A Proposed PABITRA Study Area on Lauru Island, Western Solomon Islands[1]

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Abstract: The island of Lauru (Choiseul) in the western Solomon Islands is a high (up to 1,060 m) mixed volcanic and limestone uplifted island, located between 6.5° and 7.5° S latitude and 156.5° and 157.5° E longitude. The central part of the island is suggested for inclusion in the Pacific-Asia Biodiversity Transect (PABITRA) system. The proposed area consists of the north-central coast, Mount Barokasa (850 m), Mount Maetabe (1,060 m), and the primary watershed systems that drain these mountains and the central plateau between them. Some of the concerns and expectations of traditional land owners and the Solomon Islands government are considered. These play important roles in any research activity and will be central to the success or failure of the project. The Solomon Islands, Lauru, and the specific study area are briefly described with synopses of previous research and current, preliminary research activities. Preliminary species checklists are given for plants and vertebrates in the area. Initially we propose to establish two transects, each passing through two biomes suitable for comparisons with similar biomes in other PABITRA sites: the tropical montane cloud forest of Mount Maetabe (the highest point in the island), and the lowland rain forests, between 200 and 500 m in elevation to the southwest of Susuka at the base of Mount Barokasa. The two proposed transects will stretch through two different watersheds, one of which has had traditional agriculture practiced in the coastal strand area and the other of which has had traditional agriculture practiced in the lowland forest of midelevations. A research agenda is proposed that will help achieve key objectives of developing local research capacity and internal biodiversity management systems while conserving traditional knowledge.

Following the 1994 DIVERSITAS forum in Paris, DIWPA (DIVERSITAS in Western Pacific and Asia) was formed to implement the DIVERSITAS agenda for biodiversity research in Asia and the western Pacific. In 1998, PABITRA (Pacific-Asia Biodiversity Transect) was formed to organize research activities in the tropical Pacific islands in association with DIWPA (Mueller-Dombois 1998). The horizontal (trans-Pacific) transect for proposed biodiversity study passes through the Solomon Islands (see Figure 2 in introductory paper in this issue [Mueller-Dombois and Daehler 2005]). PABITRA research in each site along the horizontal transect as well as in the proposed site on Lauru Island is intended to: (1) produce an inventory of biological diversity, (2) conduct an analysis of the ecosystems present, (3) integrate an inventory with ecosystem studies through vertical transects traversing a range of ecosystems, and (4) conduct comparative studies of ecosystems with other islands along the horizontal trans-Pacific transect to test hypotheses of biodiversity relationships and

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of distributional vicariance colonization of the Pacific islands.

A Partnership Agreement

In 1998 researchers of the Solomon Islands National Herbarium and their Solomon Island and foreign research partners agreed to form a collaborative biodiversity research group: Solomon Islands Biodiversity Initiative (SIBI). SIBI is intended to organize and execute biodiversity research projects that meet the agenda of PABITRA and serve to document the diverse ethnobotanical knowledge of the Solomon Islands. The SIBI agenda overlaps substantially with the objectives of PABITRA and includes special emphasis upon: recognition and respect for local authorities; training/capacity building of Solomon Islanders; developing databases of ethnobotanical knowledge; transference of newly developed knowledge to Solomon Islanders; and patent protection, licensing, and copyright protection of Solomon Islands knowledge and customary information specifically for the benefit of the originators of the knowledge (Solomon Islanders). Since its formation, SIBI researchers have been conducting preliminary site visits in efforts to identify areas where biodiversity research may be most effectively conducted. Because of the ethnobotanical and capacity-building emphases of SIBI, potential study areas with notable participatory interest from local populations are being considered for the first studies. Following initial visits and discussions with landowners, the Ririo tribe on the north-central coast of Lauru (Choiseul) island expressed substantial interest in participating in SIBI projects.

Before initiation of preliminary SIBI research activities, four major areas of concern were identified that needed to be addressed in the organization of all research activities: (1) cultural, (2) political, and (3) management concerns with biodiversity research activities, and (4) integration of local peoples into biodiversity research projects. These areas span the range of human interactions with the environment and with one another. The primary aspects of each are summarized here.

Cultural Concerns with Biodiversity Research Activities

Holders of customary (traditional) ethnobotanical knowledge (TEK) in the Solomon Islands may be concerned about sharing their information with other people. In some cases cultural protocols do not allow sharing knowledge with members of other cultures or even with other members of their own culture. In other cases cultural protocols do allow transference of knowledge, but knowledge holders are not convinced that members of other cultures will be responsible with the information provided. Finally, some individuals and cultural groups are concerned about the economic potential of their knowledge and wish to receive a reasonable financial reward or royalty for sharing their information.

These same concerns are sometimes expressed by cultural leaders and advocates about collection and identification of biological diversity from customary lands. Because traditional land tenure is not fully resolved in many parts of the Solomon Islands and there is occasionally some tension between traditional leaders and the federal government, ownership of biological resources remains tenuous.

Political Concerns with Biodiversity Research Activities

The Solomon Islands is signatory to the Convention on Biological Diversity and other international treaties that grant sovereignty of biological resources specifically to the federal government. Participating Solomon Islands government agencies, though, recognize the role of customary land and resource owners in the sites visited by SIBI in 1998. Despite this recognition, a history of logging, mining, and fishing claims has left many customary landowners suspicious of government workers. An important part of the proposed research activities will be a balance of recognition of national sovereignty and local customary ownership of biodiversity and knowledge.

Management Concerns with Biodiversity Research Activities

Because the Solomon Islands federal government has very limited resources with which to work, SIBI will be training to encourage conservation activities by local resource owners and users. It is recognized that customary resource management and use practices may be either conservative or destructive, but for the purpose of the proposed research, an assumption will be made that traditional practices are conservative unless or until otherwise determined. SIBI will therefore encourage the continuation of customary practices and moderation in adoption of modern practices that have not previously been shown to be equally conservative. Specific areas of management include usage of forests (timber and nontimber), agricultural areas, and marine resources.

Integration of Local Peoples into Biodiversity Research Projects

Biodiversity transect studies can and should be conducted in culturally sensitive ways that include the permission, perspectives, and participation of local peoples. Investing the time to secure access from landholders can encourage local understanding of research, acceptance of research results, and interest in participation in research projects. Respect for physical and intellectual property rights is a responsibility of all scientists. Inclusion of local cultures in research can serve to reinforce positive cultural conservation perspectives resulting in longer-term stability of the study site environments. Cultural participants who are trained in research techniques, rationale, and data interpretation learn valuable skills that can be applied in long-term studies. They may also acquire or renew their appreciation and knowledge of their own traditional cultural lands. In this regard, the Ririo Cucuen Cultural Project is expected to play an important role in PABITRA activities on Lauru. The project involves a group of elders and advisors from the Ririo language community whose purpose is to document and preserve traditional knowledge and language about their culture.

SITE DESCRIPTION AND PRELIMINARY RESULTS

The first suggested site of study is the river drainage/valley owned by the people of the Ririo tribe on the north-central coast of Lauru. The principal village in this area is Susuka, which is made up of Ririo and Babatana language speakers. For each of the following topics, general statements are first made about the island of Lauru followed by more specific statements for the study site of Susuka.

Geography

The Solomon Islands consists of more than 1,000 small and large islands from about 155° to 170° E longitude and 5° to 12° S latitude (see Figure 1*A*). The islands were formed on the Pacific Plate near the Ontong Java Plateau about 40 million yr ago (Yan and Kroenke 1993). Plate tectonic volcanic activity formed an extensive arc of high islands that have since eroded into what is now known as Bougainville, Solomon Islands, and Vanuatu (Coleman 1970, Hackman 1973.) Because of these origins the islands are largely composed of basalt or in some cases sand and basalt or uplifted and dissected limestone shelves (Hansell and Wall 1976*a*.) The major islands (including Lauru, discussed here) also have evidence of more recent volcanic activities that have resulted in additional andesites and basalts.

Lauru, also known as Choiseul, is located between 6.5°–7.5° S latitude and 156.5°–157.5° E longitude at the northwestern corner of the political Solomon Islands. Geographically, the Solomon Islands also includes the island of Bougainville that is northwest of Lauru, but due to colonial political partitioning, Bougainville is currently part of Papua New Guinea. The island is long (185+ km) and narrow (averaging about 30 km in width), extending from the northwest to the southeast. The total land area of Lauru is approximately 3,086 km^2. Lauru is mountainous with many rivers, the largest of which is the Kolobaqara. The Kolobaqara is located on the south-central part of Lauru, where it drains

