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Pacific Science, Volume 59, Number 2, April 2005, pp. 175-191 (Article)

Published by University of Hawai'i Press
DOI: 10.1353/psc.2005.0021



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Botanical Diversity at Savura, a Lowland Rain Forest Site along the PABITRA Gateway Transect, Viti Levu, Fiji¹

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Abstract: Savura is one of the seven focal sites of the Pacific-Asia Biodiversity Transect (PABITRA) Gateway Transect in Fiji. The site is composed of tropical lowland rain forest located in southeastern Viti Levu and consists of two adjacent watershed reserves, the Savura Forest Reserve and the Vago Forest Reserve. A total of 560 indigenous species (52% endemic) of vascular plants is recorded for this focal site. Savura has been chosen for the establishment of a large permanent plot of 12 ha following the methods proposed by the Centre of Tropical Forest Science (CTFS). This involves the recording of name, diameter at breast height (DBH), and precise location of every tree with 1 cm or more DBH. A total of 5,494 individuals with a total basal area of 2,752 m² was recorded in the first 6,000 m² of this CTFS/PABITRA permanent plot. The Myristicaceae (species of the genus *Myristica*) was the dominant family in numbers of individuals (14.4%) and basal area (35.6%). Tree ferns (Cyatheaceae [8.2% of individuals, 14.6% basal area]) and the Clusiaceae (8.6% of individuals, 12.8% basal area) are other major components. After this initial census, subsequent censuses will be carried out every 5 yr and should give insights on spatial dynamics, recruitment and mortality, and long-term changes in populations of tree species.

SAVURA, ONE OF the seven focal sites of the Fiji Pacific-Asia Biodiversity Transect (PABITRA) wet-zone transect (Keppel 2005, this issue), is located in the province of Naitasiri and includes two adjacent forest reserves, Vago and Savura, that are catchment areas for Savura Creek, which provides much of Suva's water supply (Figure 1). The Vago Forest Reserve was established in 1959 and

comprises 24.7 ha of lowland rain forest; the Savura Forest Reserve was established in 1963 and comprises 396.5 ha. No trees have been removed from either reserve since their establishment, but before that, traditional logging, the occasional removal of large trees for house construction, is likely to have occurred at least in parts of the reserves.

Because of its comparative accessibility and its protected status, Savura and the surrounding areas have been subject to previous botanical collections and ecological studies investigating the demography of *Balaka microcarpa* Burret (Ash 1988) and *Cyathea hornei* Baker (Copel.) (Ash 1987). Despite this, no species list for the area exists. In this paper we provide a preliminary list of species by incorporating data from collections at the South Pacific Regional Herbarium and from specimens listed in Smith (1979, 1981, 1985, 1988, 1991, 1996) and in Brownlie (1977). Also included are species recorded from an altitudinal transect on adjacent Mt. Korobaba (Hassal and Kirkpatrick 1985, Kirkpatrick and Hassal 1985), which is similar in altitude

¹ The Savura 12-ha Permanent Plot is funded by the University Research Committee (URC) of the University of the South Pacific, Suva, Fiji. Manuscript accepted 23 April 2004.

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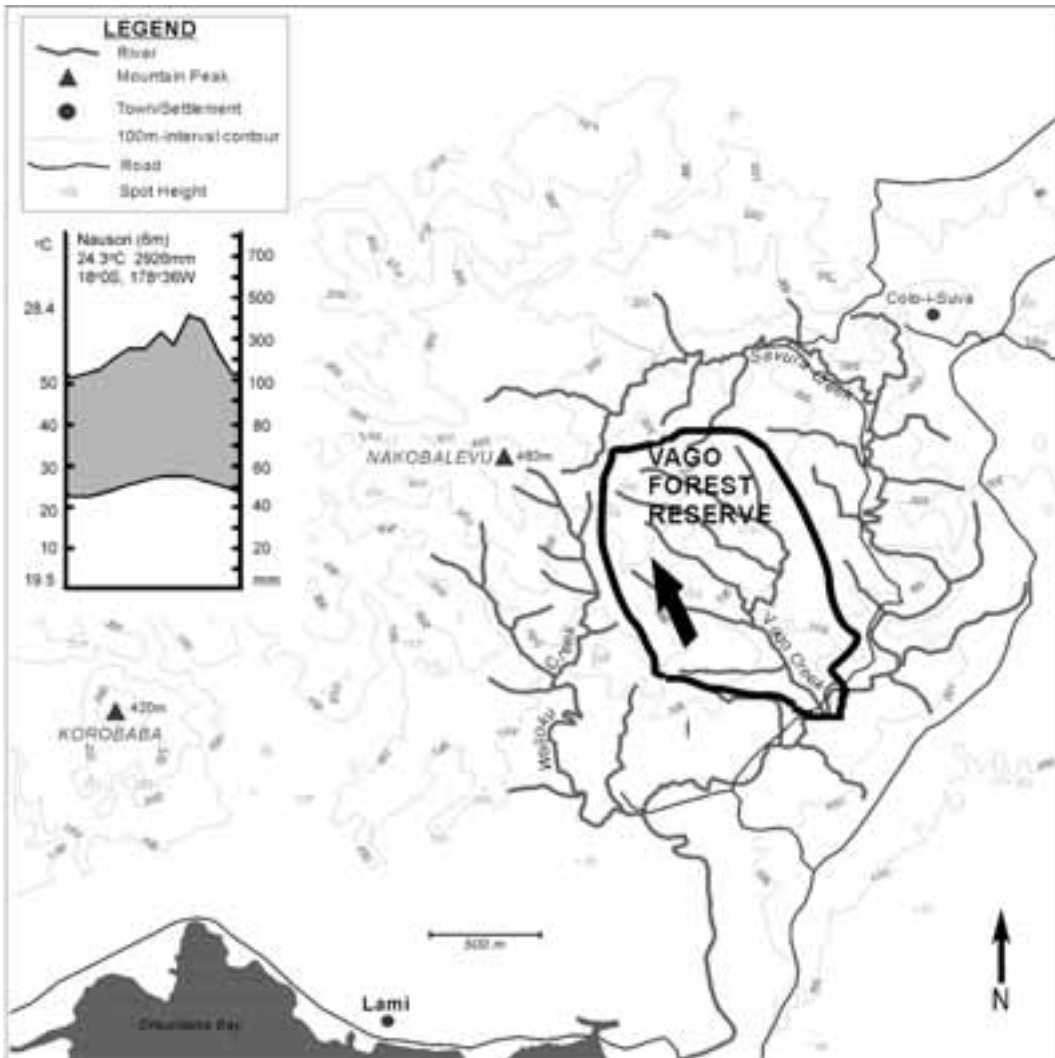


FIGURE 1. Map showing the boundary of the Vago Forest Reserve and location of the study site for the 12-ha permanent plot (indicated by arrow). The map also shows Savura Creek and Wailoku Creek, which are part of the Savura Forest Reserve and the Wailoku Forest Reserve, respectively. Inset is the climate diagram for Nausori Airport, located 14 km east of Savura.

to Mt. Nakobalevu in the Savura focal site (see Figure 1).

Currently, a 12-ha permanent plot is being created in the Vago Forest Reserve following Centre for Tropical Forest Science (CTFS) protocol (Condit 1998), which involves mapping, measuring, and identification of every

tree that is 1 cm or more in diameter. The project is a joint effort between the University of the South Pacific and the Fiji Forestry Department. After completion of the initial census, which is anticipated by early 2005, the plot will be revisited every 5 yr. In this paper we present a preliminary species list, profile

diagrams, and initial preliminary results of the first 6,000 m² of this CTFS/PABITRA permanent plot.

MATERIALS AND METHODS

Study Area

The Savura focal site is located in southeastern Viti Levu, about 8 km north of Suva. It is mostly covered by lowland rain forest. The climate diagram of Nausori (Suva) Airport (Figure 1 inset), located 14 km east of the focal site, shows a mean annual rainfall of 2,926 mm and a perhumidity index (Walsh 1992) of 20. Nausori Airport is located on the floodplain of Fiji's largest river, the Rewa, therefore the focal site is likely to receive more rainfall due to additional orographic rainfall. The climate may be best described as tropical wet to superwet (Richards 1996). Topography is very uneven with steep slopes and ridges. Landslides are common.

To begin the study and to provide some species identification the first hectare of the permanent plot (which is intended to be 12 ha in size) has been set up in the Vago Reserve (see Figure 1). Data collection for this study was restricted to the first 6,000 m² of the initial 1-ha plot. Because of the dense canopy, global positioning system (GPS) readings are difficult to obtain in the forest. However, GPS coordinates obtained near the bottom of the nearby Vago Waterfall in the same reserve were 18° 04.833" S and 178° 26.505" E (D. Boseto, pers. comm.).

Preliminary Species List

A species list of plants likely to be encountered was constructed by listing all species reported from Savura, Vago, Wailoku, Coloi-Suva, Mt. Nakobalevu, and Mt. Korobaba (see Figure 1 for locations). These records were obtained from *Flora Vitiensis Nova* (Smith 1979, 1981, 1985, 1988, 1991, 1996), the database of the South Pacific Regional Herbarium, and a previous study on Mt. Korobaba (Kirkpatrick and Hassal 1985). Planted ornamentals were ignored. Smith's volumes (1979, 1981, 1985, 1988, 1991, 1996)

were used to assess whether a species is endemic, indigenous, or introduced.

