10th/17th century AD
Boehmeria cf. *platanifolia*	x
Paspalum prob. *conjugatum*	x
prob. *Amaranthus* sp.	x
Asteraceae sp.	x
prob. *Portulaca grandiflora*	x
Celtis sp.	x
cf. Dioscoraceae	x
prob. *Ipomoea batatas*	x
prob. *Dioscorea hispida*	x

Table 3.11: Plants remains from Racuaydi (Batanes) in the Philippines (Paz 2001).

	Sq. 8/ Surface		Sq. 8/ Layer 1			Sq. 8/ Layer 2		Sq. 17/ Surface	Sq. 17/ Layer 1		Sq. 17/ Layer 2
	C	U	C	U	M	C	U	C	C	M	C
Amaranthus			1								
Ageratum conyzoides			8			117					
prob. *Fimbristylis* sp.			2								
Phyllanthus L. sp				5	4						
Phyllanthus amarus				2	1	18					2
Phyllanthus urinaria				2							
Echinocloa prob. *crus-gali*		5		6			14				
Eleusine indica	8		5								
Paspalum prob.		3		4			10				
Boehmeria cf. p*latanifolia*	84		274			699		63	80		21
Celtis sp.										4	

Table 3.12: Plant remains from Mabangog in the Philippines (adapted from Paz 2001:202). C = Charred; U = Uncharred; M = Mineralised.

Context	^{14}C uncal BP	^{14}C cal BP (95.4% prob.)	Identification
Pit1, Level2, QD			
Pit1, Level3			
Pit1, Level5, QA			
Pit1, Level6, QA			
Pit1, Level7, QA	4875 ± 90BP	5762BP – 5448BP	*Colocasia* cf. *Esculenta*
Pit1,Level9, QA			cf. *Ipomoea* sp.
Pit1, Level10, QD			
Pit2, Level2, QA			
Pit2, Level3, QB			
Pit2, Level3, QD			
Pit2, Level4, QC	4940 ± 50BP	5752BP – 5588BP	
Pit2, Level4, QA, Spit4			*Verbena* sp. cf. *Solidago* sp. or cf. Helenium sp.
Pit2, Level5, QA			
Pit2, Level6, QA			
Pit2, Level6,QA, Spit8			elim. *Colocasia* sp. prob. *Laka-pen**
Pit2, Level8, QD, Layer2, Spit2			elim. *Colocasia* sp.
Pit2, Level8, QA, Layer6, Spit2			
Pit2, Level9, QD			
Pit2, Level11, Layer8, Spit16			
Pit2, Level12, QD,			

Table 3.13: Plant remains from Capiña in the Philippines (adapted from Paz 2001:209).

* Unidentified local tuber known to the Dumagat Negrito, in Luzon (Paz 2001:102).

	Pit2, Layer2			Pit2, Layer3			Pit2, Layer 4			Pit2, Layer5			Pit1,Layer2			Pit1, Layer3			Pit1,Layer4		
^{14}C uncal BP	4680 ± 90BP 5100 ± 150BP			4845 ± 90BP			4815 ± 90BP 4980 ± 95BP			4560 ± 290BP						4740 ± 90BP 4240 ± 90BP					
^{14}C cal BP (95.4% prob.)	5599BP – 5267BP 6211BP – 5584BP			5749BP – 5441BP			5726BP – 5436BP 5922BP – 5582BP			5904BP – 4511BP						5651BP – 5298BP 4985BP – 4522BP					
	C	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**
Trianthema portulacastrum	2												3								
Amaranthus prob. Spinosus	7																				
Amaranthus cf. Viridis	12	210		2	5					1			3			1	2				
Gomphrena prob. *Celosioides*		12		2	4					5				4		2	5				
Compositae	15	47		3						6	8		55			5			1		
Ageratum conyzoides	16	473											15	4		2	1			1	
Synedrella nodiflora		1			1												1				
Vernonia cinerea								1													
Cleome viscosa			1																		
Cleome prob. *rutidusperma*	4	75		1	1		8	4													
Chenopodium prob. *ambrosiodes*	113	830		1	13								7	4							
Commelina benghalensis		21	8					1						1							
prob. Cucurbitaceae	1																				
Cyperus cf. *iria*	8																				
Fimbristylis elim. *globulosa*							3	29													
Phyllanthus amarus	17	96	20		1										1						
prob. *Cassia* sp.		1																			
prob. *Cassia* cf. *occidentalis*	2																				
Mimosa diplotricha	8	10			1					4	9										
Malvastrum sp.	1	3									1										
Oenothera sp.	19	137			2						3			6			4				
Oxalis corniculata							1														
Passiflora sp.	1																				
Brachiaria elim. *mutica*		3	2	1		1								2							
Cenchrus cf. *brownii*	1	2	2	2						1						1					
Dactyloctenium prob. *aegyptium*	1	2					1	1													

	Pit2, Layer2			Pit2, Layer3			Pit2, Layer 4			Pit2, Layer5			Pit1, Layer2			Pit1, Layer3			Pit1,Layer4		
^{14}C uncal.BP	4680 ± 90BP 5100 ± 150BP			4845 ± 90BP			4815 ± 90BP 4980 ± 95BP			4560 ± 290BP						4740 ± 90BP 4240 ± 90BP					
^{14}C cal.BP (95.4% prob.)	5599BP – 5267BP 6211BP – 5584BP			5749BP – 5441BP			5726BP – 5436BP 5922BP – 5582BP			5904BP – 4511BP						5651BP – 5298BP 4985BP – 4522BP					
Identifications	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**	**C**	**U**	**M**
Digitaria prob. *setigera*		7																			
Echinochloa crus-galli				2																	
Eleusine indica	12	39		3			1						19	1		1					
Echinochloa prob. *colona*	2	6															1				
Setaria glauca						1															
Polygonaceae		8																			
prob. *Persicaria* cf. *barbata*								1													
Portulaca cf. *oleracea*	7	20																			
Rosaceae		24																			
prob. Solanum sp.	3																				
Solanum sp.		2																			
Melochia concatenata	3	11	1		1								2	1							
Corchorus olitorius	3																				
Stachytarpheta pos. *jamaicensis*	24	51		2	3					3			106	5		6			1		
prob. *Dioscorea* sp.							*														
cf. *Dioscorea* sp.							*														
prob. Laka-pen							*														

Table 3.14 (and previous page): Plant remains from Miguel Supnet in the Philippines (adapted from Paz 2001:216). C = Charred; U = Uncharred; M = Mineralised. * 14 parenchyma fragments are referred to, but no amounts were ascribed to a singular identification (Paz 2001:217). ** Unidentified local tuber known to the Dumagat Negrito, in Luzon (Paz 2001:102).