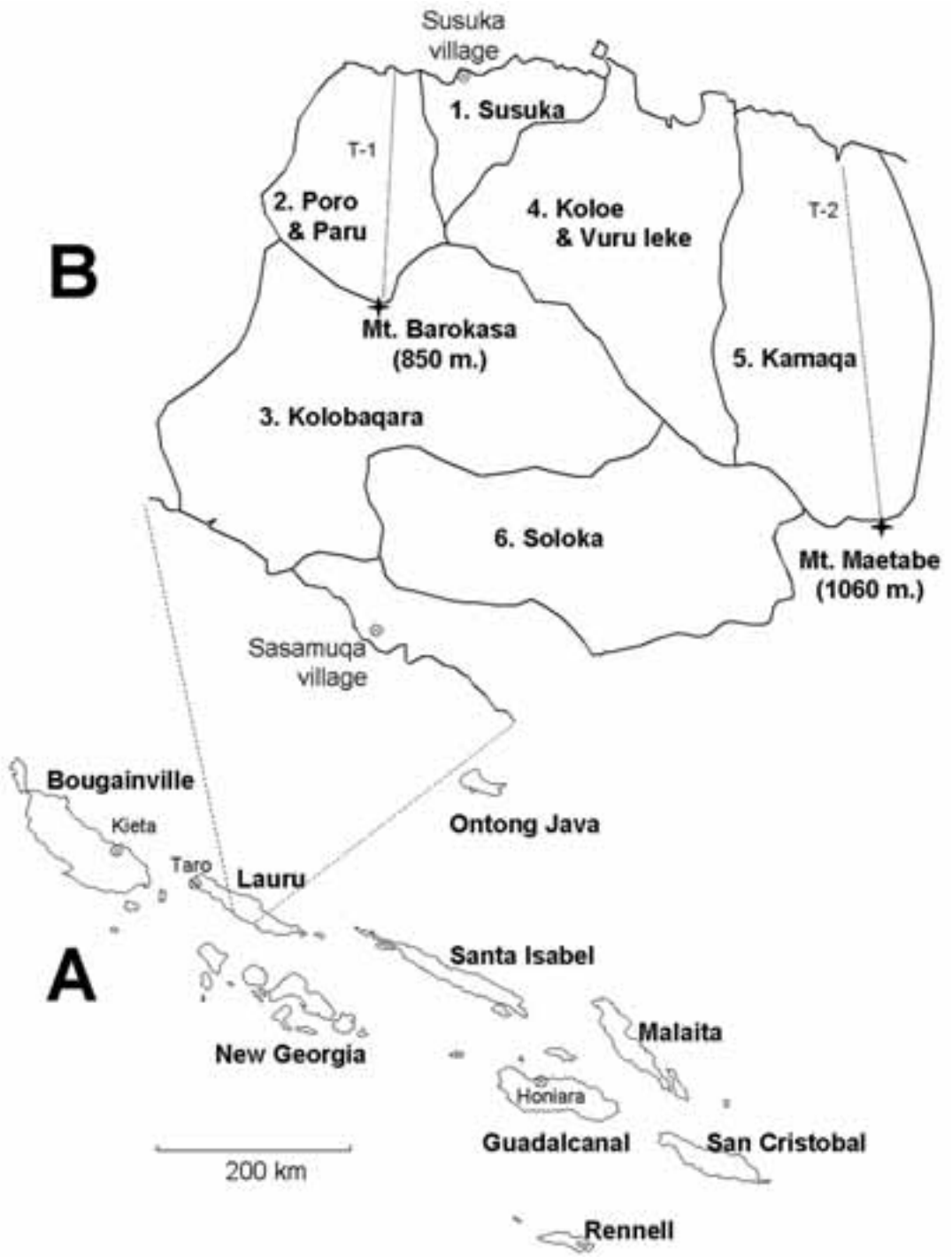

FIGURE 1. *A*, The geographical Solomon Islands including Bougainville and Rennell Islands. *B*, Central Lauru proposed site with six watershed units and two transects (T-1, T-2).

the central plateau (approximately 480 km^2) and western slopes of Mount Maetabe. Mount Maetabe is a volcanic cone reaching just to the east of the center of the island and is the highest point (1,060 m) on Lauru (Hansell and Wall 1976*b*).

The proposed study area includes six major watershed units (Figure 1*B*) spanning the center of Lauru Island and including the two highest peaks. The area is located at 7.1° S latitude and 157.2° E longitude, bounded on the north-northeast by the South Pacific Ocean, the east-southeast by slopes of Mount Maetabe, the south-southwest by New Georgia Sound, and the west-northwest by the upper reaches of the Poro and Kolobaqara River drainage systems. The areas have been numbered (1–6) in the order of the proposed research based upon local permission to work in each area. Landowners in areas 1–2 have already granted permission to conduct the proposed research in their lands. Areas 3–6 are watersheds for which partial or no permission has yet been obtained. The first area to be studied comprises the watershed system of Susuka Village on the north-central coast of Lauru. This area is currently the most heavily modified area of the proposed site. Much of the watershed is made up of anthropogenic vegetation zones. The second area to be studied is composed of the watersheds of the Poro and Paru Rivers. This watershed is the principal north-slope drainage of Mount Barokasa. The lower levels of the watershed contain scattered human settlements and gardens, but the upper areas are relatively untouched by modern activities. The proposed first transect would be placed in this watershed running roughly from north to south from the Pacific Ocean to the top of Mount Borokasa (Figure 1*B*, T-1). The third area comprises the northern watershed system of the Kolobaqara river that drains the southern and eastern sides of Mount Barokasa as well as much of the central plateau that lies between Mount Barokasa and Mount Maetabe. For our purposes we are interested in a mixture of lower- and higher-altitude portions of this watershed reflecting a mixture of anthropogenic modification regimes. The fourth area is the watershed of the Koloe and Vuruleke Rivers. This area contains only moderate altitudinal and vegetational gradients, with the rivers draining the lower areas of the north-central plateau. Many parts of this system contain swamps and bogs. The fifth area is the Kamaqa River watershed. This area features the greatest altitudinal and vegetational gradients in the proposed site. The upper areas of this system reach the top of Mount Maetabe and include elements of montane forest and bogs. The second transect is proposed for this area running roughly north to south parallel to the first transect (Figure 1*B*, T-2). The sixth area is made up of the watershed of the Soloka River, which is the largest tributary of the Kolobaqara River. This area may or may not be studied depending upon the results from the first five areas. This area offers contrasting south-facing slopes in a rugged central plateau area that differ substantially from area 4 that drains the north-facing slopes of the same plateau.

Geology

Lauru is a relatively young island formed from rapid uplift in the Lower Tertiary and volcanic activity beginning in the Miocene and extending until the Holocene (Coleman et al. 1965*a*,*b*). Uplift has resulted in several substrates, the most important of which is limestone from former seabeds and block faults that has formed low hills and some of the lower mountains in the center of the island. Uplifted sandstone and mudstone shelves occurring on the west side of Mount Maetabe are termed "Kamanga Grit" (Coleman et al. 1965*a*,*b*). These shelves are intermixed with basalt blocks in the plain and drainage of the Kolobaqara River (Pudsey-Dawson 1965). Volcanic activity has created andesitic/basaltic mountains such as Mount Maetabe, which have been termed "Matambe Volcanics" (Coleman et al. 1965*a*,*b*). Grover (1958) conducted two geological transect studies on Lauru, the first in the northwestern one-third of the island between Vosa on the south coast and Ogo on the north coast. The second transect through the middle section of the island began at Paqoe on the north coast, traversed the southeastern

slope of Mount Maetabe, and ended on the southern shore at Lutee. These transects revealed that much of the island has sections of relatively recent andesite lava flows from Mount Maetabe overlaying the older uplifted materials. This has produced a folded and intercalated landscape (Birch 1989).

Soils

A wide range of soils is present on Lauru. These are summarized by Hansell and Wall (1976*b*). Low-altitude river drainages often have mollisols, with the surrounding lower slopes having oxisols. Higher upland slopes are more likely to consist of dystropepts or haplorthoxs.

Study areas 1, 2, and 3 consist of the southern half of the Ririo geological district (Hughes 1979, 1981). This area is bounded on the southeast by the uplifted slopes that form the outer margin of the Kolobaqara River drainage and on the southwest by the ridges of Mount Maetabe. Much of this area consists of basalt Vosa Lavas and amphibolite Choiseul Schists. The coastline is rimmed by narrow fringing reefs with intermittent breaks indicating recent sea level changes. Intermittent mangrove swamps and extensive areas of fluviatile alluvium are used as further support for coastal sinking along the shore near Susuka Village (Hughes 1981, Manser 1985).

Weather and Climate

The mean annual rainfall at Taro, the Lauru provincial capital, on the extreme northwestern coast is greater than 3,500 mm with rain falling on more than 260 days per year. It is likely that higher rainfall levels would be recorded from inland and upland slopes, particularly higher slopes on windward-facing shores. More detailed weather data are available from Kieta, located on a northeast exposure that is similar to the study site. A climate diagram for Kieta (see Mueller-Dombois and Fosberg 1998) indicates a fairly uniform annual temperature and rainfall patterns. The climate of the Solomon Islands (including Lauru Island) is generally hot (22–29°C) and humid with only slight seasonality being recognized in wet and dry seasons (respectively November–April and May–October). Annual rainfall is 3,000–5,000 mm with variation based upon altitude and rain shadow effects of mountains and prevailing winds (Hansell and Wall 1976*a*).

No weather or climatic records have been identified for the research site, but daily temperature and weather records for the preliminary field research period of 30 May–29 June 1999 indicated daily temperatures ranging from 24 to 29°C in humid conditions, with 14 out of 30 days having at least some rain and 2 days of torrential rain.