Profile Diagrams

Profile diagrams were constructed by placing two 60 by 6 m transects into homogeneous vegetation types. One was placed on a slope and the other on a plain. Within each of these transects every tree of 10 cm or more in diameter at breast height (DBH) was identified and approximately mapped. For each such tree DBH was measured and the bole height, crown height, and crown width estimated. These data were then used to draw a profile diagram.

Tree Census

Within the 6,000 m² every tree with a DBH of 1 cm or more was measured, tagged, identified, and mapped following Condit (1998). However, instead of aluminum tags, nylon ribbons (with numbers written using white correction fluid) were used for this initial census. Tree identifications were made by J.C.N. and G.K. using parataxonomy (vernacular names). This involves identification of trees based on characteristics of the bark and other vegetative features and allows identification of plants to the family, genus, or species level, depending on the plant. Scientific identification of the various species is currently under way. In addition, Neil White (Biology Department, University of the South Pacific) has created an MS Access database following the format suggested by Condit (1998) and data entry will commence once identifications to the species level are completed.

RESULTS

Species

A total of 560 indigenous species (52% endemic) was recorded (see Appendix 1). Of these, 345 (71% endemic) were dicotyledons, 117 (28% endemic) were ferns, 93 (14% endemic) were monocotyledons, and 5 (none endemic) were gymnosperms; 55 of the 93 monocotyledonous species were orchids. In addition 27 introduced species were recorded.

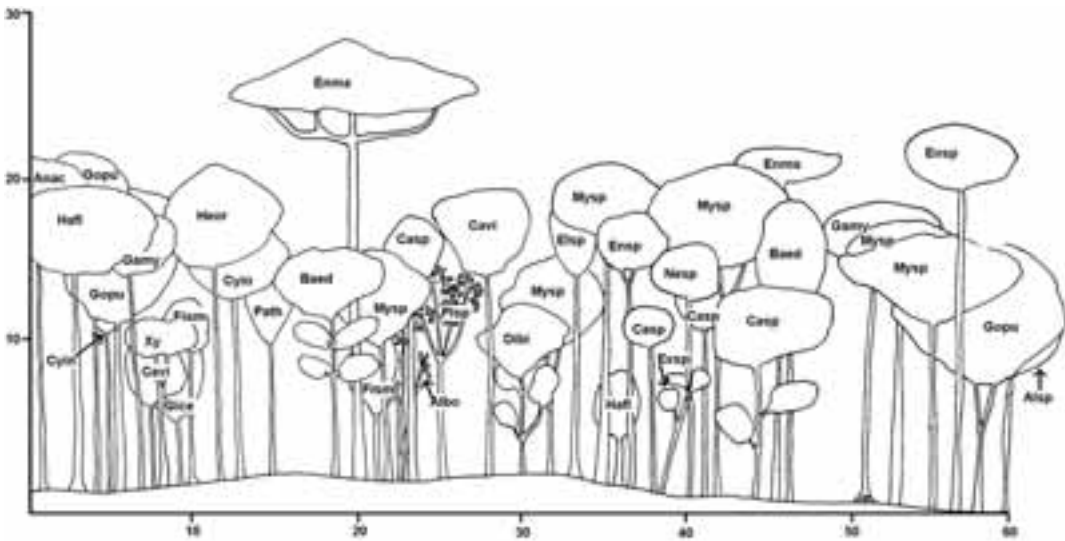


FIGURE 2. Forest profile diagram of lowland rain forest on a plain in Savura, Naitasiri Province, Fiji. Symbols of trees over 10 cm DBH: Albo, *Alpinia boia*; Alsp, *Alstonia* sp.; Anac, *Buchanania* sp.; Baed, *Barringtonia edulis*; Casp, *Canarium* sp.; Cavi, *Calophyllum vitiense*; Cyn, *Cyatocalyx insularis*; Dibi, *Dillenia biflora*; Elsp, *Elaeocarpus* sp.; Enma, *Endospermum macrophyllum*; Ensp, *Endiandra* sp.; Exsp, *Excoecaria* sp.; Fism, *Ficus smitibii*; Gamy, *Garcinia myrtiflora*; Gice, *Girromiera celtidifolia*; Gopu, *Gonystylus punctatus*; Hafl, *Haplolobus floribundus*; Heor, *Heritiera ornithocephala*; Mysp, *Myristica* sp.; Nesp, *Neuburgia* sp.; Path, *Pagiantba thurstonii*; Plsp, *Plerandra* sp.; Xy, *Xylopia* sp.

Profile Diagrams

The profile diagrams (Figures 2 and 3) show that species of *Myristica* dominate the canopy and subcanopy with emergents of *Endospermum macrophyllum* on plains, and *Calophyllum vitiense*, *Gonystylus punctatus*, and species of *Syzygium* dominate the canopy and subcanopy on slopes.

Permanent Plot

In the first 6,000 m², 5,494 individuals in 47 families with diameter of 1 cm or more were recorded. Of these, 5,474 individuals were identified at least to family level, and 20 remained unidentified (Appendix 2). The total basal area of these trees amounted to 2,752 m². Admittedly, there is potential for some erroneous identifications, but these are likely to be minimal at the family level. We estimate erroneous identifications to amount to less than 50 individuals, but it may be as high as 100 individuals. Only after herbarium identification of the species can the exact size of

error using the parataxonomic method be known.

Species of *Myristica* (Myristicaceae) are dominant in the area surveyed. They account for 14.4% of individuals (Table 1) and for 35.6% of the basal area (Table 2). The Clusiaceae (species of *Calophyllum* and *Garcinia*) and tree ferns (species of *Cyathea* [Cyatheaaceae]) were other very common families, composing more than 8% of individuals and more than 14% of basal area. Other common families that composed more than 1% of basal area are the Lauraceae, Myrtaceae, *Gonystylus punctatus* (Thymeliaceae), Sapotaceae, Euphorbiaceae, Meliaceae, Burseraceae, species of *Barringtonia* (Lecythidaceae), Chrysobalanaceae, Araliaceae, and the Moraceae.

DISCUSSION

A large number of indigenous species (560) was recorded. This was more than the 426 species recorded at Waisoi, another lowland rain forest site on Viti Levu (Tuiwawa 1999). This is likely due to the proximity of

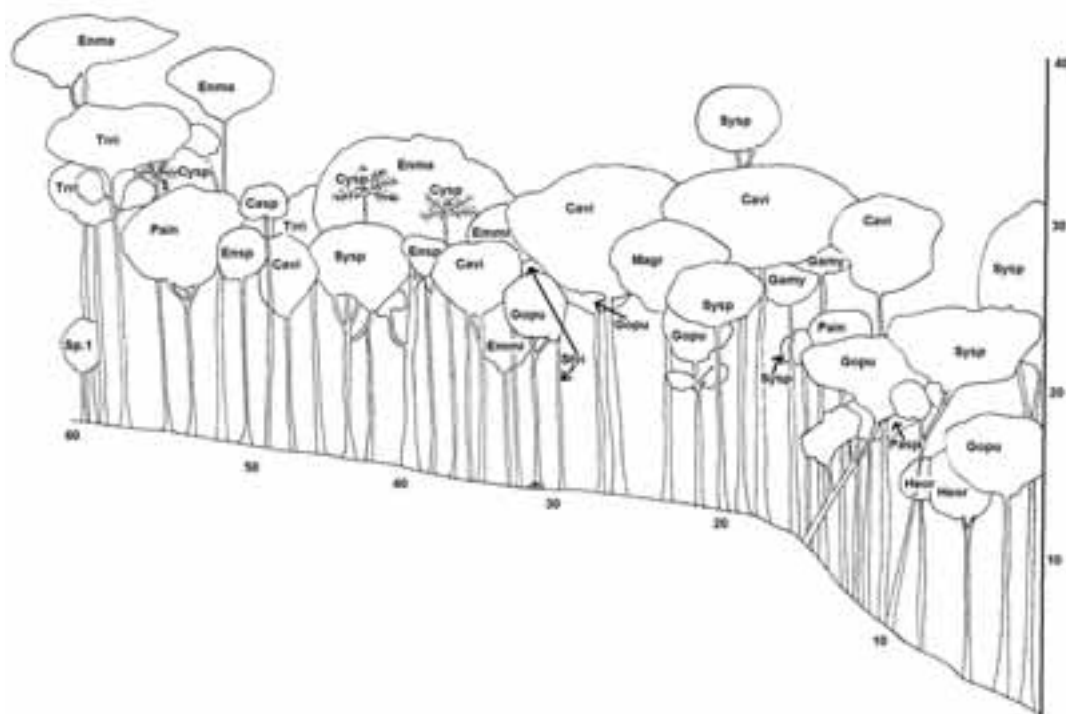


FIGURE 3. Forest profile diagram of a mixed-species lowland rain forest on a slope in the Vago Reserve, Savura. Symbols of trees over 10 cm DBH: Sp. 1, unknown; Casp, *Canarium* sp.; Cavi, *Calophyllum vitiense*; Cysp, *Cyathea* sp.; Emmi, *Emmenosperma micropetalum*; Enma, *Endospermum macrophyllum*; Ensp, *Endiandra* sp.; Gamy, *Garcinia myrtiflora*; Gopu, *Gonystylus punctatus*; Heor, *Heritiera ornithocephala*; Magr, *Maniltora grandiflora*; Pain, *Parinari insularum*; Pasp, *Palaquium* sp.; Stvi, *Storckia vitiensis*; Syp, *Syzygium* sp.; Trri, *Trichospermum richii*.