	Age range
	11th to 15/16th century AD*
Trianthema portulacastrum	x
Ageratum conyzoides	x
Cleome prob. *rutidosperma*	x
prob. *Hypericum japonicum*	x
Cyperus compressus	x
Cyperus cf. *iria*	x
Fimbristylis sp.	x
Phyllanthus amarus	x
Phyllanthus cf. *urinaria*	x
Hydrangea sp.	x
prob. *Polygonum* cf. *barbatum*	x
Portulaca cf. *oleracea*	x
cf. Potamogetonaceae	x
Physalis sp.	x
Corchorus olitorius	x

Table 3.15: Plants remains from Yap (Negros Island) in the Philippines (adapted from Paz 2001:226-227) * based on four radiocarbon dates considered statistically equivalent: 1015 ± 65 uncal BP (1062 – 780 cal BP); 850 ± 70 uncal BP (914 – 677 cal BP); 980 ± 55 uncal BP (979 – 762 cal BP); 1030 ± 55 uncal BP (1060 – 892 cal BP) (Bacus 1996b:235).

^{14}C uncal BP	325 ± 60	2030 ± 65; 2205 ± 105
^{14}C cal BP (95.4% prob.)	504BP – 286BP	2150BP – 1862BP; 2378BP – 1927BP
Features	12 (pit)	3 (pit)
elim. *Spilanthes* sp.	x	x
Ageratum conyzoides	x	x
prob. *Eupatorium* prob. *lindleyanum*		x
Cleome cf. *rutidusperma*	x	
Cleome viscosa	x	x
prob. *Hypericum japonicum* (uncharred)		x
Fimbristylis sp.		x
Phyllanthus amarus		x
Fabaceae		x
Oxalis corniculata	x	
Setaria sp. (mineralised)	x	
Portulaca cf. *oleracea*	x	
Celtis sp. (mineralised)	x	x

Table 3.16: Plants remains from Unto (Negros Island) in the Philippines (adapted from Paz 2001:234-235 and Bacus 1997:116-117).

^{14}C uncal BP	D1 (2), 20-25cm 500BP to present*	D1 (2), 20-40cm 500BP to present*	D3 (7) 2000BP – 1500BP**	D2-D3 (4), base 2000BP – 1500BP**	D3 (9) 2000BP – 1500BP**
Dracontomelon dao	1				
cf. Fabaceae		1			
cf. Moraceae *cf. Artocarpus*	1	6			
cf. Lauraceae *cf. Lindera sp.*	2				
prob. Palmae					1
prob. Colocasia sp.		1			
prob. Colocasia esculenta					1
conf. Colocasia conf. esculenta			1		
Dioscorea alata				1	
Dioscorea hispida			1		

Table 3.17: Plant remains from Madai 1 in Borneo (adapted from Paz 2001:244). * Maximum date suggested, based on a modern radiocarbon determination. ** Based on four radiocarbon determinations: 1690 ± 150 uncal BP (1902 – 1304 cal BP), 1720 ± 70 uncal BP (1820 – 1512 cal BP), 1590 ± 150 uncal BP (1835 – 1260 cal BP) and 2020 ± 90 uncal BP (2160 – 1773 cal BP) (Bellwood 1988:108).

Context	Identifications										
Trench A	prob. *Canarium L. sp.*	*Canarium* type	prob. *Vigna* sp.	prob. *Cassia* L. sp.	elim. Pandanaceae elim. *Pandanus* sp.	Betula type	cf. *Diocorea* sp.	cf. Lakapen	prob. *Colocasia esculenta*	cf. *Colocasia* sp.	cf. *Colocasia esculenta*
Sq. 1, Spit 1#A											
Sq. 1, Spit 2#C							1				
Sq. 1, Spit 3#E		6									
Sq. 1, Spit 4#G											
Sq. 1, Spit 7#I		2									
Sq. 2, Spit 1#B					5						
Sq. 2, Spit 2#D					1	1					
Sq. 2, Spit 3#F											
Sq. 2, Spit 4#H	7										
Sq. 3, Spit 3#J				1				1	1		
Sq. 3, Spit 5#K		1	1								
Sq. 3, Spit 5(13)#Q	1										
Sq. 3, Spit 12#N										1	
Sq. 4, Spit 3#J			1								
Sq. 4, Spit 5#L		1	3								
Sq. 4, Spit 12#O			2								1
Sq. 5, Spit 5#M											
Sq. 5, Spit 12#O		1							1		

Table 3.18: Plant remains from Leang Burung (trench A) in Sulawesi (adapted from Paz 2001:252 and Paz 2004).

Context	Identifications								
Trench B	prob. *Canarium L. sp.*	prob. Commelinaceae elim. *Pollia* sp.	prob. Cucurbitaceae	Fabaceae	cf. Palmae	prob. *Colocasia esculenta*	elim. *Ipomoea* sp.	cf. *Ipomoea* sp.	prob. *Ipomoea* sp.
Sq. 2, Spit 12#9	7		2	1		1			
Sq. 3, Spit 3#3									
Sq. 3, Spit 5#4					1				
Sq. 3, Spit 6#5	3			1	1				
Sq. 3, Spit 7#6		2		1	1		1		
Sq. 3, Spit 9#7	9	2							
Sq. 3, Spit 10#8	22				1				
Sq. 4, Spit 3#12	2								
Sq. 4, Spit 6#15	60								
Sq. 4, Spit 7	13			1					
Sq. 5, Spit 1#3	6							1	
Sq. 5, Spit 2	39							1	
Sq. 5, Spit 3#16	84					1			
Sq. 5, Spit 4#17	38								1
Sq. 5, Spit 6#18	9								
Sq. 5, Spit 8#19									

Table 3.19: Plant remains from Leang Burung 1 (trench B) in Sulawesi (adapted from Paz 2001:252 and Paz 2004).

Appendix 14 – Plant remains from Spirit Cave, Banyan Valley and Tham Pa Chan, Thailand

	Layer 4	Layer 4/3	Layer 3	Layer 2
^{14}C uncal BP	9180 ± 360 BP			8550 ± 200 BP 8750 ± 140 BP (layer 2a)
^{14}C cal BP (95.4% prob.)	11,319BP – 9466BP			10163BP – 9091BP 10182BP – 9530BP (layer 2a)
Identifications				
Prunus spp.	x			
Terminalia sp.	x			
Areca catechu	x	x		x
Vicia or *Phaseolus* sp.	x			
Pisum or *Raphia* sp.	x			
Lagenaria siceraria	x		x	
Trapa sp.	x			
Piper betle		x		x
Madhuca sp.		x		
Canarium sp.		x	x	x
Aleurites moluccana		x		
Cucumis sativus			x	

Table 3.20: Plants remains from Spirit Cave in Thailand (after Yen, in Gorman 1969). Further plants identified (with no radiocarbon dates associates, though) included: Gramineae (*Bamboo* sp.), *Celtis* sp., Euphorbiaceae, *Ricinus* sp., Cucurbitaceae, *Mormodica* sp., *Nelumbo* sp., and *Trichosanthes* or *Luffa* sp. (Yen 1977:570).