Flora

Although the Solomon Islands does not have a floristic treatment, a number of important works have been compiled that address certain floristic resources (Guppy 1906, Kajewski 1930, 1946, Fosberg 1940, White 1946, Walker 1948, Good 1966, Whitmore 1966, 1969, Thorne 1969, Stone 1970, 1981, Foreman 1971, Hansell and Wall 1976*b*, Henderson and Hancock 1988, Dowe 1989, Olsen and Turnbull 1993, Anonymous 1995). A recent floristic inventory of tropical countries (Campbell and Hammond 1989) did not even mention the Solomon Islands, presumably because of a lack of current research activities. The flora of the Solomon Islands (including Lauru) consists of five principal elements (Whitmore 1966): (1) widespread strand species with distributions in the tropical western Pacific and eastern Indian Ocean areas; (2) widespread lowland species distributed throughout Malesia and sometimes continental Southeast Asia; (3) Malesian species existing only on the east side of Wallace's line; (4) Melanesian species that are found only in New Guinea, Solomon Islands, and Vanuatu/Fiji that are often endemic to one or a few island upland areas; (5) Pacific island endemic species with limited distributions or distributions only in the Solomon Islands and north (Micronesian) or east (Polynesian) of the Solomon Islands. All of the Solomon Islands are forested with the exception of

parts of the north coast of Guadalcanal that have persistent natural (Pendleton 1949) or anthropogenic grasslands. Human activities (plant selection, protection, propagation; burning; selected extraction; etc.) have affected virtually all of the forests to a greater or lesser extent, with some areas presumably entirely the result of thousands of years of human manipulations. Relative levels of secondary forest succession are probably maintained through repeated cycles of cultivation and fallow periods, which otherwise would result in regeneration of long-term canopy forests. In some cases (such as on Kolobaqara Island) human activities have been partially discontinued and the forest successional cycle of cultivated areas has since returned them to long-term forests. In this way, human activities have contributed to diversification and expansion of certain niches that before human occupation may have occurred only rarely or in widely dispersed areas. At the same time, these traditional activities have not caused extensive long-term damage to the forest ecosystems. In contrast, recent high-impact activities, such as logging with heavy equipment, have resulted in extensive long-term destruction of forests through compaction of soil, heavy erosion (and resulting silting of estuaries/reefs), and overharvesting of selected species with reforestation by introduced species of *Eucalyptus*.

The flora of the Solomon Islands is estimated to consist of at least 5,000 species, of which about 2,500 probably occur on Lauru. The number of species is expected to exceed that of many other Pacific islands (Smith 1979, Wagner et al. 1990) but to be less than that of the largest Pacific island, New Guinea (Womersley 1978). Herbarium collections at the national herbarium in Honiara are scanty from Lauru but are growing rapidly because of recent concerted efforts to collect in the Western and Choiseul Provinces. Of the expected 2,500 species, at least 1,500 are represented in the herbarium, including over 500 species from the study site.

An intitial botanical survey of the study site was completed in June 1999. W.C.M. trained a group of 15 volunteers in plant collection and voucher specimen processing methods. The group then met with members of the Ririo Cucuen Cultural Project and used a free-listing method to identify a large number of named plants known to the group. The volunteers then proceeded to collect voucher specimens of these plants for later identification. Appendix 1 lists the plants that have been collected from research site 1, Susuka watershed. The same free-listing method was used to elicit categories of vegetation recognized by members of the Ririo and Babatana communities. The volunteers worked under the supervision of the authors and Michael Wysong, using randomly located taxonomic transects of examples of each lowland vegetation type recognized by the Ririo to generate further collections of plant specimens. Initial floral collections focused upon documentation of ethnobotanically important plants in the immediate proximity of the sea level/strand villages of the Ririo tribe. Higher-altitude villages and vegetation zones have not yet been explored. Plants collected were examined in Honiara and used to establish a new herbarium based in the village of Susuka. This herbarium is currently housed in the Susuka Primary School and is being used in primary education of children as well as research activities of the local community. Development of this herbarium as a community training center was consistent with the goals of SIBI and prior recommendations for inclusion of local communities into the research process (Grano 1993).

Fauna

At least 163 species of land birds breed in the Solomon Islands including 72 endemic species. In addition, 62 species are represented by unique subspecies in the Solomons (Diamond and Mayr 1976). Many of these species are found on Lauru. "There is no other place in the world, not even the Galapagos Islands, where speciation and population variation between islands is so marked as in the Solomon Islands" (Diamond 1976). Researchers from the University of Washington have initiated studies on bird diversity on Lauru and the data are not yet available. Mammals, including endemic bats, rats, and opossums,

are found on Lauru. Four of these mammals (ring-tailed rat, *Melomys bougainvillea;* monkey-faced flying fox, *Pteralopex anceps;* Poncelot's giant rat, *Solomys poceleti;* and naked-tailed rat, *Solomys salebrosis*) are found only on Lauru (Flannery 1990, 1995). Bowen-Jones et al. (1995) explored a range of environments around Lauru focusing on distributions of flying foxes but also noting the presence of bird and reptile species that were encountered. Their report emphasized the importance of conserving forest resources for preservation of the fruit bat populations and concluded with a suggested conservation action plan for development of a conservation area on the side of Mount Maetabe around the area of Saralata Village. Saralata is currently uninhabited and lies on the northwest slope of Mount Maetabe at the edge of the study site proposed here.

Insects of the Solomon Islands have been little studied. Based upon the estimated numbers of Lepidoptera species in the Solomon Islands (~2,290) (Tennent 1998) and the calculation system of Hammond (1992), Jeremy Holloway (1999, pers. comm.) estimated that the Solomon Islands has 14,511 described insect species and 46,015 total insect species. This calculation implies that less than one in three species of insects from the Solomon Islands have been described. It is reasonable to assume that a substantial share of the total fauna of the Solomon Islands is represented on Lauru because other life forms (plants, mammals, and birds) are well represented there.

The fauna of the study site has not been formally surveyed although the linguist Donald Laycock tentatively identified several bird species from Susuka (unpublished notes included in Appendix 2). Bowen-Jones et al. (1995) identified birds, reptiles, and mammals from Varisi, Sisiga, and Babatana Territories on the north, west, and south, respectively, of the study site (Appendix 2). They also collected local names for many of the species identified, but our local collaborators do not always agree with the vernacular names that Bowen-Jones et al. reported. We have added our records of Babatana and Ririo names from the study site to Appendix 2.

Vegetation and Vegetation Profiles

The vegetation of Lauru has never been completely surveyed, and vast tracts remain unseen by scientists. However, the Solomon Islands Ministry of Forestry, Environment, and Conservation has studied the forestry resources (Anonymous 1995). In 1995 the island was found to have 1,152.5 km^2 of merchantable forest, of which 60 km^2 have been logged (Anonymous 1995); 95 km^2 or 2.9% of the total land area have been cleared (Hansell and Wall 1976*b*) for traditional gardens and other purposes. All vegetation types (see Table 1) are present on Lauru except for seasonally dry forests and grasslands.

Preliminary observations of the study site indicate the presence of all vegetation types found on Lauru except for forest on ancient limestone. However, it is likely that areas of ancient limestone karst will be identified in the upland areas of the northern slopes of Mount Maetabe at the southeastern corner of the study site. Customary terminology for vegetation zones in the study site is reported in Table 2. These vegetation zones represent culturally important resource areas rather than cohesive ecosystems. It is interesting to note the similarities between usage areas and vegetation zones in Table 1.

Customary Human Activities

The cultures of the western Solomon Islands (Western and Choiseul Provinces) are of mixed Austronesian (Melanesian) and non-Austronesian (Papuan) ancestry. The people of Lauru Island speak related Austronesian languages with persistent linguistic and social affinities with cultures on Bougainville in adjacent Papua New Guinea. Eight languages are spoken on Lauru: Avasö, Babatana, Ririo, Sisiqa, Tavula, Vaghua, Varesi, and Vasiqa-siqa (Capell 1962, Tryon and Hackman 1983; Malcom Ross, 1999, pers. comm.). Native language speakers account for almost the entire population of Lauru, totaling less than 17,000 people. Of the Lauru languages, Babatana and Varesi are currently the more widely used languages because of a historical activity: translation of the Bible (Varesi by Catholics

and Babatana by Protestants). Biblical texts have not been translated into the other languages, so speakers of those languages have learned either Babatana or Varesi to practice the islandwide adopted religion, Christianity. The Babatana language, as used in words in the text, includes letters based upon the Methodist translation system that are not spoken as they might be in English. For example, b is pronounced as "mb." Translation activities have been confined almost exclusively to production of the books of the Bible and hymns and other church-related works. Almost no written records exist of Babatana words for commonly observed objects (e.g., parts of a house or digging sticks), technologies (e.g., fishing strategies), or terminologies (e.g., landscape/ecosystem terms). The Ririo language has never been formally studied although Donald Laycock conducted a preliminary survey of glosses in 1978 that was compiled by Lincoln (1999). Using Lincoln's compilation, the Ririo Cucuen Cultural Project has prepared a preliminary Ririo-Babatana-English dictionary. This dictionary includes all of the plants, animals, and vegetation zones listed here as well as additional

TABLE 1

Vegetation Zones of the Solomon Islands (Modified from Whitmore [1966, 1969], Henderson and Hancock [1988], Mueller-Dombois and Fosberg [1998])

1. Coastal strand vegetation
2. Mangrove forests
3. Freshwater swamp forest and herbaceous wetland vegetation
4. Lowland rain forest on well-drained soils
5. Forest on ancient limestone
6. Seasonally dry forest and grassland (probably not present on Lauru)
7. Montane forest and scrub
8. Anthropogenically modified vegetation
   8a. Freshwater swamp agriculture
   8b. Arboriculture systems
   8c. Dry land root crop agriculture

TABLE 2

Culturally Recognized (Babatana and Ririo) Vegetation Zones in the Proposed Lauru PABITRA Site

Ririo	Babatana	Natural Vegetation/Usage Zones
kol	kolo	Open sea
malav	malavo	Outer reef
ar kidavan	—	Area between inner and outer reef
quar‘	—	Channel between inner and outer reef
bo‘	bau	Shore and inner reefs
gargar soqom	—	Tidal beach
ve karkuin	gazu ni karakone	Coastal strand vegetation
—	lumi podolo	Mangrove forest
nob	po	Freshwater swamp forest (and agricultural sites)
vike	zike	Brooks or streams
vuv lean	—	Steep part of river such as a vertical waterfall that blocks the movement of fish
malko o	kakako	Seasonally dry creek beds that only flow after heavy rains
sa kap	sakapa	Lowland rain forest
tat buan	loka pota	Montane bogs/ponds characterized by stunted vegetation
siniqa	—	Forest/bush
	—	Montane forest
sup	—	Mountain top (exposed rock/soil)
		Anthropogenic Vegetation/Usage Zones
kuamal sisipa	komala sisipo	Human settlements
nob	po	Freshwater root crop agriculture areas
quan	quana	Lowland rain forest arboriculture gardens
bab roe	baroe	Vegetable and root crop gardens
koeb	kobe	Landslide areas
piar	piara	Former gardens (10–20 yr old) reverted to secondary forest

ethnobiological terminologies, and it is hoped that the dictionary can be published soon.