Savura to Suva and the University of the South Pacific, the base for many local and visiting botanists, whereas the results in Waisoi are based on a single, but extensive, study.

Several species of special scientific interest were recorded: three members of the ancient and eusporangiate fern family Marattiaceae, the conifers *Agathis macrophylla* and *Podocarpus neriifolius*, the giant ginger *Alpinia boia*, and *Degeneria vitiensis*, one of the two remaining species in the “Gondwanan relic” family Degeneriaceae (endemic to Fiji). All these are found within a subsample of the planned 12-ha permanent plot.

In terms of number of individuals (14.4%) and basal area (35.6%), Myristicaceae was the dominant family. There are four species of *Myristica* that contribute to this: *M. castaneifolia*, *M. chartacea*, *M. gillespieana*, and *M. ma-*

crantha. If basal area is considered, there are two other principal families (having a relative abundance of 10% or more [after Tanner 1977]), the Cyatheaceae (14.6%) and the Clusiaceae (12.8%). The great abundance of the Myristicaceae is obvious on the profile diagram of the flat (Figure 2). However, the abundance of tree ferns (indicated by only three individuals) on the profile diagram of the slope community (Figure 3) questions the representativeness of such profile diagrams or any studies using a 10-cm DBH cut-off.

The great abundance of tree ferns (Cyatheaceae) in relatively undisturbed lowland rain forest is a previously unreported phenomenon. We suggest that two major factors contribute to this. First, tree ferns and *Alpinia boia* appear to be the first colonizers of tree

TABLE 1

The 20 Most Abundant Plant Families Arranged in Decreasing Abundance in Number of Individuals in the 6,000-m² Plot in Vago Forest Reserve

Family	No. of Individuals (<i>n</i>)	%
Myristicaceae	745	14.4
Clusiaceae	446	8.6
Cyatheaceae	424	8.2
Meliaceae	299	5.8
Lauraceae	297	5.7
Sapotaceae	277	5.3
Myrtaceae	275	5.3
Lecythidaceae	203	3.9
Thymeleaceae	194	3.7
Euphorbiaceae	158	3.1
Moraceae	148	2.9
Gnetaceae	137	2.6
Chrysobalanaceae	133	2.6
Burseraceae	119	2.3
Araliaceae	118	2.3
Rubiaceae	110	2.1
Loganiaceae	106	2.0
Ulmaceae	95	1.8
Dilleniaceae	81	1.6

fall and landslide gaps at the study site. Second, tree ferns appear to be more common on the slopes in Fiji's lowland rain forest (Tuiwawa 1999). Because the study site has many unstable slopes prone to seemingly frequent landslides, tree ferns are extremely abundant. Upon completion of the first census of the 12-ha plot, it will be possible to test whether tree ferns are more abundant in gaps and on slopes than on plains in the study site. The profile diagrams (Figures 2 and 3) suggest that the slopes and flats are dominated by different plant assemblages; therefore, there is a high likelihood to discover distinct slope, flat, and ridge communities as in Waisoi (Tuiwawa 1999).

The initial census should also produce similar spatial information about many other species, some of which are commercial timber species. It should also provide insights into the structure and composition of Fiji's lowland rain forests. Subsequent censuses, which are to be carried out every 5 yr, will help to provide more detailed long-term ecological

TABLE 2

The 20 Most Abundant Plant Families Arranged in Decreasing Basal Area as Determined by Diameter at Breast Height (DBH) in the 6,000-m² Plot in Vago Forest Reserve

Family	Maximum DBH (cm)	Mean DBH (cm)	Total Basal Area (m ²)	Basal Area (%)
Myristicaceae	467	47.4	978.96	35.6
Cyatheaceae	234	25.5	401.08	14.6
Clusiaceae	485	47.3	351.15	12.8
Lauraceae	434	48.1	161.40	5.9
Myrtaceae	565	49.6	149.43	5.4
Thymeleaceae	647	60.8	109.25	4.0
Sapotaceae	332	44.5	103.60	3.8
Euphorbiaceae	657	64.1	80.70	2.9
Meliaceae	284	37.2	71.47	2.6
Burseraceae	409	70.2	53.91	2.0
Lecythidaceae	222	37.8	46.30	1.7
Chrysobalanaceae	297	53.3	39.38	1.4
Araliaceae	373	55.1	33.17	1.2
Moraceae	155	42.4	30.93	1.1
Hernandiaceae	350	82.1	17.70	0.6
Dilleniaceae	448	76.5	17.48	0.6
Apocynaceae	343	70.8	17.15	0.6
Caesalpinaceae	367	44.3	10.21	0.4
Gnetaceae	70	26.3	10.20	0.4
Loganiaceae	124	33.1	9.59	0.3

information about the different species in terms of spatial dynamics, recruitment and mortality, and intra- and interspecific interactions.

Repeated monitoring will also allow documentation of the behavior of invasive species. The African tulip tree (*Spathodea campanulata*) is currently the most widespread invasive tree species on Viti Levu and may be one of the biggest threats to Fiji's biodiversity. At the study site, however, it is currently restricted to the banks of streams and forest edges. Another major concern is the commercially planted mahogany (*Swietenia macrophylla*), which appears to be escaping cultivation. Three saplings were recorded (Appendix 2) in the first 6,000 m², with the seeds likely to have originated from the Colo-i-Suva mahogany plantation located about 1 km to the east of the study plot. Other invasives that could possibly alter the forest composition and structure and were seen in close proximity to the study site are the red bead tree (*Adenanthera pavonia*) and the Australian umbrella tree (*Schefflera actinophylla*).

Although the data are to be collected following CTFS guidelines, databasing will allow easy extraction of the information required for PABITRA. There is a need to collect data on species composition and vegetation structure in other areas, because the permanent plot will only cover 12 ha of the 421 ha of the two reserves (Vago and Savura) that constitute this PABITRA focal site. We believe that this should ideally include additional plots in an altitudinal transect on Mt. Nakobalevu. This would allow a comparison with the vegetation surveys from Mt. Korobaba (Kirkpatrick and Hassal 1985).

ACKNOWLEDGMENTS

We thank the South Pacific Regional Herbarium for granting us access to their still expanding database. We are also grateful to the following individuals, who were involved in and have contributed to the project: Margaret Fox, Lynette Petueli, Joape Kuruyawa, Simone Narube, and Inoke Wainiqolo. A big *vinaka vaka levu* also to Prof. Dieter Mueller-Dombois, who kindly reviewed this paper.

Literature Cited

- Ash, J. 1987. Demography of *Cyathea hornei* (Cyatheaceae), a tropical tree fern from Fiji. *Aust. J. Bot.* 35:331–342.
- . 1988. Demography and production of *Balaka microcarpa* (Arecaceae), a tropical understorey palm from Fiji. *Aust. J. Bot.* 36:67–80.
- Brownlie, G. 1977. The pteridophyte flora of Fiji. (Beihefte zur Nova Hedwigia, Heft 55). A. R. Gantner Verlag KG., Vaduz, Liechtenstein.
- Condit, R. 1998. Tropical forest census plots: Methods and results from Barro Colorado Island, Panama and a comparison with other plots. Springer Verlag, Berlin, Germany.
- Doyle, M. F. 1998. Gymnosperms of the SW Pacific—I. Fiji. Endemic, indigenous, and naturalized species: Changes in nomenclature, key, annotated checklist, and discussion. *Harv. Pap. Bot.* 3:101–106.
- Hassal, D. C., and J. B. Kirkpatrick. 1985. The diagnostic value and host relationships of the dependent synusia in the forests of Mount Korobaba, Fiji. *N. Z. J. Bot.* 23:33–46.
- Keppel, G. 2005. Botanical studies within the PABITRA wet-zone transect, Viti Levu, Fiji. *Pac. Sci.* 59:165–174 (this issue).
- Kirkpatrick, J. B., and D. C. Hassal. 1985. The vegetation and flora along an altitudinal transect through a tropical forest at Mount Korobaba, Fiji. *N. Z. J. Bot.* 23:33–46.
- Richards, P. W. 1996. The tropical rain forest. Cambridge University Press, Cambridge, U.K.
- Smith, A. C. 1979. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only)*. Vol. 1. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.
- . 1981. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only)*. Vol. 2. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.
- . 1985. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only)*. Vol. 3. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.

- . 1988. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only)*. Vol. 4. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.
- . 1991. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only)*. Vol. 5. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.
- . 1996. *Flora Vitiensis nova: A new flora of Fiji (spermatophytes only): Comprehensive indices*. Pacific Tropical Botanical Garden, Lāwā'i, Kaua'i, Hawai'i.
- Tanner, E. V. J. 1977. Four montane rainforests of Jamaica: A quantitative characterization of the floristics, the soils and the foliar mineral levels, and a discussion of the interrelations. *J. Ecol.* 65:883–918.
- Tuiwawa, M. 1999. The flora, ecology and conservation of the botanical biodiversity of Waisoi and the southeastern slopes of the Korobasaga Range in Namosi Province, Fiji. M.S. thesis, University of the South Pacific, Suva, Fiji.
- Walsh, R. P. D. 1992. Representation and classification of tropical climates for ecological purposes using the perhumidity index. *Swansea Geogr.* 24:109–129.