	Age range
	5450BP to 1250BP
Identifications	
Canarium sp.	x
Prunus sp.	x
Gramineae (*Bamboo* sp.)	x
Calamus sp.	x
poss. *Cucumis* sp.	x
Lagenaria sp.	x
poss. Cucurbitaceae	x
Nelumbo sp.	x
Pisum sp. or Palmae	x
Vicia or *Phaseolus* sp.	x
Oryza sp.	x

Table 3.21: Plants remains from Banyan Valley Cave in Thailand (Yen 1977:570).

	Age range 7450 – 5450BP
Identifications	
***Canarium* sp.**	x
***Piper* sp.**	x
***Prunus* sp.**	x
***Terminalia* sp..**	x
Gramineae (*Bamboo* sp.)	x
Celtis sp.	x
***Mangifera* sp.**	x
Pisum or Palmae sp	x
***Vicia* or *Phaseolus* sp.**	x

Table 3.22: Plants remains from Tham Pa Chan in Thailand (Yen 1977).

Appendix 15 – Plant remains from Ban Kao, Thailand

	Khao Talu Cave	Ment Cave	Heap Cave		
Cultural levels	II	I	I	II	III
Range of dates (^{14}C uncal bp)*	4215	8400	8400-5200	4320-4215	3200-2150
Charred or calcified remains (i.e. probably ancient)					
Licuala spinosa		1 calc.	1 calc.	8 calc	19 calc.
Palmae				4 calc.	1 calc.
Syzygium cumini				1 calc.	
Croton tiglium					1 calc.
Macropitilium	cf. 1 char.				
Non-Charred or non-calcified remains (i.e. probably recent)					
Vigna adenantha				cf. 1	cf. 2
Crotalaria bracteata			cf. 4	1	
Citrullus lanatus					cf. 1
Benincasa hispida			?1		
Rutaceae			?2		

Table 3.23: Plant remains from the Ban Kao Caves in Thailand (adapted from Pyrarman 1989:284) * No radiocarbon determinations are provided, only uncalibrated ^{14}C age ranges.

Appendix 16 – Plants remains from Khok Phanom Di, Thailand

		Zones		
Identifications	All contexts n=46	A n=22	B n=21	C n=3
Fimbristylis-type	2		5	
Eleocharis-type	46	41	57	
Schoenoplectus-type	30	41	24	
cf. Cyperaceae endosperm, type A	74	72	81	33
cf. Cyperaceae endosperm, type B	22	9	40	
Combined Cyperaceae	87	91	90	33
Gramineae-type A (cf. Paniceae)	22	27	10	66
Indeterminate Gramineae	17	23	5	33
Suaeda maritima Dum.	50	68	40	
Trianthema portulacastrum L.	4	9		
Portulaca cf. o*leracea*	7		5	66
Amaranthus sp.	28	14	33	100
cf. *Amaranthus* type	2	5		
cf. *Sida* sp.	2	2		
Unknown, Type 1	2	14		
Combined Indeterminate	85	77	90	100

Table 3.24: Ubiquity indices for seed classes in each major stratigraphic division (A, B and C) and percentage of contexts in which the seed type occurs at Khok Phanom Di, Thailand (after Thompson 1996:102).

Appendix 17 – Plant remains from Dongan, New Guinea

^{14}C uncal BP	5960 ± 44 BP*
^{14}C cal BP (95.4% prob.)	6895BP – 6673PB
Identifications	
Pometia pinnata	x
Aleurites sp	x
Cordia sp.	x
Pangium sp.	x
Parinarium sp.	x
Calophyllum inophyllum	x
Pisonia grandis	x
Sterculia sp.	x
*Cocos nucifera**	x
Pandanus sp.*	x
Canarium sp.*	x
*Canarium indicum**	x
*Pometia*sp.*	x
*Areca catechu***	x
*Metroxylon sagu***	x

Table 3.25: Plant remains from Dongan (Sepik-Ramu) in New Guinea (Swadling et al. 1991). * Radiocarbon date and validated plant identifications by Fairbairn & Swadling (2005) ** Confirmed modern intrusions by Fairbairn & Swadling (2005).

Appendix 18 – Early botanical and ethnobotanical works in Timor

Year	Collector	Location	Herbarium
1699-1700	Dampier	Kupang	Not known
1789	David Nelson	Kupang	Paris and Kew
1792	Christopher Smith and James Wiles	Not known	British Museum
1803	Riedlé, Sautier and Guichenot	Not known	Delessert, Paris, British and Kew
1803	Robert Brown	Kupang	British Museum and Vienna
1818	Gaudichaud	Kupang and Dili	Paris
1818-19	Allan Cunningham	Kupang	British Museum
1822	Reinwardt	West Timor	Rijks
1825	Duperrey	Kupang	Not known
1828	Zipelius	Not known	Delessert
1831	Spanoghe	Kupang	Holland
1840	Hombron	Kupang	Not known
1843	Everard Home	Kupang	Not known
1857-59	Alfred Russell Wallace	Kupang	Kew
1861	Alfred Russell Wallace	East Timor	Kew
1830-80	J. E. Teysmann	West Timor	Leyden and Bogor
19th century	Riedel	Kupang	Dresden
1882-83	Henry O. Forbes	East Timor	Kew, Melbourne and Lisbon University
1887	Gomes da Silva	East Timor	Coimbra University
1897	Francisco Newton	East Timor	Lisbon University and Kew
1908-10	Osório de Castro	Dili	Bogor and Lisbon University
1928-29	Walsh-Held	East and West Timor	British Museum, Bogor, Berlin and Zurich
1929-30	Alfaro Cardoso	Lore, East Timor	Lisbon Colonial Garden
1932	H. W. Stein	East and West Timor	Berlin
1934-35	de Voogd	West Timor	Bogor
1939	Bloembergen	West Timor	Bogor
1946-47	Ruy Cinatti	East Timor	Bogor, Melbourne, Lisbon Colonial Garden and Lisbon University
1940s	Meijer Drees	West Timor	Bogor
1947	Meijer Drees	East Timor	Bogor
1952	van Steenis	Kupang	Holland
1953-54	van Steenis	East Timor	Holland, Lisbon Colonial Garden
1961	Soares	East Timor	Lisbon Colonial Garden

Table 4.1: Early botanical and ethnobotanical works in Timor (after Forbes 1989 and Cinatti 1950b).

Appendix 19 – Determination system for the identification of archaeological charred plant specimens

Non prefixed: photographic reference(s) and/or illustration reference(s); reference material not essential; exact fit of the taxonomic features, geographic distribution, and species citation in the local flora;

Prob.: flora citation, geographic area compatibility, an agreement with taxonomic details; image OR illustration OR reference material (not necessarily an exact or good fit);

Cf.: all six categories may or may not exist; archaeological specimen resembles image OR illustration OR reference material OR previous identification; flora, taxonomic details and geographic area but with doubts;

Elim.: lowest level of confidence for a binominal determination to species level, but with no access to image, illustration or reference material; taxonomic description, geographic area and other species of same genus were eliminated from local/regional flora (= likely candidate);

Suffix 'type': very low level of confidence, used only at family and genus level of determination; shape of specimen fits the geographic distribution, some morphological characters, and may be in the local flora;

Form shape description: none of the six types of information exist (image, illustration, reference collection, flora, taxonomic details and geographic area), but specimen is distinctly a seed, nut fragment or a certain plant part.

