INVENTORY OF FOREST FRAGMENTS IN THE POLILLO ISLANDS <u>TOM CLEMENTS</u>

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ABSTRACT

Inventories of strip transects were conducted in 16 sites across the Polillo Islands. Sites differed in the extent of anthropogenic disturbance, from the unlogged Sibulan Watershed Reserve, to secondary regenerating forests. Comparisons between Sibulan and the other sites visited revealed that many areas of logged primary forest across the islands retain similar species diversity, and some also contain scattered large trees. Ordination statistics were used to compare the floristic composition of the sites. Two main axes of variation were identified, the first corresponding to the gradient from primary forest (dominated by shade-tolerant species such as Dipterocarps) to secondary forest (dominated by pioneers, particularly *Macaranga* spp. and *Artocarpus* spp.). The second axis appeared to represent floristic variation in relation to geography, possibly caused by the difference between plants found in limestone regions and elsewhere. Analysis of shared species groups demonstrated that a conservation strategy focusing on three sites: Sibulan Watershed Reserve, Abaca (in the north of the islands) and Anibawan (a limetone region) would conserve the majority of plant diversity found in the region. Limestone areas are particularly important for conservation because of the rare species found, and the area on Polillo is no exception.

1. Introduction

The first botanist to visit Polillo Island, in 1909, wrote that it was nearly everywhere covered with virgin forest (Robinson 1911). Devastated and rendered practically worthless by intense logging in the 1950s-80s these forests have been extensively cleared and replaced by coconut plantations, which now account for approximately two-thirds of the land area (Polillo Municipality Development Report 1999). Very little information is available about the extent and quality of the remaining forest fragments.

The first botanical expedition to Polillo, in 1909, was also the most extensive, recording 14 new species of angiosperms and a remarkable number of endemic epiphyllous hepatics (30% of those species found). These collections were, however, mostly destroyed during WWII. There have been few expeditions since, and these have generally been of short duration and have focused only on particular groups (especially palms). Much recent research has focused on the only known unlogged area on Polillo – the 200 hectare Sibulan Watershed Reserve (Galley, 2000).

The present project aimed to:

Produce a list of tree species known from Polillo islands, with the aid of botanical experts. Identify local names for these species that are used accurately and consistently. Conduct surveys of forest fragments throughout the islands, and compare the structure and species composition of these fragments.

2. METHODS

2.1 Forest surveys

Surveys were conducted within forests found in sixteen sites across Polillo islands between August and December 2001. Two of these sites were the islands of Patnanungan and Jomalig. The remainder were located on the main island of Polillo – six in Polillo municipality itself and four each in the municipalities of Burdeos and Panukulan. The study sites were chosen after thorough discussions with local inhabitants knowledgeable of the islands' geography and were selected to

represent most of the largest forested areas and provide wide geographical coverage of the islands. Time limitations and inaccessibility constrained the choice of potential sites and prevented random allocation. Each site usually consisted of a network of forest fragments.

The species composition and structure of each forest fragment was sampled by conducting a 100% inventory of all trees found within 10 metre wide belt transects. Within each forest, transects were placed at random intervals along an access route that bisected the forest (usually a stream, but sometimes a path or ridge top). Transects always ran perpendicular to the access route and aimed to sample the variety of terrain present (e.g. transects often proceeded from a streambed to the top of a nearby ridge). The length of a transect depended upon the size of the forest and the terrain present. For example, in some areas it was 60m from the stream to the ridge, whilst in other cases it was 150m or more. In general, however, it was aimed to complete at least 5 transects totalling 400m or more in most sites. Fewer transects were completed in smaller sites, and more in larger sites.

Within each transect, the circumference of each tree > 30 cm in circumference was recorded (to the nearest centimetre) and identified to common name using a local guide. The same two guides, Pio Gurubat and Augusto Zafe, were used for over 90% of transects. Specimens were collected of many named individuals, and of individuals that had no local name. 266 specimens were collected, and identified by botanists at the Department of Forest Biological Science at the University of the Philippines, Los Baños (FBS-UPLB).

2.2 Species identification

2.2.1 Botanical Inventory of Tree Species on Polillo Islands

A preliminary botanical inventory of Sibulan Watershed Reserve and one of the surrounding forest fragments was conducted from 812 November 2001, by Alfredo de Villa Alvarez, a botanist from FBS-UPLB who specialises in tree identification. In addition to opportunistic identification and collecting, a census of 10-metre wide belt transects 150m-210m in length was conducted at four different locations within the watershed reserve. A total of 750m of transects were completed, or 0.75 hectares. Within transects, all individuals > 30 cm circumference were measured and identified.

Data on other species found throughout the islands was obtained from the identification of the 266 specimens collected during forest surveys.

2.2.2 Local Names

It was important to determine how the local names given by guides corresponded to particular species or species-groups (morphotypes), if the composition of different forests were to be compared. *Consistency* here is defined as the proportion of named identifications that were correct, while *accuracy* is defined as the proportion of encounters with a species that were given the correct name. Accuracy scores are therefore penalised by failing to identify a species – either by applying the wrong name, or calling it 'unknown'. Consistency is only penalised by applying a different name to a species.

Data on the consistency and accuracy of local identifications was collected from two sources:

1. During forest surveys, multiple specimens were collected of individuals given the same local name, in order to check the consistency of the local identification. Specimens collected of individuals that had no local name were used to determine the extent to which species 'known' to local guides were missed during surveys.

2. During the botanical inventory of Sibulan Watershed Reserve the same two local guides were present. Local names were obtained for all individuals encountered, many of which were subsequently given species names by Alfredo de Villa Alvarez.

3. BOTANICAL INVENTORY OF TREE SPECIES ON POLILLO ISLANDS

3.1 Species Richness

During the visit of Alfredo de Villa Alvarez 221 tree species and varieties were recorded, together with an additional 37 species of shrubs, ferns and herbs. A further 52 species of trees were identified from the collections that had been made throughout the islands. Appendix 1 lists the tree species recorded, following the nomenclature of Rojo (1999). Of these 273 species 93% were found on Polillo island, and over 85% from the area including Sibulan Watershed Reserve.