Appendix 1

Preliminary Species Checklist for the Savura Focal Site

Ferns and Fern Allies

Psilopsida

PSILOTALES

Psilotum complanatum Sw.¹

Psilotum nudum (L.) P. B.¹

Lycopsida

LYCOPSIDALES

Lycopodium carinatum Desv.¹

Lycopodium cernuum L.¹

Lycopodium foliosum Copel.^E

Lycopodium phlegmaria L.¹

Lycopodium squarrosum Forst.¹

Lycopodium subtrifoliatum Brownlie^E

Lycopodium trifoliatum Copel.^E

SELAGINELLALES

Selaginella brynioides Baker^E

Selaginella distans Warburg^E

Selaginella firmula A. Br. ex Kuhn¹

Selaginella rechingeri Hieronymus ex Rech.¹

Filicopsida

ADIANTALES

Adiantum bornei Baker^E

Pteris litoralis Rech.¹

Pteris parhamii Brownlie^E

Pteris vitiensis Baker^E

Pteris vittata L.¹

Stenochalena palustris (Burm.) Bedd.¹

Syngamma borneensis (Hk.) J. Sm.¹

Syngamma spatulata (C. Christ.) Holtt.^E

Taenitis pinnata var. *polypodioides* (Baker) Holtt.¹ (var. E)

ASPIDIACEALES

Ctenitis fijiensis (Hk.) Copel.^E

Tectaria crenata Cav.¹

Tectaria bookerii Brownlie^E

Tectaria vitiensis Brownlie^E

ASPLENIACEALES

Asplenium amboinense Willd.¹

Asplenium austalasicum Hk.¹

Asplenium bipinnatifidum Baker¹

Asplenium cuneatum Lam.¹

Asplenium unilaterale Lam.¹

Loxoscapha gibberosum (Forst.) Moore

ATHYRIACEALES

Diplazium bulbiferum Brack.¹

Diplazium harpeodes Moore¹

Diplazium melanocaulon Brack.¹

BLECHNACEALES

Blechnum coriaceum (Brack.) Brownlie^E

Blechnum milnei (Carr.) C. Christensen^E

Blechnum orientale L.¹

Blechnum pilosum (Brack.) Brownlie^E

Blechnum vittatum Brack.^E

Doodia brackenridgei Carr. ex Seem.

CYATHEACEALES

Culcita straminea (Labill.) Maxon¹

Cyathea affinis (Forst.) Sw.¹

Cyathea alta Copel.¹

Cyathea decurrens (Hk.) Copel.¹

Cyathea bornei (Baker) Copel.¹

Cyathea lunulata (Forst.) Copel.¹

Cyathea propinqua Mett.^E

Dicksonia brackenridgei Mett.^E

DAVALLIACEALES

Arthropteris articulata (Brack.) C. Chr.¹

Arthropteris repens (Brack.) C. Chr.¹

Davallia fejeensis Hk.^E

Davallia solida (Forst.) Sw.¹

Humata botrychioides Brack.^E

Appendix 1 (continued)

<i>Humata heterophylla</i> (Smith) Desv. ¹	POLYPODIACEAE
<i>Leucostegia pallida</i> (Mett.) Copel. ¹	<i>Belvisia mucronata</i> (Fée) Copel. ¹
<i>Nephrolepis biserrata</i> (Sw.) Schott. ¹	<i>Dipteris conjugata</i> Reinw. ¹
<i>Nephrolepis hirsutula</i> (Forst.) Pr. ¹	<i>Drynaria rigidula</i> (Sw.) Bedd. ¹
<i>Nephrolepis saligna</i> Carr. ^E	<i>Loxogramme parksii</i> Copel. ¹
<i>Nephrolepis tuberosa</i> (Bory ex Willd.) Presl. ¹	<i>Microsorium alatum</i> (Brack.) Copel. ¹
<i>Oleandra neriiiformis</i> Cav. ¹	<i>Microsorium punctatum</i> (L.) Copel. ¹
<i>Scyphularia pycnocarpa</i> (Brack.) Copel. ^E	<i>Phymatosorus scolopendria</i> (Burm.) Pic. Ser. ¹
DENNSTAEDTIACEAE	<i>Pyrrosia adnascens</i> (Sw.) Ching ¹
<i>Orthopteris tenuis</i> (Brack.) Brownlie ^E	SCHIZAEACEAE
GLEICHENIACEAE	<i>Lygodium reticulatum</i> Schkuhr ¹
<i>Dicranopteris linearis</i> (Burm.) Un. ¹	<i>Schizaea dichotoma</i> (L.) J. Sm. ¹
<i>Gleichenia oceanica</i> Kuhn ¹	THELYPTERIDACEAE
GRAMMITIDACEAE	<i>Cyclosorus decadens</i> (Baker) Ching ^E
<i>Ctenopteris contigua</i> (Forst.) Holtt. ¹	<i>Pneumatopteris costata</i> (Brack.) Holtt. ¹
<i>Ctenopteris seemannii</i> (J.Sm.) Copel. ¹	<i>Pneumatopteris parksii</i> (Ballard) Holtt. ^E
<i>Grammitis glabrata</i> Brownlie ^E	<i>Plesioneuron hopeanum</i> (Baker) Holtt. ^E
<i>Grammitis hookeri</i> (Brack.) Copel. ¹	VITTARIACEAE
HYMENOPHYLLACEAE	<i>Anthrophyum alatum</i> Brack. ¹
<i>Hymenophyllum affine</i> Brack. ^E	<i>Anthrophyum plantagineum</i> (Cav.) Kaulf. ¹
<i>Hymenophyllum denticulatum</i> Sw. ¹	<i>Vaginularia angustissima</i> (Brack.) Mett. ^E
<i>Trichomanes apiifolium</i> Presl. ¹	<i>Vittaria elongata</i> Sw. ^E
<i>Trichomanes asae-grayi</i> v.d.B. ¹	Gymnosperms
<i>Trichomanes borymarum</i> Kunze ¹	ARAUCARIACEAE
<i>Trichomanes dentatum</i> v.d.B. ¹	<i>Agathis macrophylla</i> (Lind.) Mast. ¹
<i>Trichomanes endlicherianum</i> Presl. ¹	PODOCARPACEAE
<i>Trichomanes intermedium</i> v.d.B. ¹	<i>Dacrycarpus imbricatus</i> var. <i>patulus</i> de Laub. ¹
<i>Trichomanes tabitense</i> Nad. ¹	<i>Dacrydium nidulum</i> de Laub. ¹
HYPOLEPIDACEAE	<i>Podocarpus nerifolius</i> D. Don ¹
<i>Histiopteris incisa</i> (Thunb.) J.Sm. ¹	GNETACEAE
LINDSAEACEAE	<i>Gnetum gnemon</i> L. ¹
<i>Lindsaea ensifolia</i> Sw. ¹	Monocots
<i>Lindsaea gueriniana</i> (Gaud.) Desv. ¹	AGAVACEAE
<i>Lindsaea barveyi</i> Carr. ex Seem. ¹	<i>Cordyline terminalis</i> (L.) Kunth ^A
<i>Lindsaea moorei</i> (Hk.) Fourn. ¹	ARACEAE
<i>Lindsaea pulchra</i> (Brack.) Carr. ex Seem. ¹	<i>Antburium andraeanum</i> Linden
<i>Lindsaea repens</i> (Bory) Thwaites ¹	<i>Epipremnum pinnatum</i> (L.) Engl. ¹
<i>Lindsaea vitiensis</i> Kramer ^E	<i>Rhabdophora spuria</i> (Schott) Nicolson ^E
<i>Sphenomeris chinensis</i> (L.) Maxon ¹	ARECACEAE
<i>Tapeimidium denbamii</i> (Hk.) C. Chr. ¹	<i>Balaka macrocarpa</i> Burret ^E
<i>Tapeimidium mealnesicum</i> Kramer ¹	<i>Balaka microcarpa</i> Burret ¹
LOMARIOPSIDACEAE	<i>Balaka seemannii</i> (H. Wendl.) Becc. ^E
<i>Elaphoglossum imthurnii</i> Krajina ^E	* <i>Pinanga kublii</i> Bl.
<i>Elaphoglossum milnei</i> Krajina ^E	<i>Veitchia vitiensis</i> (H. Wendl.) H.E. Moore ^E
<i>Lomariopsis brackenridgei</i> Carr. ¹	ASPARAGACEAE
<i>Lomariopsis oleandriifolia</i> (Brack.) Mett. ^E	<i>Geitonoplesium cymosum</i> (R. Br.) A. Cunn. ¹
<i>Lomagramma cordipinna</i> Holtt. ¹	COMMELINACEAE
<i>Lomagramma polyphylla</i> Brack. ¹	<i>Commelina diffusa</i> Burm. ¹
MARATTIACEAE	CYPERACEAE
<i>Angiopteris evecta</i> (Forst.) Hoffm. ¹	<i>Carex dietrichiae</i> Boeck. ¹
<i>Angiopteris opaca</i> Copel. ^E	<i>Hypolytrum nemorum</i> subsp. <i>vitiense</i> (C.B. Clarke) T. Koyama ^E
<i>Marattia smithii</i> Mett. ex Kuhn ¹	
OSMUNDACEAE	
<i>Leptopteris wilkesiana</i> (Bracken.) C. Christ. ¹	

Appendix 1 (continued)