Shape: spheroid, angular/triangular, long, etc.; sequence number; tentative identification, usually at family level.

	No prefix	Prob.	cf.	Elim.	Suffix 'type'	Form/ Shape description
Reference Collection	Y/?	Y/?	?	X	X	X
Image	Y/?	Y/?	?	X	X	X
Illustration	Y/?	Y/?	?	X	X	X
Floral citation	Y	Y	Y	Y	Y/?	X
Taxonomic details	Y	Y	Y	Y	Y/?	X
Geographic Area	Y	Y	Y	Y	Y	X

Table 5.2: Determination system of charred plant remains: Y = good match; ? = questionable match; X = not present (after Paz 2001:71, figure 7).

Parenchyma determination system (after Paz 2001:82-85):

Taxon: the archaeological specimen fits all or most features of the reference material (cell shape, cell wall thickness, cell content remains, vascular organ characteristics, idioblastic cells, crystals and starch grains) and can be ascribed to a family, genus or species (with prefixes, suffixes or type).

Root or Stem tuber: the specimen meets the basic diagnostic features of a parenchymatous tissue but lacks the prerequisites for a taxon determination.

Storage organ parenchyma tissue: the specimen does not fit with any of the reference material (cell shape, size, arrangement, etc. are all different).

Fruit parenchyma: only parenchyma cells, no vascular organs are visible (these cells have relatively thick walls).

Parenchyma: the specimen is not part of a lignified woody tissue.

Unknown: the specimen is neither a “woody tissue” nor any of the categories mentioned above.

Appendix 20 – Criteria for the identification of archaeological seed remains (preservation and distortion)

Class	Preservation
1	Perfect
2	Epidermis virtually intact; rhachillae observable so as other external elements
3	Epidermis incomplete; rhachillae, hairs etc. occasionally preserved
4	Fragments of epidermis remaining; other features virtually unobservable
5	Identifiable by gross morphology only
6	'Clinkered' ('see-through' with the shape of the seed preserved in the outline of the mass of bubbles, but with a clear view from one side to the other through the holes).
	Distortion
1	No noticeable distortion
2	Slight puffing of seeds noticeable
3	Clearly distorted
4	Gross distortion
5	Seeds fused together into a solid lump, facetted when free
6	Carbonized tarry material exuded from distal end of cayopses
7	Sides of the seed longitudinally wrinkled, partially collapsed and concave
8	Sprouting: as (7), but with the radical greatly elongated

Table 5.3: Classification based on preservation conditions of charred seeds (after Hubbard & al Azm 1990).

Appendix 21 – Reference collection of modern plant specimens (images)

NOTE: Appendix provided in DVD format. Images are organised by plant family, genera and species, with separate folders for SEM and standard microscope images. Each image file was given a sequential number, the name of the species, genera or family, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and themagnification. Whenever available, photographs of the plants in the area investigated are also given.

Appendix 22 – Sediment volume excavated per spit in squares A, B, C and D of BCUM

Spit	Total (kg)	Heavy residue (kg)	Notes
1	0	0	Not sieved
2	27.7	6.4	
3	56.2	19.8	
4	70.1	20.1	
5	37.4	8	
6	21.2	7.8	
7	35.2	17.9	
7A	40.1	18.1	
8	59.4	31.4	
9	13	11	Heavy residue contained many stones
9A	65.9	29.3	
10	64	15.6	
11	7	5	Heavy residue contained many stones
12	74.6	16.7	
13	7.4	6	
14	12.2	8.3	
15	48.2	17.8	
16	49.7	19.1	
17	18.9	12.9	
18	2.3	0.5	
18A	34.9	13.8	
19	34.2	17.1	
20	26.7	13.8	
21	22	12	
22	21.9	10.9	
23	20.5	10.2	
24	6	1.8	
25	39.8	13.2	
26	18.7	8.6	
27	49.4	15.1	
28	26.1	14	
29	25.8	11.5	
30	24.9	11	
31	23.6	12.6	
32	10	2	
33	24	12	
34	36.4	14.2	
35	27.9	13.5	
36	17	8.6	
37	15	6.9	
38	13.7	6.8	Excavated together with B46 (same values)

Table 7.4: Sediment volume (in kilograms) excavated per spit in square A at BCUM.

Spit	Total (Kg)	Heavy residue (kg)	Notes
1	0	0	Not weighed or sieved
2	26,2	5,4	
3	33,8	7,4	
4	7,3	6	
5	71,2	20	
6	40,4	9	
7	42,1	9,3	
8	42,5	17,2	
9	46,5	21,4	
10	55,3	15,1	
11	25	9,1	
12	14,1	7,6	
13	44,9	17,8	
14	70,5	16,7	
15	20,8	11,4	
16	8,3	7,1	
17	62,2	26,6	
18	51,8	16,4	
19	23,7	10,8	
20	14	7,2	
21	14,6	8	
22	20,5	11	
23	23,8	10,7	
24	22,8	9,6	
25	12,7	7,2	
26	22,8	9,5	
27	32,8	14,2	
28	41,9	13,6	
29	55,8	15,4	
30	49,3	14	
31	46,3	13,3	
32	42,3	13,2	
33	45,5	14	
34	16,6	8	
35	7,5	1,7	
36	33,7	13,8	
37	16	7,4	
38	36,1	10,6	
39	28,3	9,8	
40	22,2	8,6	
41	43,1	8,8	Excavated together with D57 (same values)
42	28,8	8,2	
43	16,8	5,9	
44	22,2	7,6	
45	10,7	5,8	
46	13,7	6,8	Excavated together with A38 (same values)

Table 7.5: Sediment volume (in kilograms) excavated per spit in square B at BCUM.

Spit	Total (kg)	Heavy residue (kg)	Notes
1	0	0	Not weighed or sieved
2	29,6	5,7	
3	32	9,6	
4	65,4	16,5	
5	25,9	10,8	
6	31,9	8,4	
7	33,1	21,2	
8	42,3	19,4	
9	16,2	8,2	
10	37,4	11,4	
11	25,6	10,3	
12	31,5	16,2	
13	23	11,9	
14	38,8	16,6	
15	8,6	6,4	
16	7,9	6,4	
17	49	19,4	
18	20	9,8	
19	20,8	11	
20	16,2	7,8	
21	12,5	5,3	
21A	11,9	7,1	
22	8,5	2,3	
23	9,4	5,1	
24	2,6	0,5	
25	5,4	1,5	
26	25,5	10	
27	23,4	9	
28	21,9	8,7	
29	23,6	9,8	
30	25	15,4	
31	22,3	10,4	
32	10,5	7,6	
33	21	10,4	
34	15,6	6,8	
35	10,2	6,4	
36	20,5	7,8	Excavated together with D66 (same values)

Table 7.6: Sediment volume (in kilograms) excavated per spit in square C at BCUM.