3.2 Species-Area Curves

Species-area curves were plotted using the inventory data from 167 species found in the four belt transects in Sibulan WR (Figure 1), and a line of best fit calculated. The curve shows that after 0.75 hectares species are still being added at an appreciable rate. Extrapolating beyond the range of the data, it is possible to predict a diversity of 181 species in 1 hectare and over 350 species in 16 hectares.

4. LOCAL NAMES

In total, 984 records were available comparing local and scientific names. A local name was accepted as consistent and accurate if it scored over 66% on both criteria, from a minimum of 3 records. 100 local names (morphotypes) were accepted that were used consistently and accurately to describe 139 species. Of these, 66 were used to identify a single species, 29 to identify two and 5 to identify three species. Only in four instances is a local name used to group species from different families, and in an additional seven cases to group species from the same family but different genera. Members of Dipterocarpaceae were particularly difficult to identify (10 local names were used for 18 species). The 100 local names have a combined consistency (i.e. percentage of applications to the correct species) of 87.5% and accuracy (i.e. percentage of occurrences of species that were correctly identified) of 72.6%. The lower accuracy score is because some individuals, usually when small, were occasionally missed and called "unknown".

Each of the morphotypes was given a score on the 'Pioneer Index' according to whether it is found generally in primary (1), secondary (2), or both types (1.5) of forest. The pioneer index is assumed to be a surrogate for the amount of disturbance that the area receives, since secondary species tend to be found in disturbed areas. Morphotypes were also given an 'endemism' score depending on if they were found only on Polillo and surrounding provinces (1), the Luzon area (2), were endemic to the whole of the Philippines (3), or were found in other parts of south-east Asia (4). Information to construct the scores were obtained from Guzman *et al.* (1986), Kostermans and Bompard (1993), Mayo et al. (1991), Leenhouts and Eduard (1959), McCurrach (1960), Merrill (1923-1925), Rojo (1999), Sinclair (1955), Stickman (1969) and the Flora Malesiana (Ashton 1982, Van Steenis 1974, 1976).

Appendix II lists the 100 morphotypes, with their local and scientific names, and disturbance and endemism scores.

5. COMPARISON OF FOREST FRAGMENTS ON POLILLO IS LANDS

5.1 Site composition and structure

Eighty-eight transects were completed across the sixteen sites (Table 1). The 10-metre wide transects totalled 7.42 km in length, an area of 7.42 hectares. Within these transects a total of 3,866 trees were measured and identified.

Table 1 compares several characteristics across all the sites visited. The values shown are the mean or sum across all transects measured at each site. However, in the statistical analysis that follows transects were treated as independent replicates of site variables. Simple 1-way analysis of variance, using site as a main effect, was used to investigate differences between sites. Basal area and number of individuals were square-root transformed to stabilise the variance. Sites differ significantly in the number of individuals / hectare (F = 2.54, d.f. = 15, 73, P = 0.004), probably because of the low stocking density on Jomalig island. The differences in basal area / hectare (F = 3.44, d.f. = 15, 73, P = 0.000), and in the mean score on the disturbance scale per transect (F = 6.18, d.f. = 15, 73, P = 0.000) are more significant. Figures 2 and 3 show the mean basal area and pioneer index scores for all the sites, with error bars.

Sibulan WR, the only area on the islands that has had long term protection and was never logged, has a much greater basal area of wood / hectare than the other sites, and is dominated by species associated with primary forest. Other sites can be ranked according to their similarity with Sibulan WR (Table 1).

5.2 Species Diversity

Figure 4 plots the number of species groups recorded at each site, against the total length of transect surveyed. The best fitting species-area curve is shown. Most sites appear to fall along the curve. No single site (not even Sibulan WR) is characterised by especially high diversity. Two sites, Baleti and Jomalig Island, have particularly low diversity; these sites were the most disturbed and had few primary species.

The graph appears to support the conclusion that despite great differences with Sibulan WR in forest structure (particularly the size of trees), most other forest patches throughout Polillo retain a high species diversity (compared to the undisturbed Sibulan WR), even if the primary species particularly tend to be of small size.

Fisher's *alpha* diversity index (Fisher et al. 1943; Hayek and Buzas 1996; Magurran 1988) is a dimensionless measure of diversity that is independent of sample size, as was the case in this study where quadrats contained different numbers of stems. Table 1 shows the ? diversity scores calculated using the program EstimateS (Colwell, 2000). Diversity was greatest at sites with intermediate scores on the Pioneer Index (Figure 5; Regression F = 5.4, d.f. = 2, 12, P < 0.05, $R^2 = 47.3\%$), supporting the intermediate disturbance hypothesis (Connell 1978).

Comparison of *alpha* scores reveals that Sibulan WR, Kalubakis, Aluyon WSR, Burdeos WSR, Listor's Forest, Lapakan and Patnanougan Island contain the highest diversity of species.

5.3 Ordination of Sites

DCA (Detrended Correspondence Analysis; Hill and Gauch 1980; Kent and Coker 1992) was used to produce an ordination of sites along a few axes, based upon their species composition. Two datasets were analysed: species abundance, and species basal area. In the first, all individuals had

equal weighting, regardless of size, while in the second larger individuals were given a greater score. The forest at Baleti was excluded because the data had been collected from a short transect (much less than 500m) and contained very little species diversity; it polarised the analysis. The forests near Sibulan WR were split into two geographically distinct groups.