- Fimbristylis dichotoma* (L.) Vahl^I
Gabnia vitiensis Rendle^E
Machaerina fulcata (Nees) T. Koyama^I
 **Pycrcus polystachyos* (Rottb.) Beauv.
Scleria polycarpa Boeck.^I
- FLAGELLARIACEAE
Flagellaria gigantea Hk. in f. Hk.^I
Flagellaria indica L.^E
Flagellaria neo-caledonica Schlechter^I
- HELICONIACEAE
Heliconia paka A.C. Sm.^E
 **Heliconia psittacorum* L.
- ORCHIDACEAE
Acanthophippium papuanum Schlechter^I
Appendicula pendulus Bl.^I
Appendicula reflexa Bl.^I
 **Arundia graminifolia* (D. Don) Hochr.
Bulbophyllum gracillimum (Rolfe) Rolfe^I
Bulbophyllum longiflorum Thou.^I
Bulbophyllum longiscapum Rolfe^I
Bulbophyllum rotriceps Reichenb. f.^I
Cadetia hispida (A. Rich.) Schlechter^E
Calantbe alta Reichenb. f.^I
Calantbe hololeuca Reichenb. f.^I
Calantbe triplicata (Willemet) Ames^I
Calantbe ventilabrum Reichenb. f.^I
Cleisotoma longipaniculatum Kores^I
Cryptostylis arachnites (Bl.) Hassk.^I
Cynorkis fastigiata Thou.^I
Dendrobium biflorum (Forst. f.) Sw.^I
Dendrobium catillare Reichb. f.^E
Dendrobium dactyloides Reichenb. f.^I
Dendrobium macrophyllum A. Rich.^I
Dendrobium platygastrium Reichenb. f.^I
Dendrobium vitiense Rolfe^E
Diplocaulobium tipuliferum (Reichenb. f.) Kraenzl.^E
Eria bulbophylloides C. Schweinf.^E
Eria rostriflora Reichenb. f. in Seem.^I
Eulophia nuda Lindl. ex Wallich^I
Eulophia pulchra (Thou.) Lindl.^I
Grammatophyllum elegans Reichenb. f.^I
Habernaria superflua Reichenb. f. in Seem.^E
Hetaeria oblongifolia Bl.^I
Hetaeria whitmei Reichenb. f.^I
Liparis condylobulbon
Liparis elegans Lindl.^I
Liparis orbiculata L.O. Williams^I
Malaxis brevidenta C. Schweinf.^I
Malaxis imthurnii (Rolfe) L.O. Williams^E
Malaxis latisegmenta C. Schweinf.^I
Malaxis latisepala (Rolfe) C. Schweinf.^E
Malaxis lunata (Schlechter) Ames^I
Malaxis radicolica (Rolfe) L.O. Williams^E
Malaxis schlechteri (Rolfe) L.O. Williams^E
Nervilia punctata (Bl.) Makino^I
Oberonia equitans (Forst. f.) Mutel^I
Peristylus maculifer (C. Schweinf.) Renz & Vodonaivalu
Phaius graeffei Reichenb. f.^I
Phreatia micrantha (A. Reichenb.) Schlechter^I
- Pristiglottis longiflora* (Reichenb. f.) Kores
Pseudertia platyphylla L.O. Williams^E
Pseudertia smithiana C. Schweinf.^E
Robiquetia bertboldii (Reichenb. f.) Schlechter
Sarcocbilus williamsianus Kores^E
Spatboglottis pacifica Bl.^I
Spatboglottis plicata Bl.^I
Taentophyllum gracile (Rolfe) Garay^E
Tropidia effusa Reichenb. f. in Seem.^I
Vrydagzynea samoana Schlechter^I
- PANDANACEAE
Freycinetia caudata Hemsl.^E
Freycinetia hombronii Mart.^I
Freycinetia imparvida (Hombr. & Jacq.) Stone^I
Freycinetia pritchardii Seem.^I
Pandanus joskei Horne^E
Pandanus levuensis Mart.^E
Pandanus thurstonii Wright^E
Pandanus vitiensis Mart.^E
Pandanus whitmearianus Mart.^I
- POACEAE
 **Axonopus compressus*
Centotheca lappaceae (L.) Desv.^I
Cyrtococcum oxyphyllum (Hochst. ex Steudel) Stapf in Hk.^I
Isachne vitiensis Rendle^E
Miscanthus floribundus (Labill.) Warb. ex K. Schum.^I
Oplismenus hirtellus (L.) Beauv.
Panicum maximum Jacq. var. *maximum*
 **Paspalum paniculatum* L.
Sacciolepis indica (L.) Chase^I
 **Sporobolus jacquemontii* Kunth
- SMILACEAE
Smilax vitiense (Seem.) A. DC.^I
- TRIURIDACEAE
Andruris vitiensis (A.C. Sm.) Gies.^E
- ZINGIBERACEAE
Alpinia boia Seem.^E
Alpinia vitiensis Seem.^E
Costus speciosus (König) Sm.
 **Hedychium coronarium* König
 **Zingiber officinale* Rosc.
- Dicotyledons**
- ACANTHACEAE
Graptophyllum repandum (A. Gray) A.C. Sm.^E
Graptophyllum insularum (A. Gray) A.C. Sm.^I
Pseuderantbemum laxiflorum (A. Gray) Hubbard^E
- ALANGIACEAE
Alangium vitiense (A. Gray) Baill. ex Harms^E
- ANACARDIACEAE
Pleiogynium timoriense (DC.) Leenh.^I
Rhus simaroubifolia A. Gray^I
Semecarpus vitiensis (A. Gray) Engl.^I
- ANNONACEAE
Cyatocalyx insularis A.C. Sm.^E

Appendix 1 (continued)

<i>Polyalthia angustifolia</i> A.C. Sm. ^E	CELASTRACEAE
<i>Polyalthia loriformis</i> Gillesp. ^E	<i>Maytenus vitiensis</i> (A. Gray) Ding Hou ^I
<i>Polyalthia vitiensis</i> Seem. ^E	CHRYSOBALANACEAE
<i>Richella monosperma</i> A. Gray ^E	<i>Atuna racemosa</i> Raf. Sylva Tellur ^I
<i>Xylopia pacifica</i> A.C. Sm. ^E	<i>Parinari insularum</i> A. Gray ^I
<i>Xylopia vitiense</i> A.C. Sm. ^E	CLUSIACEAE
APOCYNACEAE	<i>Calophyllum leptocladum</i> A.C. Sm. & S. Darwin ^E
<i>Alstonia montana</i> Turill ^E	<i>Calophyllum neo-ebudicum</i> Guillaumin ^I
<i>Alstonia pacifica</i> (Seem.) A.C. Sm. ^I	<i>Calophyllum vitiense</i> Turill ^E
<i>Alstonia vitiensis</i> Seem. ^E	<i>Garcinia myrtifolia</i> A.C. Sm. ^I
<i>Alyxia bracteolosa</i> A. Gray ^I	<i>Garcinia pseudoguttifera</i> Seem. ^I
<i>Alyxia linearifolia</i> A.C. Sm. ^E	<i>Garcinia vitiensis</i> (A. Gray) Seem. ^I
<i>Carruthersia latifolia</i> Gillesp. ^E	COMBRETACEAE
<i>Carruthersia scandens</i> (Seem.) Seem. ^E	<i>Terminalia capitanea</i> A.C. Sm. ^E
<i>Cerbera manghas</i> L. ^I	<i>Terminalia pterocarpa</i> Melville & P. Green ^I
<i>Ervatamia obtuscula</i> Markgraf ^I	CONNARACEAE
<i>Melodinus vitiensis</i> Rolfe ^I	<i>Connarus pickeringii</i> A. Gray ^E
<i>Pagiantha thurstonii</i> (Horne ex Baker) A.C. Sm. ^E	CONVOLVULACEAE
AQUIFOLIACEAE	<i>Merremia peltata</i> (L.) Merr. ^I
<i>Ilex vitiensis</i> A. Gray ^E	* <i>Merremia umbellata</i> subsp. <i>orientalis</i> (Hall. f.) v. Ooststr.
ARALIACEAE	CUNNONIACEAE
<i>Plerandra grayi</i> Seem. ^E	<i>Geissois ternata</i> A. Gray ^E
<i>Plerandra insolita</i> A.C. Sm. ^E	<i>Pullea perryana</i> A.C. Sm. ^E
<i>Polyscias joskei</i> Gibbs ^E	<i>Spiraeanthemum katakata</i> Seem. in A. Gray ^E
<i>Polyscias multijuga</i> (A. Gray) Harms ^I	DEGENERIACEAE
<i>Schefflera actinophylla</i> (Endlicher) Harms	<i>Degeneria vitiense</i> I.W. Bailey & A.C. Sm. ^E
<i>Schefflera seemanniana</i> A.C. Sm. ^E	DICHAPETALACEAE
<i>Schefflera vitiensis</i> (A. Gray) Seem. ^E	<i>Dichapetalum vitiense</i> Thou. ^E
ARISTOLOCHIACEAE	DILLENIACEAE
<i>Aristolochia vitiensis</i> A.C. Sm. ^E	<i>Dillenia biflora</i> (A.Gray) Martelli ex Dur & Jacks. ^I
ASCLEPIADACEAE	<i>Hibbertia luccens</i> Brogn. & Gries ex Sébert & Pancher ^E
<i>Hoya australis</i> R. Br. ^I	EBENACEAE
<i>Hoya diptera</i> Seem. ^E	<i>Diospyros elliptica</i> (J.R. & G. Forst.) P.S. Green
<i>Hoya vitiensis</i> Turill ^E	<i>Diospyros gillespiei</i> (Fosb.) Kosterm. ^E
ASTERACEAE	<i>Diospyros vitiensis</i> Gillesp. ^E
* <i>Erechtites vaerianifolia</i> (Wolf) DC.	ELAEOCARPACEAE
BIGNONIACEAE	<i>Elaeocarpus chelonimorphus</i> Gillesp. ^E
* <i>Spathodea campanulata</i> Beauv.	<i>Elaeocarpus crassinoides</i> A.Gray ^E
BURSERACEAE	<i>Elaeocarpus storckii</i> Seem.
<i>Canarium harveyi</i> Seem. ^I	EPACARDIACEAE
<i>Canarium vanikoroense</i> Leenh. ^I	<i>Leucopogon septentrionalis</i> Schlechter ^I
<i>Canarium vitiense</i> A. Gray ^I	EUPHORBIACEAE
* <i>Canarium vulgare</i> Leenh.	<i>Acalypha insulana</i> Muell. Arg. ^I
<i>Haplobes floribundus</i> (K. Schum.) Lam. ^I	<i>Acalypha rivularis</i> Seem. ^E
CAESALPINIACEAE	<i>Aleurites moluccana</i> (L.) Willd. ^A
<i>Cynometra insularis</i> A.C. Sm. ^E	<i>Antidesma insulare</i> Gillesp. ^E
<i>Intsia bijuga</i> (Coelbr.) Kuntze ^I	<i>Baccaurea pulvinata</i> A.C. Sm. ^E
<i>Kingiodendron platycarpum</i> B.L. Burtt ^E	<i>Baccaurea seemannii</i> (Muell. Arg.) Muell. Arg. ^I
<i>Maniltoa grandiflora</i> (A. Gray) Scheffer ^E	<i>Baccaurea stylaris</i> Muell. Arg. ^E
<i>Maniltoa floribunda</i> A.C. Sm. ^E	<i>Bischofia javanica</i> Bl. ^I
<i>Storckiella vitiensis</i> Seem. ^E	<i>Claoxylon vitiense</i> Gillesp. ^E
CAMPANULACEAE	<i>Croton microtiglium</i> Burkill ^I
* <i>Lobelia zeylanica</i> L.	<i>Endospermum macrophyllum</i> (Muell. Arg.) Pax & Hoffm. ^E
CASUARINACEAE	<i>Flueggea flexuosa</i> Muell. Arg. ^A
<i>Casuarina nodiflora</i> L.A.S. Johnson ^E	<i>Glochidion amentuligerum</i> (Muell. Arg.) Croizat ^E