Spit	Total (kg)	Heavy residue (kg)	Notes
1	17.9	6	
2	29,8	5,7	
3	15,9	6,4	
4	56,2	23,1	
5	44,7	17,8	
6	25,7	9,5	
7	35,6	16	
8	23,1	9,5	
9	32,4	15,7	
10	13,9	6,7	
11	27,9	8,2	
12	54,4	20,4	
12A	20,4	9	Fireplace
12B	16,6	8,4	Fireplace
12C	25,2	11,3	
13	24,4	18,5	
14	10,5	6,6	
15	22,2	10,4	Includes 2 excavated spits, mixed by mistake
16	25,3	11	
16A	15,6	8,7	
17	21,8	11,5	
18	26,1	13	
19	10,5	7,4	
20	37,6	14,4	
21	0	0	Sediment from a post hole (not weighed or sieved)
22	61,5	26,6	
23	6,8	1,5	
24	8,8	1,9	
25	2,5	0,8	
26	4,7	1,2	
27	7,8	2,4	
28	27	10,6	
29	18,2	11	
30	16,8	6	
31	10	7	
32	17	9,1	
33	24,8	11,7	
34	18,9	9,1	
35	20	10	
36	35	22,1	
37	8,8	5,6	Earth oven feature (stones)
38	5,5	1,5	Earth oven feature (pit)
39	5,1	0,5	Earth oven feature (pit)
40	13	9,1	
41	25,7	12,1	
42	36,4	15,2	
43	34,7	12,2	
44	26,2	11,7	
45	16	7,3	
46	15,7	7,5	
47	44,3	12,2	
48	48,2	14,9	
49	20,6	10,6	
50	26,8	10,8	
51	10	5,7	
52	20,6	7,5	
53	41,2	14,5	
54	19,2	8,4	
55	11,5	7,4	

56	8,5	6,3	
57	43,1	8,8	Excavated together with B41 (same values)
58	6,6	2	
59	40	19,1	Lowest cultural spit *in situ*
60	17,7	7,6	
61	20,5	8,1	
62	20	8,4	
63	18,1	8,1	
64	24,6	9,6	
65	27,2	10,5	
66	20,5	7,8	
67	49,9	24,6	

Table 7.7 (and previous page): Sediment volume (in kilograms) excavated per spit in square D at BCUM.

Appendix 23 – Obsidian artefacts from BCUM

Layers	^{14}C cal.BP (95.4% prob.)	Obsidian no.
1		
2	141BP – 24BP	
3		
4		
5		
6	1890BP – 1700BP 4240BP – 3910BP	2
7		
8	3415BP – 3210BP	
9	6224BP – 5999BP	
10		
11		
12	3274BP – 3060BP 5920BP – 5710BP 5612BP – 5315BP	2
13		
14		
15	6480BP – 6280BP	7
16		34
17	7160BP – 6670BP	
18	7427BP – 7146BP	
19	7274BP – 7000BP	14
20	7274BP – 6978BP	3
21		
22		
23	8520BP – 8190BP	
24		
25	8590BP – 8330BP	1
26		
27	6450BP – 5750BP	

Table 7.8: Total number of obsidian artefacts by archaeological layer from BCUM.

Appendix 24 – Manuports from BCUM

Layer	Square A	Square B	Square C	Square D	^{14}C cal BP (95.4% prob.)
9	1 flaked pebble		1 pebble		6224BP – 5999BP
15		1 flaked pebble			6480BP – 6280BP
16	1 hammer-stone	5 flaked pebbles			
19			1 pebble	1 pebble (flaked)	7274BP – 7000BP
21			1 flaked pebble		
23				3 pebbles (1 flaked)	8520BP – 8190BP
25	1 hammer-stone				8590BP – 8330BP

Table 7.9: Total number of manuports recovered from archaeological layer from BCUM.

Appendix 25 – Beads from BCUM

Layer	Sq. A	Sq. B	Sq. C	Sq. D	^{14}C cal BP (95.4% prob.)
6	1 g	3 g, 1 s	1 g		1890BP – 1700BP; 4240BP – 3910BP
12		1 g, 1 s		1 g, 2 s	3274BP – 3060BP; 5920BP – 5710BP; 5612BP – 5315BP
14		1 s			
15		2 s	1 s	2 s	6480BP – 6280BP
16		1 s		3s	
20		1 s	1 s	1 s	7274BP – 7000BP
25	1 s				8590BP – 8330BP

7.10: Total number of beads (g = glass and s = shell) by archaeological layer from BCUM.

Appendix 26 – Heavy and light residue volumes in square D from BCUM

Spit	Total (kg)	Heavy residue (kg)	Flot (kg)	Seeds	Notes
1	17.9	6	1.14	1.24	
2	29.8	5.7	1.12	2.53	
3	15.9	6.4	1.26	2.18	
4	56.2	23.1	0.17	0	
5	44.7	17.8	2.32	2.56	
6	25.7	9.5	13.27	0	
7	35.6	16	122.69	0	
8	23.1	9.5	113.78	0	
9	32.4	15.7	122.54	0	
10	13.9	6.7	58.46	0.12	
11	27.9	8.2	80.22	0.51	
12	54.4	20.4	83.47	1.27	
12A	20.4	9	20.07	0.32	Fireplace
12B	16.6	8.4	17.7	1.45	Fireplace
12C	25.2	11.3	33.51	0.14	
13	24.4	18.5	48.38	0.33	
14	10.5	6.6	43.31	0	
15	22.2	10.4	50.72	0.69	Includes 2 excavated spits, mixed by mistake
16	25.3	11	50.2	3.46	
16A	15.6	8.7	112.32	0.85	
17	21.8	11.5	122.53	1.81	
18	26.1	13	141.18	1.48	
19	10.5	7.4	12.63	0.35	
20	37.6	14.4	85.04	0	
21	0	0	0	0	Sediment from a post hole (not weighed or sieved)
22	61.5	26.6	26.3	6.41	
23	6.8	1.5	32.48	0.1	
24	8.8	1.9	49.6	0.39	
25	2.5	0.8	5.48	0.66	
26	4.7	1.2	3.8	0	
27	7.8	2.4	9.2	0.3	
28	27	10.6	104.54	1.91	
29	18.2	11	17.92	2.95	
30	16.8	6	39.19	1.66	
31	10	7	41.15	0.05	
32	17	9.1	30.41	4.36	
33	24.8	11.7	64.78	3.03	
34	18.9	9.1	30.89	1.84	
35	20	10	38.54	1.15	
36	35	22.1	63.61	1.98	
37	8.8	5.6	16.64	0.61	
38	5.5	1.5	15.24	0.17	
39	5.1	0.5	7.79	0.2	
40	13	9.1	16.02	0.11	
41	25.7	12.1	47.54	1.41	
42	36.4	15.2	87.81	1.49	
43	34.7	12.2	57.09	1.6	