DCA using basal area by each species group produced two main axes, with eigenvalues 0.493 and 0.308 (the third axis had an eigenvalue of 0.115). Site ordination by axes 1 and 2 are plotted in Figure 6. Axis 1 appears to correlate with the gradient from climax species, particularly Dipterocarpaceae, to pioneers such as *Macananga* spp. (Euphorbiaceae) and *Artocarpus* spp. (Moraceae). Axis 2 is probably associated with the geology of the sites, as it groups the four sites from Burdeos municipality with Kalubakis, all of which were located within limestone regions. It also groups the sites from Panukulan.

The analysis using the abundance of each species group produced two main axes, with eigenvalues 0.369 and 0.262 (the third axis had an eigenvalue of 0.078). Site ordination by axes 1 and 2 are plotted in Figure 7. The axes appear to explain similar variables to those in Figure 6, although the order is reversed in axis 2.

The DCA analysis suggests the sites should be divided into four categories:

- Sibulan and surrounding areas: Sibulan WS, near fragments, Macnit, Mt. Malulod.
- Limestone Regions: Aluyon, Aluyon WS, Anibawan, Burdeos WS, Kalubakis.
- Panukulan: Baleti, Listor's forest, Abaca, Salapakan.
- Islands: Patnanungan, Jomalig.

5.4 Redundancy

It is possible to examine the degree of overlap in species composition between sites, in order to assess the importance of particular sites in harbouring tree species diversity. If the 62 species groups recorded in Sibulan WR, which is already protected, are eliminated from the matrix, the remaining species groups are distributed as follows:

Sibulan Group		Limestone Region	S	Panukulan		Islands	
Sibulan WR	0	Aluyon	14	Baleti	6	Patnanougan	18
Surroundings	7	Aluyon WS	15	Listor's Forest	12	Jomalig	8
Mt. Malulod	7	Anibawan	17	Abaca	21		
Maknit	12	Burdeos	8	Lapakan	12		
		Kalubakis	12				

There is considerable difference in composition between Sibulan and the Limestone Regions, Panukulan and Patnanougan Island. Eliminating the 17 species groups found in Anibawan, leaves:

Sibulan Group		Limestone Regions		Panukulan		Islands	
Sibulan WR	0	Aluyon	5	Baleti	2	Patnanougan	8
Surroundings	5	Aluyon WS	6	Listor's Forest	3	Jomalig	4
Mt. Malulod	1	Anibawan	0	Abaca	10		
Maknit	4	Burdeos	2	Lapakan	8		
		Kalubakis	4				

Eliminating species found in the limestone regions still does not account for some species groups that are found in Panukulan and Patnanougan. Eliminating the 10 species groups found in Abaca, gives:

Sibulan Group		Limestone Regions		Panukulan		Islands	
Sibulan WR	0	Aluyon	1	Baleti	1	Patnanougan	6
Surroundings	2	Aluyon WS	2	Listor's Forest	1	Jomalig	3
Mt. Malulod	0	Anibawan	0	Abaca	0		
Maknit	3	Burdeos	1	Lapakan	1		
		Kalubakis	3	•			

It is possible, therefore, in just three sites (Sibulan WR, Anibawan and Abaca) to find 89% of the species groups identified in the Polillo Islands.

6. CONCLUSIONS

6.1 Botanical Inventory of Tree Species on Polillo Islands

The diversity of tree species on Polillo compares favourably with records from other locations. The expected diversity of 181 species hectare⁻¹ at Sibulan Watershed is similar to that recorded from the only permanent sample plot located in the Philippines, at Palannan in the northern Sierra Madres (Luzon), which has a diversity of more than 300 tree species in 16 hectares (L. Co, *personal communication*). The 50-hectare plot in dipterocarp rainforest at Pasoh, Peninsular Malaysia, has a mean of 206 tree species > 10 cm diameter in 1 hectare (Condit *et al.* 1996), more than 300 species in 16 hectares was extrapolated for Sibulan WR.

The botanical inventory was the first attempt to record tree species diversity on Polillo since 1909 (Robinson 1911). A total of 273 tree species were identified, considerably extending the previous list of species. For example, Robinson (1911) recorded 9 species of Dipterocarpaceae, which is extended to 22 in the present list. One of those collected, *Dipterocarpus orbicularis* (Foxw.) has only be found twice before, in 1914 and 1971, in Camarines and Quezon Provinces, near to Polillo. This species is of dubious status because fertile material has never been collected (Ashton 1982, P.S. Ashton, *personal communication*), although its form is distinctive in the field. The inventory also recorded the presence of five other species that have very restricted ranges or are endemic to Polillo: Apocynaceae: Laneteng-gubat, *Kibatalia gitingensis* (Elmer) Woods, local name *laniti*; Dipterocarpaceae: Dagang, *Anisoptera aurea* Foxw., local name *palosapis*; Thick-leafed Narig, *Vatica pachyphylla* Merr., endemic and common, local name *yakal blanco*; Lamiaceae: Sasalit, *Teijsmanniodendron ahernianum* (Merr.) Bakh., local name *tapat-tapat* or *lima-lima*; Sapotaceae: Alakaak-tilos, *Palaquium elliptilimbum* Merr., local name *dulitan pasak*. Twenty 'unknown' morphotypes were collected by a botanist from FBS-UPLB, but were difficult to identify without fertile material.

The inventory was also able to identify 100 local names that were used with consistency. It was therefore possible to use local guides to identify species groups found throughout the islands in order to compare the composition of different localities.

6.2 Comparison of Forest Fragments on Polillo Islands

The forested areas on Polillo islands can be divided into four groups, primarily based on geography and geology. Within these groups there are forests of varying degrees of quality (Table 2). However, with few exceptions, all *primary* forests maintain a high diversity of species, even if they are subject to intense logging pressure. Primary forests are defined as areas that have been under

continuous forest cover (i.e. the forest has not been cleared); secondary forests are areas of regeneration found on land that has been previously cleared. No difference was found in species richness between the unlogged Sibulan WR and logged sites. Even heavily logged primary forest is of greater value than regenerating secondary forest, which tends to be dominated by a few pioneer species.