Appendix 1 (continued)

- Glochidion atrovirens* A.C. Sm.^E
Glochidion bracteatum Gillesp.^E
Glochidion vitiensis (Muell. Arg.) Gillesp.^E
Macaranga caesariata A.C. Sm.
Macaranga graeffeana Pax & Hoffm.^E
Macaranga magna Turrill^E
Macaranga seemannii (Muell. Arg.) Muell. Arg.^E
Macaranga vitiensis Pax & Hoffm.^E
Phyllanthus pregracilis Gillesp.^E
**Phyllanthus urinaria* L.
- FABACEAE
**Alysicarpus vaginalis* (L.) DC.
Derris trifoliata Lour.^I
Inocarpus fagiferus (Parkinson) Fosb.^E
- FLACOURTIACEAE
Caesaria richii A. Gray^E
Erythrospermum acuminatissimum (A. Gray) A.C. Sm.^I
Flacourtia degeneri A.C. Sm.^E
Flacourtia subintegra A.C. Sm.^E
Homalium nitens Turrill^E
Homalium vitiensis Benth.^E
- GESNERIACEAE
Cyrtandra antropophagorum Seem.^E
Cyrtandra cephalophora Gillesp.^E
Cyrtandra milnei Seem. ex A. Gray^E
Cyrtandra pritchardii Seem.^E
Cyrtandra tricophylla A.C. Sm.^E
Cyrtandra vitiensis Seem.^E
- GOODENIACEAE
Scaevola floribunda A. Gray^E
- HERNANDIACEAE
Hernandia olivacea Gillesp.^E
- ICACINACEAE
Citronella vitiensis R. Howard^E
Medusanthera vitiensis Seem.^E
- LAURACEAE
Cinnamomum fitianum (Meisn.) A.C. Sm.^E
Cinnamomum leptopus A.C. Sm.^E
Cryptocarya constricta Allen^E
Cryptocarya fusca Gillesp.^E
Cryptocarya bornei Gillesp.^I
Endiandra elaeocarpa Gillesp.^I
Endiandra gillespie A.C. Sm.^E
Endiandra gillespie A.C. Sm.^E
Endiandra monticola A.C. Sm.^E
Litsea magnifolia Gillesp.^E
Litsea vitiana (Meisn.) Benth. & Hook.^E
- LECYTHIDACEAE
Barringtonia edulis Seem.^E
Barringtonia seaturae Guppy.^E
- LINACEAE
Durandea vitiensis Stapf in Hk.^E
- LOBELIACEAE
**Lobelia zelyanica* L.
- LOGANIACEAE
Fagraea gracilipes A. Gray^I
- Geniostoma clavigerum* A.C. Sm. & Stone^E
Geniostoma confertiflorum A.C. Sm. & Stone^E
Geniostoma macrophyllum Gillespie^E
Geniostoma rupestre J.R. & G. Forst.^I
Geniostoma uninervium A.C. Sm. & Stone^E
Neuburgia alata (A.C. Sm.) A.C. Sm.^E
Neuburgia corynocarpa (A. Gray) Leenh.^E
- LORANTHACEAE
Decaisnia forsteriana (J.A. & H.Schultes) Barlow^I
- MALPIGHIACEAE
Hiptage myrtifolia A. Gray^E
- MALVACEAE
**Urena lobata* L.
- MELASTOMATACEAE
Astronidium confertifolium (A. Gray) Markgraf^E
Astronidium floribundum (Gillesp.) A.C. Sm.^E
Astronidium lepidotum A.C. Sm.^E
Astronidium parviflorum A. Gray^E
Astronidium robustum (Seem.) A.C. Sm.^E
Astronidium saulae A.C. Sm.^E
Astronidium storckii Seem.^E
**Clidemia hirta* (L.) D. Don
Medimilla archboldiana A.C. Sm.^E
Medimilla heterophylla A. Gray^E
Medimilla longicymosa Gibbs^E
Medimilla ovalifolia (A. Gray) A.C. Sm.^E
Medimilla rhodoclaena A. Gray^E
Melastoma denticulatum Labill.^I
- MELIACEAE
Aglaia archboldiana A.C. Sm.^E
Aglaia axillaris A.C. Sm.^E
Aglaia elegans Gillespie^E
Aglaia greenwoodii A.C. Sm.^E
Aglaia vitiensis A.C. Sm.^E
Dysoxylum gillespianum A.C. Sm.^E
Dysoxylum bornei A.C. Sm.^E
Dysoxylum lenticellare Gillesp.^E
Dysoxylum quercifolium (Seem.) A.C. Sm.^E
Dysoxylum richii (A. Gray) C. DC.^E
Dysoxylum seemannii Gillesp.^E
**Swietenia macrophylla* King^N
Vavaea amicornum Benth.^I
Vavaea harveyii Seem.^E
Vavaea megaphylla C.H. Wright^E
- MENINSPERMACEAE
Pachygone vitiensis Diels^I
- MIMOSACEAE
Acacia richii A. Gray^E
**Adenanthera pavonina* L.
**Albizia falcataria* (L.) Fosb.
Entada phaseoloides (L.) Merr.^I
**Samanea saman* (Jacq.) Merrill
Serianthes melanesica var. *melanesica* Fosb.^I (var. E)
- MONIMIACEAE
Hedyocarya dorstenoides A. Gray.^I
- MORACEAE
Ficus bambusifolia Seem.^E

Appendix 1 (continued)