44	26.2	11.7	24.34	1.83	
45	16	7.3	14.19	0.78	
46	15.7	7.5	17.99	1.1	
47	44.3	12.2	21.26	3.95	
48	48.2	14.9	27.25	5.22	
49	20.6	10.6	15.11	3.63	
50	26.8	10.8	16.45	11.47	
51	10	5.7	2.93	0.46	
52	20.6	7.5	2.01	2.3	
53	41.2	14.5	12.06	21.28	
54	19.2	8.4	2.17	9.96	
55	11.5	7.4	1.41	6.48	
56	8.5	6.3	1.13	2.62	
57	43.1	8.8	1.57	2.78	Excavated together with B41 (same values)
58	6.6	2	2.52	1.03	
59	40	19.1	11.87	8.97	Lowest cultural spit *in situ*
60	17.7	7.6	1.18	1.19	
61	20.5	8.1	0.73	0.98	
62	20	8.4	0.94	1.14	
63	18.1	8.1	1.37	1.04	
64	24.6	9.6	0.85	2.53	
65	27.2	10.5	2.05	1.12	
66	20.5	7.8	0.87	0.05	
67	49.9	24.6	1.48	1.45	

Table 8.1 (and previous page): Total volume of excavated sediment, heavy residue volume, light residue volume (flot), and seed (mostly *Celtis* sp.) weight in square D from BCUM.

Appendix 27 – Identified plant remains from BCUM

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 28 – Identified plant remains from Telupunu

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 29 – Identified plant remains from Lene Hara

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 30 – Identified plant remains from Macha Kuru 1

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 31 – Identified plant remains from Macha Kuru 2

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 32 – Identified plant remains from Jerimalai (squares A and B)

NOTE: Appendix consists on SEM and standard microscope imagesprovided in DVD format. Specimens were identified to family, genera, species, or type (e.g. fruit/seed, nutshell, parenchyma, etc.) and are given in separate folders. Each image file was given a sequential number, the observable section (TS = Transverse section; RLS = Radio-longitudinal section; OS = Outer surface; IS = Internal surface), and the magnification.

Appendix 33 – Preliminary results of phytolith analysis from BCUM (Carol Lentfer, 28-04-2008)

Methods

Phytolith residues from 24 samples mounted on microscope slides were examined using optical microscopy. These included samples 1 to 13, 15, 16, 18, 21, 24, 26, 29, 31, 35, 42 and 48. Slides were scanned by contiguous transects covering all the residue material on each slide. Where possible, diagnostic phytoliths were identified according to comparative modern reference collections and databases (Lentfer 2003, Lentfer in press, Kealhofer and Piperno 1998). Diagnostic and unknown morphotypes were drawn and photographed using a Nikon 995 digital camera. Charcoal and burnt phytoliths were also recorded. Levels of abundance of phytoliths, burnt phytoliths and charcoal were assessed and described qualitatively.

Results

The results of this preliminary analysis are described in table 8.6. Phytoliths are very well preserved in all samples. Articulated silica skeletons are very common throughout the assemblage, indicative of low levels of post-depositional disturbance and weathering. Panicoid, shade intolerant grasses are present in the entire assemblage. Samples 3 and 4 representing the upper Holocene are dominated by panicoid grasses. Forest elements disappear in these levels but reappear later, as shown by the sample 2 assemblage. Morphotypes possibly representing important economic species are present in the sequence. Included are morphotypes that occur in *Saccharum* (sugar cane) and *Coix lachrymal-jobi* (Job's tears). Evidence for the latter first appears in sample 29 ca. 7000 to 7274 BP identified from the the presence of a large diagnostic quadra-lobate epidermal short cell morphotype. *Saccharum* shares similar morphotypes with a range of other species including *Themeda* spp., *Imperata* sp. and *Sorghum* spp. Therefore, its identification in the assemblages cannot be determined with the same level of confidence as *Coix*. Bambusoid morphotypes are also present in the assemblages occurring throughout most of the assemblage from sample 48 to sample 4. The majority of bambusoid morphotypes are derived from culms but epidermal short cell types derived from leaves are also present in a few cases. AS well as grasses, Zingiberaceae (gingers) and Marantaceae morphotypes occur throughout most of the sequence along with morphotypes from a number of other families (Urticaceae, Moraceae, Euphorbiaceae and

Ulmaceae) characterising pioneer vegetation and forest regrowth. Moraceae morphotypes found in *Artocarpus* (breadfruit) occur in samples 9 and 13. Other families represented include Burseraceae (mainly a morphotype with echinate ornamentation matching that derived from the fruit of *Garuga*), and Labiatae. Hooked hairs characteristic of Fabales (legumes) are present in samples 7 and 29. Musa (banana) leaf morphotypes are also present in sample 6. Musaceae-like morphotypes occur in other sample assemblages but their identification as *Musa* warrants further investigation. Morphotypes characteristic of *Cordyline* spp. also occurs in sample 6. Palmae morphotypes are also present in several samples below sample 4. Reniform echinate morphotypes characteristic of *Areca* spp. including betle nut (*Areca catechu*) is present in sample 26.

Interpretation

The cave deposits have yielded a diverse set of phytolith assemblages which can be used to identify vegetation and environmental change throughout the early to late Holocene. Regrowth forest elements and panicoid grasses, occurring throughout much of the sequence, are indicative of more open forest vegetation than closed forest throughout much of the period. High charcoal levels and burnt phytoliths attest to clearance of vegetation by fire from the early to middle Holocene onwards. The major shift from a treed landscape to predominantly grassland occurs above sample 5, indicative of high levels of disturbance possibly associated with the introduction of more intense land management associated with agriculture. The absence of rice morphotypes in the assemblages suggests that rice was probably not grown in the vicinity of the cave until very recently. Job's tears and other grasses were possibly more important cereal crops in this particular region until relatively recently. The dominance of bambusoid culm morphotypes suggests that bamboo may have been intentionally transported into the cave by humans. Likewise, the edible fruits of *Garuga* sp. (Burseraceae) may have been transported into the cave by human and/or other animal vectors. The presence of other useful plants including cordyline, ginger and banana leaves, palm leaves, Job's tears, possibly sugar cane and breadfruit, may also be associated with human activity rather than natural processes.

The basis of this analysis, identifying plant presence and estimating levels of abundance, has been helpful for understanding broad-scale vegetation change and identifies a number of plant groups possibly exploited by humans. The analysis is preliminary and it should be noted that several morphotypes could not be identified from current available comparative reference databases. A comparative reference collection for the region would be helpful for further

analysis. Furthermore, additional analysis recording frequencies of morphotypes in the assemblages should be undertaken to further clarify morphotype associations and trends. It should also be noted that a number of important economic species including taro, yams and *Pandanus* have poor phytolith production and their presence would not be identified from phytoliths. The presence of starch granules matching *Pandanus* in sample 21, however, suggests that starch is preserved in the cave deposits. Starch analysis could offer useful additional information.