Before European contact and the introduction of Christianity (Methodism in 1905), the cultures of Lauru existed in isolated tribal groups in interior defendable upland villages. These villages were located on hilltops, ridge saddles, and other higher areas in the forest. In those situations, the people depended upon the forest resources for their primary sustenance but also maintained small forts and canoe sheds along rivers and next to protected lagoons for fishing and warfare purposes. Although it is not certain how commonly wars occurred, it is clear that the cultures of Lauru were constantly prepared for attacks (by living in defendable positions) and maintained weapons and war canoes (presumably for attacking enemies). Ancient hill forts consisted of a large compound surrounded by an outwardly bent living fence of useful trees and a single entrance that was physically blocked by the house inhabited by the tribe's young unmarried men, who served as the first line of defense. Within the compound, fruit and nut trees were grown for shade, nutrition, etc. Outside the village compound, but in similar raised areas, groves of trees were maintained as agroforestry plantations and gardens. Secondarily, swampy or dry areas were cultivated for sweet potatoes, yams, taro, bananas, etc.; these were undefendable positions and therefore risky places to work or live.

Babatana tribes formerly dominated the south-central portion of Lauru. Through recent marriages and movements of tribal members, they are now found throughout much of Lauru but particularly along the north-central coast. Almost all of the current Babatana and Ririo villages are located along the coastline or just inland near modern garden sites. Modern gardens are not necessarily located at the same sites as those of pre-European contact but in many cases are located on the adjacent slopes of hills with the useful tree groves that once served as village sites and harvest areas. In addition to shifting the sites of villages closer to the ocean, there have been substantial changes in diet and daily activities. Previously (presumably) the diet consisted of largely nuts, fruits, opossums, wild pigs, and other forest plants and animals, supplemented by root crops, fish, and other domesticated strand and swamp species. Currently, the diet consists of a mixture of domesticated root crops, fish, and imported foods such as rice, tinned fish, dry biscuits, etc.; these are supplemented by nuts and fruits of the forest and other forest animals and plants.

Currently, the human population level of Lauru is estimated to be greater than 16,000 persons or five per km^2. The population is unevenly distributed, with greater populations in the northwest, south-central, and southern regions (Anonymous 1995). These populations are located primarily at coastal village sites established by missionary activities that began in the early 1900s. Before missionization, much of the population lived in higher-altitude defensible positions in the interior of the island. Some people still live in the upland regions and participate in subsistence farming practices only slightly modified from those of the distant past.

During initial visits to Lauru, some background ethnobotanical information was recorded from observations and interviews with villagers. Lauru islanders traditionally practiced a combination of hunting and gathering of wild foods (including *Gnetum gnemon*, *Canarium salomonense*, *Pandanus* sp., opossum, and wild pig), arboriculture (including *Artocarpus altilis*, *Canarium indicum*, *Cocos nucifera*, *Barringtonia* spp., *Metroxylon salomonense*, and *Terminalia* spp.), and shifting agriculture (including *Alocasia macrorrhiza*, *Colocasia* spp., *Cordyline fruticosa*, *Dioscorea alata*, *Musa acuminata* × *balbisiana*). In addition, other nonfood daily needs were satisfied by selecting materials from the forest and nearby marine environments (including *Calamus* spp. for rattan; *Cocos nucifera*, *Hibiscus tiliaceus*, and *Pandanus* spp. for fibers; *Atuna racemosa* for sealing caulk; *Canaga odorata*, *Canarium salomonense*, *Eugenia* spp., *Rhizophora apiculata*, *Vitex trifoliata*, and *Zingiber zerumbet* for medicine; and *Agathis*, *Campnosperma brevipetiolata*, *Calophyllym kajewskii*, *Dillenia* spp., *Metroxylon salomonense*, and *Vitex cofassus* for housing, canoes, containers,

firewood, etc.). Currently ethnobotanical research projects are being conducted by various nongovernmental organizations as well as by the authors on the southern and northern central coasts of Lauru.

As mentioned earlier, very little of the forest area has been converted to human uses (~2.9%). This is particularly true in the most rural areas where populations are highly dispersed and forest regeneration rates probably exceed customary human conversion activities.

Previous ethnobotanical research in the Solomon Islands has been limited largely to passing reports of social scientists about plant usage (Codrington 1891, Wheeler 1914, 1926, Thomas 1931, Blackwood 1932, 1935, Oliver 1955, 1991, Brookfield and Hart 1971) and botanists about cultural activities (Henderson and Hancock 1988). Although those works are helpful, the archaeological and prehistorical studies of Guppy (1887), Barrau (1958), Yen (1973, 1974, 1976, 1991, 1994), Powell (1976), Maenu'u (1979, 1980), Wickler and Spriggs (1988), and Kirch (1989) are most pertinent to studies of ethnobotany on Lauru. No important ethnobotanical research appears to have been conducted previously in the area of Susuka. The current research will therefore be a unique addition to the knowledge of customary human activities on the north-central coast of Lauru. The research site is a sparsely populated area with probably less than 200 people, almost all of whom are living customary subsistence lifestyles. Currently, we are working to determine the types and levels of traditional knowledge that are still present in the community as a first step in conserving the knowledge (Plotkin 1995). Some of the areas of important knowledge that have been identified include arboriculture, canoe construction, fiber arts, fishing, housing, medicine, and weapons. The project is also seeking to develop positive economic opportunities for the Ririo culture that are sustainable and respectful of the culture. The Ririo Cucuen Cultural Project supports and controls studies of ethnobotanical uses of biodiversity in the study site, and the continued support by those involved in this project is important for the success of PABITRA on Lauru.

Modern Human Activities

In major centers on Lauru, such as Taro (Choiseul Bay) and Sasamuqa, electricity is widely available from community or individual petroleum generators. Few export commodities are available to pay for modern conveniences such as electricity except for the forest biodiversity itself in the form of logs. The forests of the Solomon Islands have very high-grade timber (Pleydell 1970) with competing traditions of local usage. Small-scale chainsaw mills have been established in several villages, and the Eagon Resources Development Company, Ltd. (Solomon Islands) is currently conducting commercial logging in the northern and southwestern parts of the island. Eagon's logging activities were estimated in 1992 (Anonymous 1995) to have exported 110 million Solomon Islands dollars (US$22 million) worth of timber, mostly in the form of round logs. The Eagon company is currently the largest employer on Lauru and accounts for the bulk of the commercial economy. The current rate of logging is thought to exceed a sustainable level (Olsen and Turnbull 1993, Anonymous 1995).

Minimal electrification is currently in place in Susuka Village using petroleum generators, although more conveniences are desired by the villagers. Locally owned, small-scale chainsaw logging is taking place, and foreign commercial offers to log the study site have been tendered to village leaders. It seems that inevitably, unless better offers are made, the lowland areas of the study site will be logged. It is hoped that the activities of this research will delay or prevent that event through documentation of the value of the forest, education of villagers about the true value of their timber and other forest resources, and development of small-scale alternatives to commercial logging.

Current Research Facilities in the Site

The proposed research site has a number of elements of infrastructure that present it as a prime site for PABITRA research activities. The most important element is the people

of the Ririo Cucuen Cultural Project and the surrounding Ririo and Babatana communities. The people are open and receptive to development of research facilities and the presence of foreign researchers. At the same time there is a conservative mood in the culture that shuns rapid development and destructive activities such as commercial logging. As mentioned earlier, a cadre of about 15 parataxonomists has already been trained in collection and preparation of biological samples. Village leaders have eagerly embraced the training that occurred in preliminary site visits in 1999 and have provided invitations for research collaborators to return for actual research activities.

The Ririo culture is in undisputed control of the land within the proposed study site. Although there are some internal disputes among landowners, these are unlikely to impact the proposed research in any substantial way. Ririo lands extend from the open ocean up to the slopes of Mount Maetabe and to the low-altitude rain forest of the Kolobaqara river. All vegetation types found in Lauru are thought to be represented in the relatively small area of Ririo lands. Currently almost all human activities are concentrated around the village of Susuka. This has resulted in conservation of higher upland areas and areas more distant from Susuka.