- Ficus barclayana* (Miq.) Summerh.^E
Ficus fulvo-pilosa Summerh.^E
Ficus greenwoodii Summerh.^E
Ficus masonii Horne ex Baker
Ficus pritchardii Seem.
Ficus smithii Horne ex Barker^E
Ficus storckii Seem.^I
Ficus theophrastoides Seem.^E
Ficus vitiensis Seem.^E
- MYRISTICACEAE
Myristica castaneifolia A. Gray^E
Myristica chartacea Gillesp.^E
Myristica gillespieana A.C. Sm.^E
Myristica grandifolia A. DC.^E
Myristica macrantha A.C. Sm.^E
- MYRSINACEAE
Discocalyx fusca Gibbs^E
Maesa insularis Gillesp.^E
Maesa tabacifolium Mez^I
Maesa vitiensis Seem.^E
Rapanea myricifolia (A. Gray) Mez^I
Tapeinosperma ampliflorum A.C. Sm.^E
Tapeinosperma capitatum (A. Gray) Mez^E
Tapeinosperma clavatum Mez
Tapeinospermum ligulifolium A.C. Sm.^E
Tapeinosperma hornei Mez^E
- MYRTACEAE
Cleistocalyx decussatus A.C. Sm.^E
Cleistocalyx ellipticus (A.C. Sm.) Merr. & Perry^E
Cleistocalyx eugenioides Merr. & Perry^E
Cleistocalyx longiflorus (A.C. Sm.) Merr. & Perry^E
Decaspermum vitiense (A. Gray) Niedenzu^E
**Melaleuca quinquenervia* (Cav.) S.T. Blake
Metrosideros collina (J.R. & G. Forst.) A. Gray var. *collina*^I
Metrosideros collina var. *villosa* (L.f.) A. Gray^I
Metrosideros collina var. *fruticosa* J.W. Moore^I
Syzygium amicorum (A. Gray) C. Muell.^E
Syzygium amplifolium Perry^E
Syzygium brackenridgei (A. Gray) C. Muell.^I
Syzygium confertiflorum (A. Gray) C. Muell.^E
Syzygium corynocarpum (A. Gray) C. Muell.^I
Syzygium curvistylum (Gillesp.) Merr. & Perry^I
Syzygium diffusum (Turrill) Merr. & Perry^E
Syzygium effusum (A. Gray) C. Muell.^I
Syzygium fijense Perry^E
Syzygium gillespiei Merr. & Perry^E
Syzygium gracilipes (A. Gray) Merr. & Perry^E
Syzygium grayii (Seem.) Merr. & Perry^E
Syzygium leucanthum Perry^E
Syzygium malaccense (L.) Merr. & Perry^A
Syzygium pupureum (Perry) A.C. Sm.^E
Syzygium rubescens (A. Gray) C. Muell.^E
Syzygium simillimum Merr. & Perry^E
- NYCTAGINACEAE
Pisonia umbellifera (J.R. & G. Forst.) Seem.
- OLACACEAE
Anacolosia lutea Gillesp.^I
- OLEACEAE
Chionanthus vitiensis (Seem.) A.C. Sm.^I
Jasminum betchei F.v. Muell.^I
Jasminum didymum Forst. f. subsp. *didymum*^I
Jasminum simplicifolium Forst.f. subsp. *simplicifolium*^I
- PASSIFLORACEAE
**Passiflora foetida* L.
- PEPPEROMIACEAE
Pepperomia lasiostigma C. DC.^E
Pepperomia purpureoides Yuncker^E
- PIPERACEAE
Macropiper melanostachyum (C. DC.) A.C. Sm.^I
Macropiper oxycarpum (C. DC.) A.C. Sm.^E
Macropiper puberulum Benth.^I
**Piper aduncum* L.
Piper insectifugum C. DC.^E
- PITTOSPORACEAE
Pittosporum brackenridgei A. Gray^I
Pittosporum oligodontum Gillesp.^E
Pittosporum pickeringii A. Gray^E
Pittosporum rhytidocarpum A. Gray^E
- POLYGALACEAE
**Polygala paniculata* L.
- PROTEACEAE
Turillia ferruginea (A.C. Sm.) A.C. Sm.^E
Turillia vitiensis (Turrill) A.C. Sm.^E
- RANUNCULACEAE
Clematis pickeringii A. Gray^I
- RHAMNACEAE
Alphitonia franguloides A. Gray^I
Alphitonia zizyphoides (Spreng.) A. Gray^I
Emmenosperma micropetalum (A.C. Sm.) M. Johnst.^E
- RHIZOPHORACEAE
Crossostylis barveyi Benth.
Crossostylis richii (A. Gray) A.C. Sm.^E
Crossostylis seemannii (A.Gray) Schimper^E
- ROSACEAE
Rubus moluccanus L. var. *ausropacificus* v. Royen^I
- RUBIACEAE
Airosperma trichotomum (Gillesp.) A.C. Sm.^E
Antirhea smithii (Fosb.) Merr. & Perry^E
Cyclophyllum barbatum (Forst. f.) A.C. Sm.^I
Dolchbiolobium latifolium A. Gray^E
Dolchbiolobium macgregorii Horne ex Baker^E
Dolchbiolobium oblongifolium A. Gray
Gardenia gordonii Baker^E
Gardenia grievaei Horne ex Baker^E
Gardenia storckii Oliver^I
Geophila repens (L.) I.M. Johnst.^I
Gynochtdodes epiphyta (Rech.) A.C. Sm. & S. Darw.^I
Hedyotis lapeyrousii DC.^E
Hydnophytum longiflorum A. Gray^E
Ixora amplexicaulis Gillesp.^E
**Ixora coccinea* L.
Ixora elegans Gillesp.^E
Ixora maxima Seem.^E

Appendix 1 (continued)

- Ixora pelagica* Seem.^I
Mastixiodendron robustum A.C. Sm.^E
Morinda bucidifolia A. Gray^E
Morinda grayii Seem.^E
Mussaenda raiaensis J.W. Moore^I
Ophiorrhiza laxa A. Gray^E
Ophiorrhiza leptantha A. Gray^I
Ophiorrhiza peploides A. Gray^E
Psychotria brackenridgei A.C. Sm.^E
Psychotria broweri Seem.^E
Psychotria carnea (Forst. f.) A.C. Sm.^I
Psychotria confertifolia A.C. Sm.^E
Psychotria crassiflora Fosb.^E
Psychotria fosteriana A. Gray^I
Psychotria glabra (Turrill) Fosb.^E
Psychotria levuensis Gillesp.^E
Psychotria leptantha A.C. Sm.^E
Psychotria pickeringii A. Gray^E
Psychotria pittosporifolia Fosb.^E
Psychotria platycoca A. Gray^E
Psychotria pubiflora (A. Gray) Fosb.^E
Psychotria st.-johnii Fosb.^E
Psychotria storckii Seem.^E
Psychotria tepbrosantha A. Gray^E
Psychotria turbinata A. Gray^E
Psychotria uncarinata (Fosb.) A.C. Sm. & S. Darw.
Readea membranacea Gillesp.^E
Squamellaria imberbis (A. Gray) Becc.^E
Sukumia longipes A.C. Sm.^E
Tarenna joskei (Horne ex Baker) A.C. Sm. & S. Darw.
Tarenna seemanniana A.C. Sm. & S. Darwin^E
Timonius affinis A. Gray^I
Xanthophyllum calycinum (A. Gray) Benth. & Hk.^E
- RUTACEAE
Melicope cuculata (Gillespie) A.C. Sm.^E
Melicope robusta A.C. Sm.^E
Micromelum minutum (Forst. f.) Seem.^I
Zantboxylum pinnatum (J.R. & G. Forst.) W. Oliver^I
Zantboxylum vitiense A.C. Sm.^E
- SAPINDACEAE
Alectryon grandifolius A.C. Sm.^E
Arytera brackenridgei (A. Gray) Radlk.^I
Cupaniopsis amoena A.C. Sm.^E
Cupaniopsis leptobotrys (A. Gray) Radlk.^E
Dodonaea viscosa (L.) Jacq.
Elattostachys falcata (A. Gray) Radlk.^I
- SAPOTACEAE
Burckella fijiensis (Hemsl.) A.C. Sm.^E
Burckella parviflora A.C. Sm. & S. Darwin^E
Burckella thurstonii (Hemsl.) Lam.^I
Palaquium fijiense Pierre ex Dubard^E
Palaquium hornei (Hartog ex Baker) Dubard^E
- Palaquium porphyreum* A.C. Sm. & S. Darwin^E
Palaquium vitilevuensis Gilly ex v. Royen^E
Planchonella garberi Christophersen^I
Planchonella sessilis A.C. Sm. & S. Darwin^E
Planchonella smithii (v. Royen) A.C. Sm.^E
Planchonella vitiensis Gillesp.
- SAURAUACEAE
Saurauia rubicunda (A. Gray) Seem.^E
- SIMAROUACEAE
Amaroria soulameioides A. Gray^E
- SOLANACEAE
Solanum vitiense Seem.^I
- STERCULIACEAE
Commersonia bartramia (L.) Merr.^I
Firmania diversifolia A. Gray^E
Heritiera ornithocephala Kostermans^I
Sterculia vitiensis Seem.^E
- SYMPLOCACEAE
Symplocos leptophylla (Brand) Turrill.^I
- TILIACEAE
Trichospermum richii (A. Gray) Seem.^I
- THYMELEACEAE
Gonystylus punctatus A.C. Sm.^E
Phaleria glabra (Turrill) Domke^I
- ULMACEAE
Celtis harperi Horne.^I
Gironniera celtidifolia Gaud.^I
Trema cannabina Lour.^I
- URTICACEAE
Boehmeria virgata (Forst. f.) Guillemain^I
Elatostema australe (Wedd.) Hall.f.^E
Elatostema humile A.C. Sm.^E
Elatostema tenellum A.C. Sm.^E
Leucosyke corymbulosa (Wedd.) Wedd.^I
**Pilea cadieri* Gagnep. & Guillaumin
Pipturus platyphyllus Wedd.^E
Procris goepeliana (A.C. Sm.) A.C. Sm.^E
- VERBENACEAE
Faradaya glabra (Mold.) A.C. Sm. & S. Darwin^E
Faradaya ovalifolia (A. Gray) Seem.^E
Faradaya vitiensis Seem.^E
Gmelina vitiensis (Seem.) A.C. Sm.^E
**Lantana camara* L.
Premna protusa A.C. Sm. & S. Darwin^E
**Tectona grandis* L. f.
- VITACEAE
Tetrastigma vitiense (A. Gray) A.C. Sm.^E

Sources: Species records are derived from Smith (1979, 1981, 1985, 1988, 1991, 1996), the database of the South Pacific Regional Herbarium, and Kirkpatrick and Hassal (1985).

Note: Nomenclature follows Smith (1979, 1981, 1985, 1988, 1991, 1996), Brownlie (1977), and Doyle (1998).

*, Recent introduction.

^I, Indigenous.

^E, Endemic.

^A, Aboriginal introduction.