Table 2. Classification of Forest Sites

	Sibulan	Limestone	Panukulan	Islands
		Regions		
Unlogged Primary Forest	Sibulan WR			
Logged Primary Forest; high basal area and		Burdeos WR	Abaca	
dominated by primary species.				
Logged Primary Forest; high basal area, or fewer	Mt. Malulod	Anibawan	Listor's Forest	
primary species.	Maknit	Aluyan WR	Lapakan	
	Near Sibulan	Kalubakis		
Logged Primary Forest; low basal area, and few		Aluyan		Patnanougan
primary species.		-		Island
Secondary Forest			Baleti	Jomalig
				Island

Sibulan WR has significantly greater basal area than all other sites surveyed, which indicates that the forest has received little large-scale disturbance recently (clearly all forests are disturbed by natural events, and species niches are never exact, so dominance entirely by primary species would be impossible). Figures 4 and 5 appears to support the conclusion that despite great differences with Sibulan WR in forest structure (particularly the size of trees), most forest patches throughout Polillo retain a good species diversity, even if the primary species particularly are generally of small size. Sites with more species than expected are generally those with a good diversity of primary species, but also a large number of secondary ones due to disturbance. This fits the intermediate-disturbance hypothesis (Connell 1978).

Different species groups are dominant in the different geographical areas. The redundancy analysis performed suggests that a conservation strategy that focused on maintaining one site in the limestone areas and one in Panukulan in addition to Sibulan WR would conserve most of the variation that exists on the islands.

6.3 Future of Forests on Polillo Islands

With few exceptions all forests on Polillo islands were very heavily logged during the 1950s-80s by commercial companies and have been under continual logging pressure from local people since. Local pressure ensures that few trees grow to greater than 50cm diameter. Timber is not only used for local construction, but is exported to mainland Luzon where it can be sold at 20-40 times the local price. For a small minority of people – particularly in the northern reaches of Polillo – logging is a livelihood rather than a 'Sunday' activity. Harvesting focuses particularly intensively on a few species groups: Dipterocarpaceae, Narra (*Pterocarpus indicus*) and *Aglaia* spp. (Meliaceae).

If the present level of logging pressure is maintained the future for many forests in the medium-term is bleak. Intense logging of primary species is gradually producing forests dominated by a pioneer species that make poor quality timber; the logging is not sustainable. Since few timber species are allowed to grow to mature size, regeneration in many places is poor. In the medium-term this could lead to the extinction of primary timber species from the forests and their replacement with species of no economic value.

However, currently there are many logged areas on Polillo where the diversity and density of young timber species is good. With proper management these areas could be maintained as economically valuable forest. Forest on Polillo not only provides timber and protection from erosion, but also is a source of rattan and bamboo, food, and most importantly water. The success of the Sibulan WR, providing clean water to a large town, is the best example. The re-establishment of the Burdeos WR might provide similar advantages. The main hindrances to the management of most forests are lack of money and education, and the fact that many areas have no established owner, often being managed as common land.

Forested areas are also threatened with deforestation, as the falling price of coconuts encourages the expansion of plantations in order to maintain incomes. The municipalities of Polillo and Burdeos have on-going reforestation projects, but these have had little impact due to lack of funds, and tend to use alien species. Resources might be better channelled towards maintenance, proper management and enrichment planting of currently denuded forests.

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Appendix I: Tree Species recorded from Polillo Islands

The table records the locality from which species were recorded, as follows: Inventory (botanical inventory of 0.375 hectares in Sibulan Watershed reserve), Sibulan (in or surrounding the reserve), Mt. Malulod, Burdeos (all sites within the municipality), Panukulan (all sites within the municipality), Polillo Island (all sites within municipalities of Polillo, Burdeos and Panukulan), Patnanougan and Jomalig islands.

* indicates an exotic species

Family	Common Name	Genus	Species	Inventory	Sibulan	Mt. Malulod	Burdeos	Panukulan	Polillo Island	Patnanugan Island	Jomalig Island	Polillo Islands
ALANG.	Putian	Alangium	javanicum var. jaheri	✓	✓	,	•		✓	•		✓
ALANG.	Malatapai	Alanguim	longiflorum	✓	✓	•	•		✓	•		\checkmark
ANAC.	Balinghasai	Buchanania	arborescens	✓	✓	,			✓	•		✓
ANAC.	Balitantan	Buchanania	nitida	✓	✓	,			✓	•		✓
ANAC.	Dao	Dracontomelon	dao	✓	✓	•			✓	/		✓
ANAC.	Amugis	Koordersio- dendron	pinnatum	✓	✓	•			✓	•		✓
ANAC.	Pahutan	Mangifera	altissima	✓	✓	•	•		✓			\checkmark
ANAC.	Paho / Malapaho	Mangifera	monandra	✓	✓	•	•	✓	✓	/		\checkmark
ANAC.	Sangilo	Pistacia	chinensis	✓	✓	•			✓	✓		\checkmark
ANAC.	Ligas	Semecarpus	cuneiformis		✓	•			✓	•		\checkmark
ANNON.	Ilang-Ilang	Cananga	odorata		✓	•			✓	•		\checkmark
ANNON.	Lanutan-laparan	Enicosanthum	grandifolium								✓	\checkmark
ANNON.	Amuyong	Goniothalamus	amuyon		✓	•			✓			\checkmark
ANNON.	Takulau	Miliusa	vidalii					✓	✓	•		\checkmark
ANNON.	Lanutan	Mitrephora	lanotan	✓	✓	•			✓	•		\checkmark
ANNON.	Anolang	Papualthia	lanceolata	✓	✓	•			✓	✓		\checkmark
ANNON.	Lanutan-sapa	Polyalthia	dolichophyllia		✓	•			✓			\checkmark
ANNON.	Lanutan-dilau	Polyalthia	flava	✓	✓	•			✓	•		\checkmark
ANNON.	Lapnisan	Polyalthia	oblongifolia		✓	•			✓			✓
ANNON.	Lanutan-mabolo	Polyalthia	pubescens							✓		✓
ANNON.	Lanutan-puti	Polyalthia	suberosa	✓	✓	•			✓			✓
APOCYN.	Batino	Alstonia	macrophylla		✓	•			✓		\checkmark	✓
APOCYN.	Laneteng-gubat	Kibatalia	gitingensis	✓	✓	•			✓	✓	\checkmark	✓
APOCYN.	Bayag-kambing	Pagiantha	plumeriifolia		✓	✓	•		✓	•	✓	✓
APOCYN.	Malabatino	Paralstonia	clusiacea								✓	✓
APOCYN.	Lanete	Wrightia	pubescens ssp. laniti								✓	✓
AQUIF.	Malakidia	Ilex	loheri		✓	✓			✓			✓
ARAL.	Malapapaya	Polyscias	nodosa		✓	,			~	/		✓