References

Kealhofer, L. & Piperno, D. R. (1998) Opal phytoliths in Southeast Asian flora. *Smithsonian Contributions to Botany*, Number 88, Smithsonian Institution Press, Washington D.C.

Lentfer, C. J. (2003) *Plants, People and Landscapes in Prehistoric Papua New Guinea. A Compendium of Phytolith (and Starch) Analyses.* Unpubl. Ph.D. Thesis, Southern Cross University, Lismore, N.S.W., Australia.

Lentfer, C. J. (in press) *Opal Phytoliths of Papua New Guinea flora*. Records of the Australian Museum.

Layers	Depth cm	Spits Square D	C14 cal. BP(2σ, 95.4% prob.)	Sediment samples	#	Phytolith analysis
1	10	1		no sample		
2	20	2,3	24BP - 141BP	no sample		
				1	1	Phytolith abundance low. Non-grass articulated epidermal phytolith skeletons common. Panicoid grass morphotypes found in *Sorghum*, *Saccharum*, *Themeda* and *Imperata* spp. are present but very rare. Charcoal is rare and burnt phytolths are absent.
3	30	4				
				2	2	Phytoliths abundant, dominated by panicoid grass morphotypes (trilobes, bilobes, trichomes, long cells and epidermal silica skeletons) which are all found in *Themeda* but also occur in other grasses including *Saccharum, Imperata* and *Sorghum* spp.. Large quadra-lobate morphotypes consistent with *Coix lachryma-jobi* are also pesent but very rare. Other non-grass/sedge articulated silica skeletons are very common. Morphotypes found in *Ficus* (Moraceae) are present. Charcoal is uncommon and burnt phytoliths are absent.
4	35	5				

5	40	6		3	3	Phytoliths common, dominated by panicoid grass morphotypes (unilobes, bilobes, trichomes and epidermal silica skeletons) found in the *Themeda, Saccharum*, *Sorghum* and *Imperata* complex. Articulated silica skeletons derived from grass are present but uncommon. The assemblage is indicative of open grassland and there is no firm evidence for arboreal vegetation. Charcoal and burnt phytoliths absent.
			1700BP – 1890BP; 3910BP – 4240BP	4	4	Phytoliths very abundant, dominated by panicoid grass morphotypes (bilobes, trichomes and epidermal silica skeletons) found in the *Themeda*, *Saccharum*, *Imperata*, *Sorghum* complex. Bambusoid grass morphotypes present but very rare. Cyperaceae present but rare. Cavate morphotype consistent with Musaceae present. The assemblage is indicative of open grassland vegetation. Charcoal is is common in the assemblage. Burnt phytoliths are absent.

	5	5	Phytoliths very abundant. Panicoid grass and bambusoid morphotypes are present. Morphotypes representing Palmae, Zingiberaceae, Euphorbiaceae, Urticaceae, Moraceae and Burseraceae are also present. Cyperaceae morphotypes are present but very rare. Charcoal is common. Burnt phytoliths are absent.
	6	6	Phytoliths very abundant. Panicoid grass morphotypes (bilobes, trichomes, stomates and epidermal silica skeletons) found in *Themeda*, *Saccharum*, *Imperata*, *Sorghum* spp. present but uncommon. Quadra-lobates consistent with *Coix lachryma-job*i also present. Bambusoid morphotypes from culms, leaves and sheaths present. Bambusoid morphotypes from culms present. Articulated epidermal silica skeletons very common. Zingiberaceae (cf. *Amomum* sp.), Marantaceae (cf. *Donax* sp.), Dracaenaceae (cf. *Cordyline* sp.) Musaceae (cf. *Musa* sp.), Palmae (cf. *Areca* sp.) morphotypes present. Morphotypes from Zingiberales most common in the assemblage. Morphotypes found in Moraceae (cf.

						Ficus sp.), Euphorbeaceae and Burseraceae (cf. *Garuga* sp.) are also represented. Charcoal common. Burnt phytoliths very rare.
6 7	50 70	7_12	3210BP – 3415BP	layer square A 7_12	7	Phytoliths abundant. Panicod grass morphotypes (bilobes, trilobes, trichomes) (cf. *Saccharum* sp.) present but relatively rare. Hairbases and hooked trichomes (hairs) representing Fabales common. Articulated epidermal silca skeletons common. Palm/ginger morphotypes present but very rare. Musa-like morphotype present but identification uncertain. Morphtypes found in Urticaceae, Ulmaceae, Euphorbiaceae and possibly

	Burseraceae present. Charcoal is present but uncommon. Burnt phytoliths are uncommon.
8	Phytoliths uncommon. Grass morphotypes very rare. Zingiberale morphotypes present. Palm morphotypes very rare. Morphotypes found in Urticaceae, Euphorbiaceae and possibly Burseraceae (cf. *Garuga* sp.) present. Articulated epidermal silica skeletons rare. Charcoal and burnt phytoliths absent.
9	Pytoliths common. Panicoid grass morphotypes (cf.*Themeda* sp.) present but rare. Quadra-lobate morphotype (cf. *Coix lachryma-jobi*) present. Epidermal silica skeletons present. Morphotypes found in Zingiberales common. Morphotypes from Moraceae (cf. *Artocarpus* sp.) present. Charcoal is rare. Burnt phytoliths are absent.

			10	Phytoliths very abundant. Panicoid morphotypes including bilobes, stomata, trichomes and epidermal silca skeletons (cf. *Saccharum/Themeda* spp.) present. Bambusoid leaf and culm phytoliths present. Cyperaceae morphotypes present but rare. Epidermal silica skeletons very common. Zingiberceae morphotypes very common. Marantaceae morphotypes present. Morphotypes found in Euphorbiaceae, Urticaceae, Moraceae, Burseraceae and Piperaceae also present. Charcoal is common and burnt phytoliths are present.
			11	Phytoliths very abundant. Panicoid grass phytoliths (cf. *Themeda* sp.) present but relatively rare. Bambusoid morphotypes present but rare. Palm morphotypes present but rare. Articulated epidermal silica skeletons very common. Zingiberaceae morphotypes common. Morphotypes from Euphorbiaceae, Moraceae (cf. *Ficus* sp.), possibly Ulmaceae and Burseraceae (cf. *Garuga* sp. fruit morphotype) present. Charcoal rare. Burnt phytoliths absent.
8	70	12A,12B		