Appendix 2

Fijian Vernacular Name and Its Scientific Equivalent with the Respective Numbers of Individuals and Total DBH for the Taxonomic Units Identified in the 6,000-m² Plot in Vago Forest Reserve

Family	Fijian Vernacular Name	Scientific Equivalent	No. of Individuals (n)	Maximum DBH (cm)	Mean DBH (cm)	Total DBH (cm)	Total Area (m ²)
Agavaceae	vasili	<i>Cordyline frutescens</i>	11	29	17.36	191	0.03
Alpinaceae	vava	<i>Alpinia boia</i>	17	100	24.19	1,120	0.98
Anacardiaceae	kaukaro	<i>Semecarpus vitiensis</i>	33	225	69.21	2,284	4.10
	maqo ni veikau	<i>Buchanania vitiensis</i>	28	301	73.21	2,050	
	totowivi	<i>Pleiogynium hapalam</i>	4	49	24.75	99	
Annonaceae	dulewa	<i>Xylopia pacifica</i>	1	135	135	135	
	makosoi ni veikau	<i>Cyathobocayx insularis</i>	71	212	27.62	1,991	3.11
		Annonaceae	32	212	24.31	772	
			37	85	31.92	1,181	
			2	25	19	38	
Apocynaceae	tadalo	<i>Pogonantha thurstonii</i>	66	343	70.82	4,674	17.15
	vasa rewa	<i>Cerbera manghas</i>	22	169	77.5	1,705	
	vueti Naitasiri	<i>Ervatantia obtusiuscula</i>	13	343	111.46	1,449	
	sorua	<i>Akstonia</i> sp.	20	84	30.75	615	
			11	199	82.27	905	
Araliaceae	sole	<i>Pterandra</i> spp., <i>Schefflera</i> spp.	118	373	55.08	6,500	33.17
	danidani ni veikau	<i>Polyscias multiyuga</i>	99	373	61.75	6,113	
	balaka	<i>Balaka microcarpa</i>	19	40	20.37	387	
Araceae		<i>Spathodea campanulata</i>	18	84	44.22	797	0.50
Bignoniaceae			1	31	31	31	0.00
Burseraceae	kaunicina	<i>Canarium</i> spp.	119	409	70.16	8,287	53.91
	kaunigai	<i>Haplobolus floribundus</i>					
Caesalpinaceae	moivi levu	<i>Kingidendron platycarpum</i>	77	367	44.28	3,606	10.21
	moivi, cibicibi	<i>Cynometra insularis</i> , <i>Mamitoo</i> spp.	35	151	28.17	986	
	vesida	<i>Storckia vitiensis</i>	37	367	59.49	2,201	
	sa	<i>Parinari insularum</i>	5	183	83.8	419	
Chrysobalanaceae			133	297	53.26	7,083	39.38
Clusiaceae	damanu	<i>Calophyllum</i> sp.	446	485	47.33	21,150	351.15
	laubu	<i>Garcinia myrtifolia</i>	264	485	46.89	12,378	
	bulu, bulu wai, bulu m.	<i>Garcinia</i> spp.	70	395	60.73	4,251	
	vure	<i>Geissos</i> spp.	112	256	40.36	4,521	
Cunoniaceae	balabala	<i>Cyathea</i> spp.	5	203	59.8	299	0.07
Cyatheaceae	masiratu	<i>Degeneria vitiensis</i>	424	234	25.53	22,604	401.09
Degeneriaceae	kuluva	<i>Dillenia biflora</i>	19	384	120.42	2,291	4.12
Dilleniaceae			81	448	76.48	4,719	17.48

Appendix 2 (continued)

Family	Fijian Vernacular Name	Scientific Equivalent	No. of Individuals (n)	Maximum DBH (cm)	Mean DBH (cm)	Total DBH (cm)	Total Area (m ²)
Ebenaceae	kauloa	<i>Diospyros</i> spp.	8	68	30	240	0.05
Elaeocarpaceae	qaiqai	<i>Elaeocarpus storckii</i>	70	102	37.39	2,601	5.31
		<i>Elaeocarpus</i> spp.	67	102	37.39	2,505	
Euphorbiaceae			3	43	32	96	
	molau	<i>Glochidion seemanii</i>	158	657	64.09	10,139	80.70
	molau tagane	<i>Glochidion vittense</i>	75	59	17.69	1,327	
		<i>Glochidion</i> sp.	18	44	20.83	375	
	midra	<i>Baccaurea</i> spp.	1	15	15	15	
	kauvula	<i>Endospermum macrophyllum</i>	37	143	49.7	1,839	
	gadua	<i>Macaranga</i> spp.	13	657	432.62	5,624	
		Euporbiaceae	7	184	88	616	
			7	160	48	336	
			137	70	26.31	3,604	10.20
Gnetaceae	sukau	<i>Gnetum gnemon</i>	56	350	82.05	4,749	17.70
Hernandiaceae	dalovoci	<i>Hernandia olivacea</i>	13	95	33.08	430	0.15
Icacinaeae	nuqa	<i>Citronella vittense</i>	297	445	48.1	14,339	161.40
Lauraceae	diriniu	<i>Cryptocarya constricta</i>	238	164	46.65	11,102	
	damabi, tabadamu	<i>Endiandra</i> sp.	13	434	86.38	1,123	
	lidi	<i>Litsea</i> sp.	39	445	50.26	1,951	
		Lauraceae	7	70	23.29	163	
		<i>Barringtonia edulis</i>	203	222	37.83	7,680	46.30
Lecythidaceae	vutu		106	158	32.98	3,496	9.59
Loganiaceae	bo	<i>Neuburgia</i> spp.	96	158	33.03	3,144	
	boiboida	<i>Geniostoma</i> spp.	8	71	36.63	293	
Melastomataceae	boiboida levu	<i>Geniostoma macrophylla</i>	2	33	24	48	
	dava	<i>Astronidium</i> spp.	12	84	29.81	339	0.09
			299	284	37.21	9,542	71.47
			21	147	27.43	576	
Meliaceae	cevuva	<i>Vacca amicorum</i>	3	16	13.33	40	
	cevuva levu	<i>Vacca barveyii</i>	3	21	17.33	52	
	“mahogany”	<i>Swietenia macrophylla</i>	3	188	23.69	1,208	
	kautoa	<i>Aglaia</i> spp.	51	155	47.3	473	
	sasawira	<i>Dysoxylum richii</i>	10	230	34.09	7,193	
	malamala	<i>Dysoxylum</i> spp.	211	155	42.41	6,277	30.93
			148	154	46.01	5,061	
			110	154	58.67	176	
			3	155	58.67	176	
			14	58	28.79	403	
Moraceae	nunu	<i>Ficus smithii</i> , <i>Ficus pritchardii</i>	12	51	34.92	419	
	masimasi	<i>Ficus storckii</i>	9	71	24.22	218	
	lolo	<i>Ficus vittensis</i>	14	51	34.92	419	
	lolo tagane	<i>Ficus theophrastoides</i>	12	51	34.92	419	
	losilosi	<i>Ficus barclayana</i>	9	71	24.22	218	

Myrtaceae	yasiyasi, yasiidravu yasileba kavika	<i>Syzygium</i> spp., <i>Cleistanthus</i> spp. <i>Syzygium grayii</i> <i>Syzygium malaccense</i>	275 239 28	565 565 40	49.63 54.47 22.04	13,797 13,019 617	149.43
Myristicaceae	kaudamu kaudamu lailai kaumaikita	<i>Myristica</i> spp. <i>Myristica chartacea</i> <i>Anacardos lutea</i>	745 725 20	467 467 181	47.4 47.64 38.8	35,314 34,538 776	978.96
Oleaceae	duva ni veikau	<i>Pittosporum</i> spp.	61	103	38.84	2,369	4.41
Podocarpaceae	kuasi	<i>Podocarpus nerifolius</i>	56	132	33.95	1,901	2.84
Proteaceae	kauceuti	<i>Turritella vietensis</i>	19	111	26.88	591	0.27
Thymelaeaceae	mavota	<i>Gonyxylum punctatus</i>	26	260	27.15	706	0.39
Rhamnaceae	tomanu	<i>Emmenantherna micropetalum</i>	194	647	60.81	11,797	109.25
Rhizophoraceae	tiri ni vanua	<i>Crossostylis</i> spp.	5	162	50.74	421	0.14
Rubiaceae	degedege, tabulina soso ni ura	<i>Psychotria</i> spp. <i>Dolicholobium</i> spp.	32	178	59.38	1,900	2.83
Rutaceae	jale	<i>Gardenia</i> spp.	96	202	22.64	2,173	5.20
Sapotaceae	drautolu	<i>Melicope cuculata</i>	9	89	35.11	311	
	marasa	<i>Elatostachys falcata</i>	5	29	18	90	
	manawi	<i>Koelreuteria elegans</i>	15	140	87.67	789	0.49
		Sapindaceae	47	242	54.96	2,203	3.81
			15	211	59.47	892	
			4	242	87.5	350	
			28	90	34.42	961	
			277	332	44.51	11,488	103.60
			134	332	48.45	6,492	
			8	285	126	1,008	
			25	48	27.34	626	
			6	25	22.5	135	
			104	143	31.03	3,227	
			52	122	32.31	1,680	2.22
			8	165	57.5	460	0.17
			24	322	118.88	2,850	6.38
			21	322	109.19	2,293	
			3	196	185.67	557	
			5	425	263.2	1,316	1.36
			95	215	34.99	3,324	8.67
			1	88	88	88	0.01
			20	225	67.15	1,343	1.42
			5,494			247,974	2,752.19

Note: Values in **boldface** type are the totals for the family, values in roman type refer to individual species.