Several buildings have been made available for research activities in and around Susuka. These include two houses for visiting researchers (more are available if needed), two plant-drying stations (in cookhouses), and usage of the community meeting hall for group activities and indoor training sessions. Additional buildings have been identified at the eastern edge of the study site in the Masi lotu mangrove swamp and at the southern edge of the site on the Kolobaqara River. A herbarium has been established in the Susuka Primary School, which was remodeled in June 1999, and plans have been drawn up for building a larger school facility that would be able to house an expanded herbarium and other research units. Discussions are also under way for construction of a new field station on the slopes of Mount Maetabe at the southeastern corner of the site. In all, three field stations are either present or being developed/expanded that will allow researchers to work in any vegetation zone on the site within a few hours walk of the facility.

Solar power is currently available at two of the field station sites, and importation of more solar panels is planned for the new school building. A gasoline generator owned by the University of Hawai'i is currently available for use in any of the field stations as a supplement to the solar panels. Plant collection presses and other equipment have been stored in Susuka and at the Masi lotu site. In addition, plant presses and other equipment belonging to the researchers are stored in Sasamuqa just outside the site.

Transportation to and from the field site is the greatest limitation to work in the Ririo area. To travel to the field site, researchers must fly from Honiara to Choiseul Bay (2–3 hr) and then travel by open canoe (3–6 hr) to Susuka or Sasamuqa. Alternatively, supply ships from Honiara (2–3+ days travel) make regular stops (every 2–4 weeks) at the villages of Susuka and Sasamuqa. Susuka Village has purchased an aluminum boat and outboard engine that can be used for travel between Susuka and Choiseul Bay. In addition, there are many privately owned wooden and aluminum canoes and motors that can be hired for travel around Lauru. Usually on these trips, fuel is the major expense.

Sasamuqa, as a center of activities on Lauru, receives more services, has a hospital and telephone station, and is more often frequented by boats from the south (Western Province.) A road has been planned that will pass from Sasamuqa north through the study site to Susuka. The eventual opening of this road will ease access to most of the study site and to the services at Sasamuqa but will also increase other human activities and facilitate the spread of invasive species to higher altitudes and isolated parts of the site. Opening of the road seems to be inevitable, so transect studies in the areas surveyed for the road should be conducted as soon as possible to provide baseline data for measuring the impacts of the road.

TABLE 3

SIBI and PABITRA Research Objectives for the Proposed Lauru Biodiversity Transects, Solomon Islands

Preliminary site surveys
• Determination of site characteristics
• Determination of local interests and needs (language documentation, development of alternatives of logging, etc.)
Development of national research capacity
• Improvements of physical infrastructure (e.g., herbarium and other research facilities)
• Scientific capacity building (training of professional and paraprofessional biologists)
Development of site research capacity
• Improvements of physical infrastructure (expansion of the Susuka field station, building a Mount Maetabe field station, expansion of the Kolobaqara River field station, building a Sasamuqa field station)
• Scientific capacity building (training of biological collectors/long-term observers, training of conservation leaders, training of ethnobotanical collectors/long-term observers)
• Provision of survey equipment (canoes with 40-hp outboard engines at Susuka and Sasamuqa), plant collection and monitoring equipment, animal/insect collection and monitoring equipment, weather-monitoring equipment (at Susuka, Mount Maetabe, and Sasamuqa)
Primary site studies
• Flora and fauna (collection of plant inventory by vegetation zone; vertical transect studies of vegetation and species altitudinal distributions; ethnobotanical studies of distributions and uses of species; ecological analysis of species, including rarity, ecological associations, etc.; ecological human impact analysis of each vegetation zone and major subzones)
• Ecosystem analyses (including soils, nutrient dynamics, and hydrology)
• Climate (measurement of short-term climate and weather patterns, establishment of long-term monitoring stations/sites staffed with local research participants)
Presentation and publication of results
• Reports submitted for use by local villagers and resource managers
• Handbook of basic climate, edaphic, biotic, and technical information about the sites
• Reports submitted to governmental and participating research units
• Symposium meeting presentations
• Scientific publications (biogeographical, ethnobotanical, etc.)
• Synthetic publications using data from this and other PABITRA sites to summarize patterns for horizontal transects across the Pacific

RECOMMENDATIONS FOR PABITRA RESEARCH IN THE SOLOMON ISLANDS

Considering methodologies outlined in the PABITRA Manual for Interactive Ecology and Management (http://www.botany.hawaii.edu/pabitra), Table 3 presents an outline of proposed PABITRA research activities in the Solomon Islands that is consistent with the mission and principles of SIBI. These research activities must include participation not only from multidisciplinary research teams but also from multiple segments of the Solomon Islands government and local villagers. Partners must include Solomon Islands government ministries and departments, Solomon Islands research institutions and nongovernmental organizations, external research institutions, and customary landholders/local villagers. These collaborative arrangements will help ensure that the PABITRA biodiversity research and its applications benefit all participants and stakeholders.

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Appendix 1

Plant Species in the Vicinity of Susuka Village

Taxa	Ririo Name	Babatana Name
Acalypha wilkseiana	popor sek	paparusake vuvune
Acalypha grandis	popor sak	paparusake, parusake
Acanthus ilicifolius	ra'ara'apuevek	raka poreke
Acriopsis cf. *javanica*	siakel	siakale sele
Acrostichium sp.	ponoq	gama
Acrostichium aureum	poet, mali nabo	pote
Actinorhytis calapparia	beil bues, bo'ovara	belebose, bokovara
Aglaia samoensis		kidu
Albizia saman	vev've miqur	vavae miqa
Allium fistulosum	anian	aniani
Allium cepa var. *aggregatum*	silati	silati
Alocasia sp.	lubis	lubisi
Alocasia macrorrhiza	voruku	voruku
Alocasia sp.		kuruvera
Alpinia stapfiana	bubuat	tutupu mesara
Alpinia rechingeri	saqeta	saqeta
Alpinia oceanica	kukulo	pipiro
Alpinia purpurata	rurup	rurupa
Alpinia sp.		zaizai
Alpinia sp.	tual piar	talapira
Alpinia sp.	rurup mes	rurupa mesara
Alpinia rechingeri	saqeta	saqeta
Alstonia scholaris	bo'o	bua
Alstonia sp.	kukuir	kukuri
Alstonia sp.	qol zo'	qalu veko
Alstonia spectabilis		makobele
Alternanthera amoena		julupu kiku
Amaranthus sp.	zuk	
Ananas cosmosus	kainopu	kanapu
Annona muricata	bario ku luka	bario ni vaka
Anodendron paniculatum	kanik paras	kaniki parasi
Appendicula reflexa	siakel	siakale
Appendicula pendula	siakel	siakale
Appendicula sp.	siakel	siakale
Arachis hypogaea	pinati	pinati
Areca catechu	kos	kasu
Areca guppyi	buan jav	kasu java
Areca macrocalyx	kos pe	kasu paza
Argusia argentea	subapepel	subapepele
Artocarpus heterophyllus	bario ku luka	bario ni vaka
Artocarpus altilis	bario vud	bario ni vudu
Asplenium contiguum		
Asplenium sp.	sibuka moed	gadoe pöo
Asplenium nidus	pöo	pöo
Asplenium tenerum		sirakokomole zoqa
Atuna racemosa	lita	lita
Averrhoa carambola	pirak	piraka
Bambusa blumeana	vot kor	loso karo
Bambusa vulgaris	vot kor	loso vokani
Barringtonia asiatica	pipic	pututu
Barringtonia procera	zel	vele
Barringtonia novae-hyberniae	zel	vele
Barringtonia sp.	kurkoron vel	karukarunu vele
Barringtonia sp.		vele bose
Barringtonia niedenzuana	zel	vele
Barringtonia edulis	zel	vele

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Barringtonia racemosa	zel ta qil	vele ta qili
Barringtonia sp.		vele sisira
Bougainvillea glabra	vuvure ar poq	böböli varapaqo
Bougainvillea spectabilis	vuvure ar poq	böböli varapaqo
Brachiaria sp.		töe peqo
Brachiaria subquadripara	sisiu	sisiu
Brassica chinensis	kavisi in cina	kavisi ni China
Brassica oleracea var. *bullata*	kavisi in Enland	kavisi ni Enland
Broussonetia papyfera	tuba	tuba
Bruguiera sexangula	podol	podolo jimutu
Bruguiera parviflora	podol	pitu, podolo
Bruguiera gymnorrhiza	podol	podolo depa
Bulbophyllum gracillimom	siakel	siakale
Bulbophyllum sp.	siakel	siakale
Bulbophyllum mohlianum	siakel	siakale tali koqomo
Bulbophyllum piestobullon	sakel jimut	siakale jimutu
Bulbophyllum grandiflorum	siakel	siakale
Burckella obovata	noc	natu
Cadetia hispida	siakel sel	siakale sele
Caladium bicolor	man kuluka	zekata vaka
Calamus hollrungii	suaq, piol	siku, pelo
Calamus stipitatus	suaq, piol	siku, pelo
Calamus vestitus	suaq, piol	siku, pelo
Calophyllum inophyllum	buin	buni ni tikava
Calophyllum sp.	qol ko‘o	qalu sirebe
Calophyllum paludosum	pedpoas	pedeposa
Calophyllum kajewskii	qol kok	buni qalu, qalu koko
Calophyllum vitiense	qal	qalu buni
Campnosperma brevipetiolata	toel	toele
Cananga odorata	mudumud, mudmud	mudumudu
Canarium sp.	ciniri	tinaru kubo
Canarium indicum	ko‘o	kaku
Canarium salomonense	saq	saqa
Canarium sp.	noqot	noqoto
Canarium asperum	saq sibut	saqa ta sibutu
Canna sp.	kaboka	kalakabuka
Canna indica	vuvure sot	böböli sotu
Capsicum frutescens	lob	sili
Capsicum annuum var. *grossum*	pepa	pepa
Carallia brachiata	saqam	saqama
Carica papaya	manep	manepo
Caryota rumphiana	kuarak	piku
Cassia alata	bakua	bakua
Casuarina equisetifolia	zor	zaru
Casuarina sp.	zaru	zaru
Ceiba pentandra	vee kunel	gazu böti luqa
Celtis philippensis	siatu‘uk, cucuanrika	sikatuku, sinarika
Centella asiatica	ka‘alua‘, pula ta kur	kaloka, basa ta kuru
Centotheca lappacea	siukas	siukasi
Centrosema sp.		sisiu buluma kau
Cerbera manghas	logo	kari
Ceriops tagal	demdem	damedame
Chamaesyce prostrata		sisiu kanai, sisiu varamana
Chrysopogon aciculatus	sisiu varapaqo	sisiu varapaqo
Citrus maxima	pomol	pomolo
Citrus grandis	purut la‘avoe	purutu lata
Citrus aurantifolia	laeni	laeni