					12	Phytoliths very abundant. Panicoid grass phytoliths (cf. *Themeda/Saccharum/Imperata* spp.) present but relatively rare. Bambusoid phytoliths (cf. *Gigantochloa* sp.) present. Morphotypes from Zingiberales (Zingiberaceae, Marantaceae) common. Epidermal silica skeletons common. Morphotypes from Urticales including Urticaceae spp. common. Burseraceae fruit morphotypes (cf. *Garuga* sp.) present. Charcoal common. Burnt phytoliths are present.
9	75	12C-16A	5999BP – 6224BP	13,14	13	Phytoliths very abundant. Panicoid grass phytoliths (cf. *Themeda*/*Saccharum*/*Imperata* spp.) present but relatively rare. Bambusoid phytoliths present. Morphotypes from Zingiberales (Zingiberaceae, Marantaceae) very common. Epidermal silica skeletons very common. Morphotypes from Urticales common including hooked trichomes (cf. *Artocarpus* sp. and Urticaceae sp.). Morphotypes consistent with Burseraceae fruit phytoliths (cf. *Garuga* sp.) present. Charcoal uncommon. Burnt phytoliths

						rare.
10	80			layer squares ABC		
11	85			layer square A		
			3060BP – 3274BP; 5710BP – 5920BP; 5315BP - 5612BP	15	15	Phytoliths very abundant. Panicoid grass phytoliths (bilobes, articulated epiderml silica skeleton, trichomes) (cf. *Themeda* sp.) present. Bambusoid, leaf and culm phytoliths present. Epidermal silica skeletons very common. Zingiberaceae morphotypes (cf. *Costus* sp.) very common. Cavate Musaceae-like morphotype present. Morphotypes found in Urticaceae, Moraceae, Euphorbiaceae and Labiatae present. Echinate morphotypes consistent with Burseraceae fruit (cf. *Garuga* sp.) present. Charcoal uncommon. Burnt phytoliths uncommon
12	80	17-20,22-25				
13	85	21		post hole		

				16,17	16 Phytoliths abundant. Panicoid grass phytoliths (bilobes, Trichomes, articulated silica skeletons present (cf. *Themeda* sp., *Cymbopogon* sp., *Setaria* sp.). Chloridoid grass morphotypes present (cf. *Eleusine indica*). Articulated epidermal silica skeletons common. Zingiberaceae morphotypes including epidermal silica skeletons present. Musaceae-like morphotypes present. Trichome morphotypes present (cf. *Ficus* sp., Solanaceae and Labiatae). Echinate morphotypes (cf. *Garuga* sp.) present. Burnt phytoliths common.
14	85	26,27			
			6280BP - 6480BP	18,19	Phytoliths common. Panicoid grass phytoliths present but rare. Echinate globular phytoliths found in palms and gingers common. Articulated epidermal silica skeletons common. Morphotypes found in Zingiberales present (cf. *Comminsia* sp.). Morphotypes found in Euphorbiaceae common. Echinate morphotypes (cf. *Garuga* sp.) present. Charcoal very common. Burnt phytoliths rare.
15	90	28-33			

				20-22	21	Phytoliths very abundant. Panicoid grass phytoliths (bilobes, long cells, trichomes, articulated silica skeletons, very common (cf. *Themeda*, *Saccharum*, *Imperata*, *Sorghum* spp.). Elongates found n *Coix lachryma-jobi* present. Bambusoid-like morphotypes present but very rare. Articulated epidermal silica skeletons common. Morphotypes from Zingiberales common (cf. *Costus* sp., Zingiberaceae, and Marantaceae). Musaceae-like morphotypes also present. Globular echinate palm/ginger morphotypes present. Urticaceae and Euphorbiaceae morphotypes present. Echinate morphotypes found in Burseraceae fruit (cf. Garuga sp.) present. Faceted starch granule typical of *Pandanus* spp. also present. Charcoal and burnt phytoliths absent.
16	100	34-36				
			6670BP - 7160BP	23,24	24	Phytoliths uncommon. Panicoid grasses present including quadra-lobates (disarticulated and articulated) from Coix-lachryma jobi. Morphotypes found in Euphorbiaceae, Urticaceae and Burseraceae (cf. *Garuga* sp.) present.
17	105	37				

						Charcoal absent. Burnt phytoliths absent.
18	115	38,39	7146BP - 7427BP	25-27	26	Phytoliths common. Panicoid grass trichomes (cf. *Themeda* sp.) present but rare. Bambusoid culm and leaf morphotypes present. Articulated epidermal silica skeletons present. Zingiberaceae morphotypes present but rare. Reniform echinate palm morphotypes present (cf. *Areca* sp.). Charcoal common. Burnt phytoliths absent.
19	120	40-42	7000BP - 7274BP	28,29	29	Phytoliths abundant. Panicoid grass morphotypes (bilobes, long cells, polyhedrals, articulated silica skeletons present (cf. *Themeda* sp., *Coix lachryma-jobi*). Articulated epidermal silica skeletons present. Morphotypes found in Zingiberacee common. Globular echinate palm/ginger morphotypes common. Echinate morphotypes found in Burseraceae (cf. *Garuga* sp.), Moraceae morphotypes (cf. *Ficus* sp.) and hooked trichomes found in Fabales present.

					Charcoal common. Burnt phytoliths rare.
			6978BP - 7274BP	31	Phytoliths abundant. Panicoid grass morphotypes (trichomes, bilobes) present but rare. Bambusoid morphotypes present but uncommon. Articulated epidermal silica skeletons present. Morphotypes found in Zingiberacee present. Morphotypes found in Burseraceae, Euphorbiaceae, Moraceae present. Assemblage influenced more strongly by arboreal vegetation than more recent samples. Charcoal common. Burnt phytoliths rare.
20	125	43,44			
21	150		layer squares AC		
22	130	45,46	32		

			8190BP - 8520BP	33-36	35	Phytoliths abundant. Panicoid grass morphotypes (trichomes, bilobes, stomata, articulated epidermal silica skeletons, polyhedrals) common (cf. *Themeda* sp.). Bambusoid morphotype present but very rare. Articulated epidermal silica skeletons present. Morphotypes found in Zingiberaceae present. Morphotypes found in Urticaceae, Ulmaceae, Moraceae and Burseraceae present. Charcoal common. Burnt phytoliths present.
23	140	47-51				
24	145	52		37		
			8330BP - 8590BP	38-46	42	Phytoliths abundant. Panicoid grass morphotypes (trichomes, bilobes, stomata, articulated epidermal silica skeletons) present (cf. *Themeda* sp.), uncommon. Articulated epidermal silica skeletons present. Morphotypes found in Zingiberaceae present. Morphotypes found in Urticaceae, Ulmaceae, Moraceae present. Leaf, wood and fruit morphotypes found in Burseraceae present. Assemblage consists mostly of arboreal morphotypes. Charcoal common. Burnt phytoliths present.
25	175	53-59				

				47-49	Phytoliths abundant. Panicoid grass morphotypes (bilobes, trichomes, long cells) present (cf. *Themeda* sp., *Saccharum* sp.). Bambusoid morphotypes present but uncommon. Zingiberaceae, Burseraceae and Euphorbiaceae morphotypes present. Charcoal uncommon. Burnt phytoliths absent.
26	195	60-64			
27	240	65-67	5750BP - 6450BP	50-53	

Table 8.6 (from page 351): Results from preliminary analysis of phytoliths from BCUM (by Carol Lentfer, 2008).