BIGN.	Banai-Banai	Radermachera	pinnata ssp. pinnata	✓	✓			✓			✓
BORAG.	Anonang	Cordia	dichotoma	✓	✓	✓		✓			✓
BORAG.	Halimumog	Ehretia	philippinensis		✓			✓		\checkmark	✓
BURS.	Pagsahingin	Canarium	asperum	\checkmark	✓			\checkmark			✓
BURS.	Milipili	Canarium	hirsutum		✓			✓			✓
BURS.	Piling-liitan	Canarium	luzonicum	\checkmark	✓			✓		\checkmark	✓
BURS.	Pili	Canarium	ovatum		✓			✓			✓
CEL.	Malasangki	Euonymus	javanicus		✓			✓			✓
CEL.	Malaabuab	Lophopetalum	javanicum	\checkmark	✓			✓	\checkmark		✓
CHRYS.	Liusin	Maranthes	corymbosa	\checkmark	✓			✓			✓
CLUS.	Bitanghol	Calophyllum	blancoi	\checkmark	✓	✓		✓	\checkmark		✓
CLUS.	Dangkalan	Calophyllum	obliquinervium					✓	\checkmark		✓
CLUS.	Salinggogon	Cratoxylum	formosum spp. formosum	\checkmark	✓			✓			✓
CLUS.	Binukau	Garcinia	binucao	\checkmark	✓	✓		✓	\checkmark		✓
CLUS.	Taklang-anak	Garcinia	dulcis	\checkmark	✓	✓		✓			✓
CLUS.	Tagbag	Garcinia	linearifolia		✓			✓			✓
CLUS.	Kamandiis	Garcinia	rubra	\checkmark	✓			✓			✓
COMBR.	Bingas	Terminalia	citrina					✓			✓
COMBR.	Talisai-gubat	Terminalia	foetidissima		✓			✓			✓
COMBR.	Kalumpit	Terminalia	microcarpa		✓			✓			✓
COMP.	Malasambong	Vernonia	vidalii		✓			✓			✓
DAT.	Binuang	Octomeles	sumatrana		✓			✓			✓
DILL.	Katmon	Dillenia	philippinensis	\checkmark	✓			✓			✓
DILL.	Katmon-kalabau	Dillenia	reifferscheidtia	\checkmark	✓			✓			✓
DILL.	Kolalabang	Saurauia	latibractea	\checkmark	✓			✓			✓
DIPT.	Dagang	Anisoptera	aurea	\checkmark	✓			✓			✓
DIPT.	Palosapis	Anisoptera	thurifera ssp. thurifera	\checkmark	✓			✓			✓
DIPT.	Hairy-leafed Apitong	Dipterocarpus	alatus	\checkmark	✓	✓	\checkmark	✓			✓
DIPT.	Tailed-leaf Panau	Dipterocarpus	caudatus ssp. caudatus	\checkmark	✓		\checkmark	✓			✓
DIPT.	Panau	Dipterocarpus	gracilis	\checkmark	✓		\checkmark	✓			✓
DIPT.	Apitong	Dipterocarpus	grandiflorus	\checkmark	✓		\checkmark	✓		\checkmark	✓
DIPT.	Broad-winged Apitong	Dipterocarpus	kunstleri	\checkmark	✓		\checkmark	✓			✓
DIPT.	Round-leafed Apitong	Dipterocarpus	orbicularis		✓		\checkmark	✓			✓
DIPT.	Manggachapoi	Нореа	accuminata				\checkmark	✓			✓
DIPT.	Yakal kaliot	Нореа	malibato	✓	✓		\checkmark	✓			✓
DIPT.	Bagtikan	Parashorea	malaanonan	✓	✓		\checkmark	✓			✓
DIPT.	Almon	Shorea	almon	✓	✓			✓			✓