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Citrus limon	purut don	purutu vasiki
Citrus sinensis	orij	oruji
Citrus reticulata	madarini	madarini, majarini
Claoxylon tumidum	cinima	tinima
Clerodendranthus staminens	kalkua	kalakua
Clerodendrum sp.		vapela gaveve jimutu
Clerodendrum buchananii		kotaru leke
Cocos nucifera	kuda	kuda
Codiaeum variegatum	lupa	jajala kobaburi
Coix lachryma-jobii	popod dou, qaran vud	popoda vasiki, qaruni
Coleus saulellarioides	kalakua	kalakua
Colocasia esculenta	man luim	zekata lumi
Colona velutina		modo, sako
Cominsia gigantea	bör	zizinu mesara, rurupa vuvuni
Cordyline fruticosa	jilupar, vulo	jilupara, zilupara
Costus speciosus	zolzol, joljol	kalakabuka zolzol
Cucumis lanatus	meleni	meleni
Cucumis sativus	kiukaba	kiukaba
Cucumis melo	meleni	meleni
Cucurbita pepo	dur	duru
Curcuma longa	puat	pota
Cyathea sp.	qur	quru
Cyathea vittata	zuk	zuku
Cyathea sp.	bonok	lalapu
Cyathea sp.	pudaqil	pudaqili
Cycas rumphii	roro	roro
Cymbopogon citrullis cf. *coloratus*	pala nuis	basa sivata
Cyperus javanicus		vulu jimutu
Cyperus rotundus		sisiu bakoso
Cyrtosperma chamissonis	kekek	kakake
Cyrtosperma johnstonii	miduk	miduku
Datura candida	vuvure biol	böböli belo
Davallia solida		zuku kalikaliqava
Delonix regia	loloqev	loqeve, Christmas tree
Dendrobium mohlianum	siakel	siakale ni bakoro
Dendrobium salomenense	siakel nuab	siakale duru
Dendrobium goldfichii		siakale
Dendrobium kietaense	siakel	siakale
Dendrobium gnomus	konek	siakale
Dendrocnide nervosa	kureqa zilamaren	kureqa zalerana
Dendrocnide sp.	kureqa tiapar	kureqa depa
Dendrocnide latifolia		basa koreqa
Dennstaedtia samoensis	vevemiqur	vavae miqa
Derris sp.	vaku katur	vaku katuru
Derris trifoliata		vaku karakone
Derris sp.	vavanen ve	vaku zoqa
Derris sp.	leqleq	vaku karatokele
Derris heterophylla		vaku ni siniqa
Derris sp.	tu'a	tabalio mesara
Desmodium sp.	lalvar ta bek	lavara ta vasi
Desmodium umbellatum	jia jan	je jana
Desmodium ormocarpoidec	momorok te bek	lavara ta vasi
Desmodium gangeticum	momorok te bek	lavara ta vasi
Dianella ensifolia		böböli tutu, ganana piru, kela
Dicranopteris linearis	luqa	luqa
Dillenia crenata	na'am	nakumu
Dillenia ingens	na'am	nakumu

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Dillenia sp.	na‘am	nakumu
Dillenia salomonensis	na‘am, sibir	nakumu, sibiri
Dioscorea sp.		noba vuru mokoso
Dioscorea sp.	susui	susui
Dioscorea esculenta	zoad, zuad	pana
Dioscorea sp.		noba kölopirir
Dioscorea pentaphylla	ziqam	noba
Dioscorea nummularia	ziqam	noba
Dioscorea bulbifera	kalak	kalaka
Dioscorea alata	ziqam, vuru mo‘os	noba
Diospyros hebecarpa	papaza piloto	papaza piloto
Diospyros sp.		püzapüza piloto
Diplazium esculenta	muqa	muqa
Diplazium proliferum	mel	zuku mali
Dolichandrone spathacea	tui	tui
Donax canniformis	nina	nine
Elaeocarpus sphaericus		kunu
Eleusine indica	sisiu	sisiu bakoso
Endospermum medullosum	ve poat	gazu pota
Enhalus acoroides	sisluka	siluka püu
Epipremnum pinnatum	poet	surubi
Epipremnum dahlii	poet	surubi
Epipremnum amplissimum	poet	surubi
Eragrostis japonica		sisiu kukupa
Eragrostis pilosa		sisiu
Erythrina variegata var. *orientalis*	bir‘bir	biribiri
Etlingera sp.	rurup	rurupa vuvune
Euodia hortensis	pula	basa pitalata, basa vule
Euodia anisodora	pula	basa vasiki
Euodia sp.	cinirkubo	tinirikubo depa
Euodia elleryana	nulit sel	nuliti sele, qalo maka
Excoecaria agallocha	pipilomatanan	pipilomatana
Fagraea gracilipes	buburet	burate
Fagraea racemosa	pusak	pusaka
Ficus variegata	ro‘os, luc	rokoso, lutu, jimutu
Ficus sp.	pilabük	pilabaku
Ficus chrysochaete	qula	qula siridema
Ficus wassa	ka‘ano don	kanava vasiki
Ficus benjamina	ro‘os	rokoso
Ficus septica	mamal	mamala
Ficus drupacea	ro‘os	rokoso
Ficus virgata	ro‘os vovoq	sisiru pitalata
Ficus tinctoria	sisiur	sisiru vasiki
Ficus longibracteata	pilapilabük	pilapilabaku
Ficus tinctoria	ro‘os sisiru	rokoso sisiru
Ficus sp.	kovolasa‘at	kovaroka
Ficus macrothyrsa	kua	kua
Ficus salomonensis	boilel	bolele
Ficus septica		kanava depa
Ficus copiosa	ka‘ano la‘avoe	kanava pitalata
Ficus copiosa		kanava vasiki
Finschia waterhousiana	ka‘anuekel	kanokele
Finschia chloroxantha	ka‘anuekel	kanokele
Flacordia rukam		beri
Flagellaria gigantea	popod, zar	popoda/zara
Freycinetia sp.	matmeaq	matameqa
Freycinetia sp.	mireqet	sasake

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Freycinetia sp.	riuk	riku
Gardenia sp.		böböli vaka pilapila
Gmelina moluccana	qolzo'o	qalu veko
Gnetum gnemon	keo'os	kekoso, leko
Grammatophyllum scriptum	siakel	siakale
Guettardia speciosa	ke ked vuar	kade vuara
Guillainia purpurata	kolot	koloto
Guillainia sp.	puiqar	kuiqara
Guillainia sp.		kuqara, koeqara
Gulubia hombronii	marot	marato
Halophila ovalis	siluka zapzap ta teq	siluka zapazapa ta vunu
Heliconia solomonensis	suat	suata
Heliconia indica	suat	suata tutu
Heliconia lanata	suat	suata ka'u
Helminthostachys zeylandica	deder pia (spel)	dedere
Heterospathe minor	vuk	vuku
Hibiscus rosa-sinensis	vuvure	böböli
Hibiscus manihot	ras	rasa
Hibiscus tiliaceus	vor	varu
Homalium tatambense	sa	sa
Homalomena cordata	pitu	pitu
Hornstedtia scottiana	ruepeq	qio sele, qio mesara
Hornstedtia lycostoma	ruepeq	ropeqe
Horsfieldia spicata	vovorot	vovoroto (pito, sele)
Hoya dodocatheiflora	kasior	kasioro, vika voka buili
Hoya cominsii	potpot	potopoto
Hoya guppyi		nokoso pilapila
Hydnophytum sp.	pijul	pujulu
Hydnophytum longistylum	nener	nanari
Inocarpus fagifer	piqe	qiqiti, lanava
Intsia bijuga	kivil	kivili
Ipomoea batatas	sisu	sisu
Ipomoea aquatica	sisu lum	sisu lumi
Ipomoea pes-caprae	posovan	puso vanana
Ipomoea sp.	pipia kuse	pipia kuse
Ischaemum muticum		sisiu paraka
Ixora coccinea	vuvure lut	böböli lotu
Jatropha sp.	vuvure	böböli/my love
Kleinhovia hospita	vilek	vilaki
Leea indica	kikib puda	kikibi puda
Leucosyke salomonensis	soos	soso, gazu ni sakapa
Licuaka lauterbachii	laker	lakiri
Lumnitzera littorea		kakarunu
Lycopersicon lycopersicum	tomato	tomato
Lycopodium phlegmarioides	vurune basan	vurene basana
Lygodium sp.	lei	lae
Lygodium palmatum		lae
Lygodium versteeghii	lei	lae
Lygodium microphyllum	lei	lae
Lygodium circinnatum	lei	lae
Lygodium dimorphum	lei	lae
Lygodium trifurcatum	lei	lae
Macaranga tanarius	soesoe	soesoe
Macaranga fimbriata	rumes	rumese
Macaranga gigantea	tob	susukutu
Macaranga sp.	hoq	koqo
Macaranga sp.	kubevanan	kubevanana

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Mangifera salomonensis	miaq vud	kimaka ni vudu
Mangifera mucronulata	miaq vud	kimaka ni vudu
Mangifera minor	miaq vud	kimaka ni vudu
Mangifera indica	miaq kuluka	kimaka ni vaka
Manihot esculenta	toviok	tovioko
Mariscus javanicus	lot puat	lato pota, vulu jimutu
Melastoma affine	no‘os vurip	nokoso kamata
Melochia umbellata	kuadman	kodame
Merremia bracteata	rurui	rurui
Merremia pacifica	rurui	rurui
Merremia peltata	rurui	rurui
Metroxylon salomonense	katua, karmo	nive
Microsorium sp.	pöo	pöo
Mikania micrantha	no‘os sa‘at	nokoso roka, milo miniti
Mikania cordata	sisiu gojol	sisiu qaqaqara
Mimosa pudica	sisiu varapaqo	sisiu varapaqo
Mimosa invisa	sisiu varapaqo	sisiu varapaqo
Morinda citrifolia	kukuir, vatkuic	kukuri
Mucuna elegans		qalo qum
Muntingia calabura	ve seri	gazu seri
Murraya paniculata	vuvure nonopok kuse	nanabu kuse
Musa maclayi	siku kal	siku kalo
Musa acuminata × *balbisiana*	suaq	siku
Musa peekeli	siku kal	siku kalo
Musa erecta	siku kal	siku kalo
Myristica fatua	piqet ta ka‘as	papele rokoso, buni ta qili
Myrmecodia salomonensis	pujul	pujulu
Nastus productus	vot kor	loso pöu, loso voto
Nastus obtusus	los, vot kor	loso voto, loso bose (bekoto)
Nephrolepis hirsutula	kubasbo‘o	kubasaboko
Nephrolepis exaltata	sira kukuemel	sira kokomele zoqa
Nephrolepis biserrata	veve biol, niqich	vavaebelo, kobasaboko, sirakokomele zoqa
Nicotiana tabacum	vir	viri
Nypa fruticans	rabia	rabia
Ocimum americanum	pula meaq saq	basa meqa saqa
Ocimum basilicum	pula zabau, pula tiapar	basa zabana, basa marata
Ocimum sanctum	pula don	basa vasiki vurenea, basa koreqa
Ocimum sp.	pula ta pituel	basa ta pitikole
Octomeles sumatrana	vurima	vurima
Oryza sativa	rais	raesi
Osmoxylon novo-guineenis	kuijkuij, qires	qirese, kujikuji, tabu katu
Oxalis corniculata	sisiu jiaprans	sisiu kolova
Pandanus tectorius var. *variegata*	bul	bulu, vulu
Pandanus poronaliva	solnire	solonire
Pandanus sp.	por bas	poro basa
Pandanus sp.	pür	poro
Pandanus tectorius	ganan	ganana
Pandanus compressus	som	samu
Pandanus sp.	lo	lo
Pangium edule	ko‘ocika	tinaru
Parartocarpus venenosa	bubue	boboe
Parinari glaberrima	lita	lita
Paraserianthes falcataria	viv‘ruin	viruni
Parsonsia helicandra	tu‘a	tabalio depa
Paspalum conjugatum	sisiu ti pioq	sisiu tüe peqo
Passiflora foetida	musmus	musumusu
Pennisetum polystachyon	sibo	sisiu sibo

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Phaseolus vulgaris		biniti
Phaseolus sp.	no‘os bulmako	nokoso bulu makou
Phaseolus vulgaris	binit don	biniti vasiki
Phragmites sp.		dõo
Phragmites karka	nuis	sivata
Phymatosorus scolopendria	püo	püo
Physalis angulata		purutu
Piper wichmanii	kubis, luqusor	luqusuru
Piper sp.	nonol sa qaqar	nanalu ni ta lumi
Piper sp.	kura	musa
Piper aduncum	nonol	nanalu
Piper betle	sarap	sarapa
Piper sp.	nonol sa‘a pu‘a	nanalu sa poka
Planchonella firma	kukeq	kukeqe, kokeqe, karajujuku
Planchonella thyrsoidea	zezel	zazale
Plenandra stahliana	kuijkuij	qirese, kujikuji
Plumeria acuminata	sedi	sedi (gazu, bubuli)
Plumeria obtusa	sedi	sedi (gazu, bubuli)
Plumeria alba	sedi	sedi (gazu, bubuli)
Plumeria rubra	sedi	sedi (gazu, bubuli)
Polygala paniculata	sisiu vikisi	sisiu vikisi
Polyscias filicifolia	mak, mak pula	makamaka jimutu
Polyscias sp.	ma‘ama‘a, mak pula	makamaka
Pometia pinnata	qiam, mod	qema, modo
Portulacca grandiflora	vuvure dio	böböli koloko, kiku
Pothos rumphii	riuqimut, riuk	kalikali qava jimutu, riku
Premna corymbosa	garav	garovo
Procris pedunculata	kekes bobs	kakasi bakoso
Pseuderanthemum sp.	pipiala gever	vapela gavere
Psidium guajava	kuav	kuava
Psophocarpus tetragonolobus	binit dia par	biniti depadepa
Pterocarpus indicus	gargar	varara
Ptychosperma sp.	siskam	sikama
Ptychosperma salomonense	keq	kaqe
Ptychosperma latius	keq	kaqe
Pyrrosia longifolia	lap gojgojol	zira gadoe siakale
Quassia indica		qiqiti takakasa
Rhaphidophora korthalsii	puet	surubi
Rhaphidophora stolleana	puet	surubi
Rhaphidophora novo-guineense	puet	surubi
Rhaphidophora australasica	puet	surubi
Rhizophora apiculata	pitu	podolo zabana
Rhizophora mucronata	pitu	pitu
Rhizophora stylosa	pitu	pitu
Rhopaloblaste elegans	jariu	jariu
Rhus taitensis	puqas	poqasa
Ricinus communis	susue	sosoe
Saccharum officinarum	parak	paraka
Saccharum edule	zivir	
Saccharum spontaneum	vio	vio
Saccharum robustum	parak	paraka
Sararanga sinuosa	tib laman	saramani bose, lamana
Sarcanthopsis nagarensis	siakel sel	siakale sele
Saurauia sp.	kakalkirak	kalakiraka
Scaevola taccada	kidua	kidua
Schizomeria serrata	masal, kun	masala, kunu, gazu
Schizostachyum variegatum		pasuka kiroro

Appendix 1 (continued)

Taxa	Ririo Name	Babatana Name
Schizostachyum tessellatum	pasuka	pasuka
Scindapsus altissimus	puet	surubi pajapaja
Scindapsus cuscuaria	puet	surubi
Scindapsus salomonensis	puet	surubi
Scleria polycarpa	lot puat	lato pota, lato qili
Securinega samoana	vurak pito	vuraka pito
Securinega flexuosa	vurak	vuraka
Selaginella rechingeri	pipi'ot	pepekoto
Semecarpus anacardium	qitur	qituru
Semecarpus forsterii	qitur	qituru
Sida rhombifolia	dopolopu	dopolopu, posa korisi
Sonneratia alba	garos	bulobulo
Spathodea campanulata	veen Aprika	gazu ni Africa
Spathoglottis plicata		puae basana
Spondias cyatherea	pirak	piraka
Spondias dulcis	pirak	piraka
Sporobolus indicus	sisiu	sisiu
Stenochlaena palustris	gam	gama
Synedrella nodiflora		sisiu basa qole
Syzygium sp.	kabikal	kapika pae
Syzygium malaccensis	kabikal	kapika
Syzygium sp.	vemear	kamekara
Tacca leontopetaloides	siup siup kion	zapukeno
Tectaria durvillei		gadoe siakale
Teijsmanniodendron hollrungii	quin	ku
Terminalia solomonense	pavuam	pavoma
Terminalia brassii	liaqar	leqara
Terminalia kaernbachii	talik la'avoe	talike vuvune/talike lata
Terminalia catappa	talike don	talike vasiki
Terminalia calamansanai	sepqo	sapeqava
Thalassia sp.	siluka vot	siluka voto
Thalassia sp.	mambuso	siluka ta qisulu
Thalassia hemprichii		siluka kukuli
Theobroma cacao	kokoa	kokoa, kukua
Thespesia populnea		puqasa ni tikava
Timonius timon		togao
Trichosanthes cucumerina		binitit doledole
Trichospermum psilocladum	voroq, mod	sako, modo
Trichospermum sp.	lue	loe
Trichospermum sp.	kuadam	kudame
Uncaria appendiculata	popo'oc	papakutu, kara kutu
Vernonia cinerea		poreka
Vigna marina	binit ta bo'o	biniti ta boko
Vigna sesquipedalis	binit duel	biniti doledole, navanava
Vitex negundo	palan kiu	pala na kiu
Vitex cofassus	zedek	vadaka
Vitex trifoliata	pulan liu	pala na kiu
Wolstonia biflora	bubu	bubu, kalakua
Xanthosoma lindenii	karuvera	karuvera
Xanthosoma sp.	miduk	miduku
Xanthosoma sagittifolium	qatokae	qatokae
Xanthostemon sp.	rie	re, rie
Zea mays	gazu va'a	lezu
Zephranthes grandiflora		volao
Zingiber officinale	puat lilib	pota

Note: Data collected by the authors and J. Mozena, J. Stevens, and M. Wysong in 1998–1999; vouchers on deposit in the Ririo Cucuen Herbarium and Honiara Herbarium, Solomon Islands.