DIPT.	Yakal	Shorea	astylosa	✓	✓			✓	✓			✓
DIPT.	White Lauan	Shorea	contorta	✓	✓			\checkmark	✓			\checkmark
DIPT.	Yakal-yamban	Shorea	falciferoides ssp. falciferoides					\checkmark	✓			\checkmark
DIPT.	Guijo	Shorea	guiso	✓	✓				✓			\checkmark
DIPT.	Red Lauan	Shorea	negrosensis	\checkmark	✓			\checkmark	\checkmark			\checkmark
DIPT.	Tiaong	Shorea	ovata	✓	✓				\checkmark			\checkmark
DIPT.	Mayapis	Shorea	palosapis	\checkmark	✓			✓	\checkmark			\checkmark
DIPT.	Tangile	Shorea	polysperma	\checkmark	✓			✓	\checkmark			\checkmark
DIPT.	Narig	Vatica	mangachapoi ssp. mangachapoi	i 🗸	\checkmark				\checkmark			\checkmark
DIPT.	Thick-leafed Narig	Vatica	pachyphylla	✓	✓			\checkmark	\checkmark			\checkmark
EBEN.	Kamagong	Diospyros	discolor		\checkmark				\checkmark	\checkmark		\checkmark
EBEN.	Kanomoi	Diospyros	muliflora forma canomoi	\checkmark	✓				\checkmark			\checkmark
EBEN.	Anang-gulod	Diospyros	myrmecocalyx		✓				\checkmark			\checkmark
EBEN.	Bolong-eta	Diospyros	philosanthera var. philosanthera	a ✓	✓				\checkmark			\checkmark
EBEN.	Anang	Diospyros	pyrrhocarpa	\checkmark	✓		\checkmark		\checkmark			\checkmark
ELEA.	Tabian	Elaeocarpus	monocera		✓			\checkmark	\checkmark			\checkmark
EUPH.	Bignai	Antidesma	bunius		✓				\checkmark			\checkmark
EUPH.	Bignai-pinuso	Antidesma	cordato-stipulaceum vai	r.							\checkmark	\checkmark
EUPH.	Diamai laslahan	A 4: J	cordato-stipulaceum	./	✓				./			./
EUPH. EUPH.	Bignai-kalabau	Antidesma	pleuricum vitis-idaea	✓	∨ ✓		✓		v			v
EUPH. EUPH.	Matang-hipon	Breynia Bridelia		v	· /		•		· /			· /
EUPH. EUPH.	Subiang	Bridelia Bridelia	penangiana	•	•				•			./
EUPH. EUPH.	Agai Santiki	Briaetia Cleidion	tomentosa	✓	./				./			· /
EUPH. EUPH.	San Francisco*	Cietaton Codiaeum	spiciflorum	•	./				./			./
EUPH. EUPH.	Kulis-pakatan		variegatum luzonensis	✓	./				./			./
EUPH. EUPH.	Kulis-daga	Dimorphocalyx Dimorphocalyx	nurinus	∨ ✓	./		./		./			./
EUPH. EUPH.	_		maquilingensis	•	./	./	•		./			./
EUPH.	Tinaang-pantai Gubas	Drypetes	•	✓	./	•			· /			./
EUPH.	Malabagang	Endospermum Glochidion	peltatum album	√	./				· /			./
EUPH.	Sibulau	Glochidion	angulatum	•	./				· /			./
EUPH.	Balanti	Homolanthus	populneus var. populneus		· /				· /			,
EUPH.	Hamindang	Macaranga	bicolor	1	· /				· /			,
EUPH.	Binungang-ahas	Macaranga Macaranga	cuernosensis	•	· /				· /			,
EUPH.	Binungang-anas Binunga	Macaranga Macaranga	tanaris		·		✓	✓	·		✓	· /
EUPH.	Hinlaumo	Mallotus	mollissimus			✓	·	•	·		•	·
EUPH.	Alim	Melanolepis	multiglandulosa vai	r	•	•	•		•		✓	·
LUIII.	7 MIIII	мешыеры	multiglandulosa var	•							-	•

EUPH.	Apanang	Neotrewia	cumingii	✓	✓				✓	✓	✓	✓
FABAC.	Malatanglin*	Adenathera	pavonina		\checkmark		\checkmark		\checkmark			\checkmark
FABAC.	Tiagkot	Archidendron	clypearia var. clypearia	✓	\checkmark				\checkmark	✓	\checkmark	\checkmark
FABAC.	Makapil	Dalbergia	mimosella		\checkmark				\checkmark			\checkmark
FABAC.	Earpod*	Enterolobium	cyclocarpum							✓		\checkmark
FABAC.	Ipil	Intsia	bijuga							✓		\checkmark
FABAC.	Ipil-Ipil*	Leucaena	leucocephala		\checkmark				\checkmark			\checkmark
FABAC.	Bahai	Ormosia	calvanensis	✓	\checkmark				\checkmark			✓
FABAC.	Siar	Peltophorum	pterocarpum	✓	\checkmark				\checkmark			✓
FABAC.	Prickly Narra	Pterocarpus	indicus forma echinatus	✓	\checkmark				\checkmark			\checkmark
FABAC.	Smooth Narra	Pterocarpus	indicus forma indicus	✓	\checkmark				\checkmark		\checkmark	\checkmark
FABAC.	Acacia (Raintree)*	Samanea	saman		\checkmark				\checkmark			\checkmark
FAG.	Babaisakan	Lithocarpus	buddii						\checkmark			\checkmark
FAG.	Manggasiriki	Lithocarpus	ovalis		\checkmark				\checkmark	\checkmark		✓
FAG.	Pangnan	Lithocarpus	sultii	✓	\checkmark				\checkmark			\checkmark
FLAC.	Talitan	Casearia	fulginosa	✓	\checkmark				\checkmark			\checkmark
FLAC.	Kaluag	Casearia	grewiaefolia var. grewiaefolia		\checkmark				\checkmark			\checkmark
FLAC.	Bitongol	Flacourtia	rukam								\checkmark	✓
FLAC.	Oonog	Osmelia	philippina	✓	\checkmark				\checkmark			✓
FLAC.	Malapinggan	Trichadenia	philippinensis	✓	\checkmark				\checkmark			\checkmark
GNET.	Bago	Gnetum	gnemon var. gnemn	✓	\checkmark				\checkmark			\checkmark
ICAC.	Taingang-babui	Gonocaryum	calleryanum		\checkmark				\checkmark			\checkmark
LAMIAC.		Callicarpa	erioclona	✓	\checkmark				\checkmark			✓
LAMIAC.	Tambabasi	Callicarpa	formosa					\checkmark	\checkmark			\checkmark
LAMIAC.	Magilik	Premna	cumingiana		\checkmark				\checkmark			\checkmark
LAMIAC.	Dangula / Sasalit	Teijsmannio-	ahernianum	✓	\checkmark				\checkmark			✓
		dendron										
	Lingo-Lingo	Vitex	turczaninowii	✓	\checkmark				\checkmark		\checkmark	✓
LAUR.	Bagaoring	Beilschmedia	nervosa		\checkmark				\checkmark			✓
LAUR.	Kalingag	Cinnamomum	mercadoi	✓	\checkmark		\checkmark		\checkmark			\checkmark
LAUR.	Kamigai	Cryptocarya	ilocana	✓	\checkmark				\checkmark			\checkmark
LAUR.	Parasablot	Litsea	abraensis	✓	\checkmark				\checkmark			\checkmark
LAUR.	Arahan	Litsea	albayana				\checkmark		\checkmark			\checkmark
LAUR.	Marang-laparan	Litsea	ampla		\checkmark				\checkmark			\checkmark
LAUR.	Sablot-linis	Litsea	baractanensis			✓			\checkmark			\checkmark
LAUR.	Sablot	Litsea	glutinosa		\checkmark				\checkmark		\checkmark	✓
LAUR.	Batikuling	Litsea	leytensis	✓	\checkmark				✓	✓		\checkmark

LAUR.	Baga	Litsea	perfulva		\checkmark				✓			✓
LAUR.	Marang	Litsea	perrottetii	✓	\checkmark				✓			\checkmark
LAUR.	Puso-puso	Neolitsea	vidalii		\checkmark				\checkmark	\checkmark		\checkmark
LAUR.	Bohian	Neolitsea	villosa		\checkmark				\checkmark			\checkmark
LECYTH.	Putat	Barringtonia	racemosa	✓	\checkmark				\checkmark			\checkmark
LOG.	Curran urung	Fagraea	auriculata ssp. parviflora		\checkmark				\checkmark			\checkmark
LOG.	Balatbuaia	Fagraea	racemosa	✓	\checkmark	\checkmark	\checkmark		\checkmark		\checkmark	\checkmark
MALV.	Anilau-pantai	Colona	hastata								\checkmark	\checkmark
MALV.	Anilau	Colona	serratifolia								\checkmark	\checkmark
MALV.	Balobo	Diplodiscus	paniculatus	✓	\checkmark		\checkmark		\checkmark			\checkmark
MALV.	Lumbayau	Heritiera	javanica	✓	\checkmark				\checkmark			\checkmark
MALV.	Tan-ag	Kleinhovia	hospita				\checkmark		\checkmark			\checkmark
MALV.	Kamuling	Microcos	stylocarpa	✓	\checkmark	✓			\checkmark			\checkmark
MALV.	Malataluto	Pterocymbium	macrocrater		\checkmark				\checkmark			\checkmark
MALV.	Banilad	Sterculia	comosa		\checkmark				\checkmark	\checkmark	\checkmark	\checkmark
MALV.	Malabuho	Sterculia	oblongata	✓	\checkmark				\checkmark		\checkmark	\checkmark
MALV.	Sayapo	Trichospermum	eriopodum	✓	\checkmark				\checkmark	\checkmark		\checkmark
MELAST.	Kalingai	Astronia	cumingiana var. bicolor	✓	\checkmark				\checkmark			\checkmark
MELAST.	Badling	Astronia	cumingiana var. cumingiana	✓	\checkmark				\checkmark			\checkmark
MELAST.	Malintungau	Everettia	pulcherrima		\checkmark				\checkmark			\checkmark
MELIAC.	Malasaging	Aglaia	edulis	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Malasaging-liitan	Aglaia	elliptica	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Malasaging-pula	Aglaia	langlassei	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Bubunau	Aglaia	leucophylla	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Kuling-manuk	Aglaia	luzonensis					\checkmark	\checkmark			\checkmark
MELIAC.	Balubar	Aglaia	rimosa	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Kangko	Aphanamixis	polystachya	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Balukanag	Chisocheton	cumingianus ssp. cumingianus	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Katong-matsin	Chisocheton	pentandrus ssp. pentandrus	✓	\checkmark				\checkmark			\checkmark
MELIAC.	Kalimutain	Dysoxylum	arborescens								\checkmark	\checkmark
MELIAC.	Santol	Sandoricum	koetjape	✓	\checkmark				\checkmark			\checkmark
MORAC.	Antipolo	Artocarpus	blancoi	✓	\checkmark							
MORAC.	Rimas*	Artocarpus	communis		\checkmark				\checkmark			\checkmark
MORAC.	Nangka*	Artocarpus	heterophylla		\checkmark				\checkmark			\checkmark
MORAC.	Anubing	Artocarpus	ovata	\checkmark	\checkmark				✓			\checkmark
MORAC.	Kalulot	Artocarpus	rubrovenius	✓	\checkmark				✓		\checkmark	\checkmark
MORAC.	Gumihan	Artocarpus	sericicarpus	✓	\checkmark	\checkmark	\checkmark	\checkmark	✓		\checkmark	\checkmark