Appendix 2

Birds, Reptiles, and Mammals of Lauru Identified by D. Laycock (unpubl. data, 1979), McCoy (1980), Bowen-Jones et al. (1995), and Flannery (1995); Ririo and Babatana names determined without vouchers by the authors in 1999

	Lauru Languages			
Taxa: Scientific Name (Common)	Babatana	Ririo	Sisiga	Varisi
Birds				
Aceros plicatus (Blyth's hornbill)			tuno	koqomo
Alcedo atthis (common kingfisher)			sege	—
Alcedo azurea (azure kingfisher)			sege	—
Anas superciliosa (Pacific black duck)			araga	araaraga
Anous stolidus (common noddy)			kukui	pulepule
Aplonis metallica (colonial starling)			ziu	—
Aviceda subcristata (crested hawk)		vikvik	—	pito
Cacatua ducorpsi (Solomons cockatoo)		ka'as	kakaza	kakassa
Chalcopsitta cardinalis (cardinal lory)			visiri	viviri
Charmosyna placentis (red-flanked lorikeet)			—	korokini
Chrycoccyx lucidus (shining cuckoo)			kroveo	—
Collocalia esculenta (glossy swiftlet)			kelu	—
Coracina lineata (yellow-eyed cuckoo shrike)			viu	—
Coracina novaehollandiae (cuckoo shrike)			vese	—
Coracina papuensis (White-bellied cuckoo shrike)			—	—
Corvus woodfordi (Solomons crow)		qoqo	—	—
Dicaeum aeneum (Solomons flower pecker)			tetedeke	—
Dracula rubricera (red-knobbed fruit pigeon)			gugutuni	kurukuru
Ducula pacifica (Pacific imperial pigeon)			kurukuru karukei	—
Ducula pistrinaria (grey fruit pigeon)			—	kurukuru kovele
Eclectus roratus (eclectus parrot)			kera	kira kobu/ kira mesara
Egretta alba (large egret)			—	—
Egretta intermedia (intermediate egret)			—	so sele
Egretta sacra (eastern reef heron)		su	su	so pogo
Eudynamis scolopacea (common koel)			—	qaqava
Eurystomus orientalis (dollar bird)		kikruabak	kikirobaka	—
Fregata ariel (lesser frigate bird)			bellama	—
Halcyon chloris (collared kingfisher)		sige	sege	kinki nopoto sele
Halcyon sancta (sacred kingfisher)		sige	sege	kinki nopoto
Halcyon saurophaga (beach kingfisher)			keokeo	kiokio
Haliaetus sanfordi (Sanford's eagle)			kamaga	—
Haliastur indus (Brahminy kite)			pagege	rapa rapa sakanoko
Hemiprocne mystacea (moustached tree swift)			kunuperu	—
Megapodius freycinet (common scrub fowl)	nelo	kolpiur	nelo	keo
Mino dumontii (orange-faced grackle)			kiregio	sirogo
Nectarina jugularis (yellow-bellied sun bird)			pisu	—
Nesasio solomonensis (fearful owl)			—	—
Ninox jacquinoti (Solomons boobook)			kotukoturu	kururu
Numenius madagascariensis (eastern curlew)			gelegele	qoqoqo
Nycticorax caledonicus (nankeen night-heron)		kuip	—	kopi sasaniga
Pandion haliaetus (osprey)		veve	ziruvage	malokumu
Pluvialis dominica (eastern golden plover)			galigali	—
Pluvialis squatarola (grey plover)			topetope	—
Porphyrio porpyrio (purple swamphen)		ko'duk	gute	quresa
Ptilinopus viridus (red-breasted fruit dove)			koku	guzikuku
Reinwardtoena crassirostris (crested cuckoo dove)			koko	dumoko
Rhipidura cockerelli (lesser pied fantail)			—	—

Appendix 2 (continued)

Taxa: Scientific Name (Common)	Lauru Languages			
	Babatana	Ririo	Sisiga	Varisi
Rhipidura leucophrys (willie wagtail)		pit kuel	pitokole	—
Rhipidura rufifrons (rufous fantail)		pit kuel	pitokole	—
Sterna bengalensis (lesser crested tern)	tom		sisivai	palepale
Sterna bergii (greater crested tern)			—	—
Sula leucogaster (brown booby)			—	—
Trichoglossus haematodus (rainbow lorikeet)			visiribeleke	qilevera
Triga hypoleucos (common sandpiper)	bilikiki		—	qiqiqi
Zonerodius heliosylus (forest bittern)			—	—
Zosterops metcalfei (yellow-throated white-eye)			geluku	—
Zosterops ugiensis (grey-throated white-eye)			geluku	—
Reptiles				
Acrochordus granulatus (python)			dule	—
Boiga irregularis (python)			dule kuba	—
Candoia carinata (python)			kelesua	—
Caretta caretta (loggerhead)			vunu	—
Chelonia mydas (green turtle)			moga	—
Corucia zebrata (skink)			pano	—
Crocodylus porosus (crocodile)			poku	—
Cyrtodactylus louisiadensis (gecko)		kukan	kurukana	—
Cyrtodactylus pelagicus (gecko)		kukan	kurukana	—
Dermochelys coriacea (leatherback turtle)			galo	—
Emoia atrocostata (skink)			sudapa	—
Emoia caeruleocauda (skink)			sudapa	—
Emoia cyanogaster (skink)			sudapa	—
Emoia cyanura (skink)			sudapa	—
Emoia maculata (skink)			sudapa	—
Emoia nigra (skink)			sudapa	—
Eretmochelys imbricata (hawksbill turtle)			suri	—
Gehydra oceanica (gecko)		kukan	kurukana	—
Gekko vittatus (gecko)		kukan	kurukana	—
Gonocephalus godeffroyi (agama lizard)			vego	—
Hemidactylus frenatus (gecko)		kukan	kurukana	—
Lamprolepis smaragdina (skink)			kaputaka	—
Laticauda colubrina (sea snake)		rar	dule korotoboto	—
Laticauda laticauda (sea snake)			dule jotanube	—
Lepidodactylus lugubris (gecko)		kukan	kurukana	—
Lipinia noctua (skink)			sudapa	—
Prasinohaema virens (skink)			sudapa	—
Salomonelaps par (python)			dule pota	—
Sphenomorphus concinnatus (skink)			sudapa	—
Sphenomorphus cranei (skink)			sudapa	—
Sphenomorphus tanneri (skink)			sudapa	—
Varanus indicus (monitor lizard)			raka	—
Mammals				
Anthops ornatus (Solomons flower-faced bat)				
Aselliscus tricuspidatus (trident horseshoe bat)				
Chaerephon solomonis (Solomons mastiff bat)				
Dobsonia inermis (Solomons bare-backed fruit bat)				
Emballonura dianae (large-eared sheath tail bat)				
Emballonura nigrescens (lesser sheath tail bat)				
Emballonura raffrayana (Raffray's sheath tail bat)				
Hipposideros calcaratus (spurred horseshoe bat)				
Hipposideros cervinus (horseshoe bat)				
Hipposideros diadema (diadem horseshoe bat)				

Appendix 2 (continued)

Taxa: Scientific Name (Common)	Lauru Languages			
	Babatana	Ririo	Sisiga	Varisi
Hipposideros dinops (giant horseshoe bat)				
Macroglossus minimus (northern blossom bat)				
Melonycteris woodfordi (Woodford's blossom bat)				
Melomys bougainville				
Miniopteris australis (little bent wing bat)				
Miniopteris macrocneme (small Melanesian bent wing bat)				
Miniopteris propitristis (large Melanesian bent wing bat)				
Miniopteris schreibersii (common bent wing bat)				
Myotis adversus (large-footed mouse-eared bat)				
Nyctimene bougainville (Solomons tube-nosed bat)				
Nyctimene major (island tube-nosed bat)				
Pipistrellus angulatus (New Guinea pipistrelle)				
Pteralopex anceps (monkey-faced flying fox)		—	kunjulu	—
Pteropus admiralitatum (admiralty flying fox)				
Pteropus mahaganus (Sanborn's flying fox)		gama	—	—
Pteropus rayneri grandis (Solomons flying fox)			kukuvai	—
Roussettus amplexicaudatus (rousette bat)				
Solomys ponceleti (Poncelot's giant rat)				
Solomys salebrosis (naked-tailed rat)				