MORAC.	Himbabao	Broussonetia	luzonica var. luzonica								✓	✓
MORAC.	Upling-gubat	Ficus	ampelas var. ampelas				\checkmark		✓			\checkmark
MORAC.	Balete	Ficus	balete	\checkmark	\checkmark				✓			\checkmark
MORAC.	Kalukoi	Ficus	callosa		\checkmark				✓			\checkmark
MORAC.	Malatibig	Ficus	congesta var. congesta	✓	\checkmark		\checkmark		✓	\checkmark		\checkmark
MORAC.	Baleteng-mabolo	Ficus	cucurbitina var. cucurbitina		\checkmark				✓			\checkmark
MORAC.	Butli	Ficus	gul var. gul				\checkmark		✓			\checkmark
MORAC.	Obdas	Ficus	irisana var. validicaudata							✓		\checkmark
MORAC.	Kanapai	Ficus	magnoliifolia		\checkmark				✓			\checkmark
MORAC.	Hagimit	Ficus	minahassae	✓	\checkmark	\checkmark	\checkmark	\checkmark	✓		\checkmark	\checkmark
MORAC.	Tibig	Ficus	nota		\checkmark				✓		\checkmark	\checkmark
MORAC.	Pakiling	Ficus	odorata		\checkmark				✓			\checkmark
MORAC.	Malahauili	Ficus	septica var. salicifolia	✓	\checkmark				✓			\checkmark
MORAC.	Is-is	Ficus	ulmifolia		\checkmark				✓		\checkmark	\checkmark
MORAC.	Tangisang-bayawak	Ficus	variegata	✓	\checkmark				✓			\checkmark
MORAC.	Dolalog	Ficus	variegata var. sycomoroides	✓	\checkmark				✓			\checkmark
MORAC.	Agus-us	Trophis	philippinensis								\checkmark	\checkmark
MYRIST.	Anuping	Gymnacranthera	farquhariana var. paniculata	✓	\checkmark		\checkmark		✓			\checkmark
MYRIST.	Yabnob	Horsfieldia	costulata	✓	\checkmark				✓			\checkmark
MYRIST.	Tambalau	Knema	glomerata	✓	\checkmark		\checkmark		✓	✓		\checkmark
MYRIST.	Tanghas	Myristica	elliptica var. simiarum	✓	\checkmark				✓		\checkmark	\checkmark
MYRIST.	Duguan	Myristica	philippinensis	✓	\checkmark				✓			\checkmark
MYRS.	Katigpo	Ardisia	clementis				\checkmark		✓			\checkmark
MYRS.	Aunasin	Ardisia	pyramidalis	✓	\checkmark				✓			\checkmark
MYRS.	Paginga	Discocalyx	cybianthoides	\checkmark	\checkmark				✓			\checkmark
MYRT.	Malaruhat	Cleistocalyx	operculatus	✓	\checkmark		\checkmark		✓		\checkmark	\checkmark
MYRT.	Malaruhat-puti	Syzygium	bordenii	\checkmark	\checkmark				✓			\checkmark
MYRT.	Paitan	Syzygium	costulatum			\checkmark			✓			\checkmark
MYRT.	Lipoteng-gubat	Syzygium	curtiflorum	\checkmark	\checkmark		\checkmark		✓			\checkmark
MYRT.	Malaruhat-pula	Syzygium	decipiens	✓	\checkmark				✓			\checkmark
MYRT.	Igang	Syzygium	garciae	\checkmark	\checkmark				✓			\checkmark
MYRT.	Makaasim	Syzygium	nitidium	\checkmark	\checkmark		\checkmark		✓			\checkmark
MYRT.	Panglongboien	Syzygium	similie					\checkmark	✓			\checkmark
MYRT.	Malatampui	Syzygium	xanthophyllum	\checkmark	\checkmark				✓			\checkmark
MYRT.	Malabayabas	Tristanopsis	decorticata					\checkmark	\checkmark			\checkmark
OLAC.	Tamayuan	Strombosia	philippinensis	✓	\checkmark				\checkmark			\checkmark
OLEAC.	Kurutan-lambak	Linociera	paludosa								\checkmark	\checkmark

OLEAC.	Malakaraksan	Linociera	phanerophlebia					✓	✓
OLEAC.	Karaksan	Linociera	ramiflora	✓	\checkmark		\checkmark	✓	\checkmark
OXAL.	Balimbing*	Averrhoa	carambola		\checkmark		\checkmark		✓
PALM.	Bunga	Areca	cathecu		\checkmark		\checkmark		✓
PALM.	Pugahan	Caryota	cumingii	✓	\checkmark		\checkmark		✓
PALM.	Takipan	Caryota	rumphiana var. philippinensis	✓	\checkmark		\checkmark		✓
PALM.	Anahau	Livistonia	rotundifolia var. luzonensis	✓	\checkmark		\checkmark		\checkmark
PALM.	Anibong-liitan	Oncosperma	gracilipes	✓	\checkmark		\checkmark		\checkmark
PALM.	Anibong	Oncosperma	tigillaria	✓	\checkmark		\checkmark		\checkmark
PALM.	Sarauag	Pinanga	insignis	✓	\checkmark		\checkmark		✓
PANDAN.	. Bariu	Pandanus	copelandii	✓	\checkmark		\checkmark		\checkmark
PANDAN.		Pandanus	luzonensis	✓	\checkmark		\checkmark		\checkmark
PANDAN.	. Karagumoi	Pandanus	simplex	✓	\checkmark		\checkmark		\checkmark
POD.	Malaadelfa	Podocarpus	neriifolius		\checkmark		\checkmark		✓
ROSAC.	Dalisai	Prunus	clementis	✓	\checkmark		\checkmark		\checkmark
RUB.	Malakape	Canthium	dicoccum	✓	\checkmark		\checkmark		\checkmark
RUB.	Suyak-daga	Canthium	horridum	✓	\checkmark		\checkmark		\checkmark
RUB.	Ludek	Ludekia	bernardoi	✓	\checkmark		\checkmark		✓
RUB.	Tulibas-tilos	Micromelum	compressum		\checkmark		\checkmark		\checkmark
RUB.	Bangkoro	Morinda	citrifolia					✓	\checkmark
RUB.	Kalamansanai	Neonauclea	calycina	✓	\checkmark		\checkmark		\checkmark
RUB.	Malauisak	Neonauclea	reticulata		\checkmark		\checkmark		\checkmark
RUB.	Gusakan	Pavetta	indica		\checkmark	✓	\checkmark		\checkmark
RUB.	Adina	Pertusadina	multifolia	✓	\checkmark		\checkmark		\checkmark
RUT.	Aromata	Clausena	worcesteri	✓	\checkmark		\checkmark		\checkmark
RUT.	Ubug	Evodia	retusa		\checkmark		\checkmark		\checkmark
RUT.	Matang-arau	Melicope	triphylla		\checkmark		\checkmark		\checkmark
SAPIND.	Kubili	Cubilia	cubili	✓	\checkmark	\checkmark	\checkmark		✓
SAPIND.	Mamoko	Glenniea	philippinensis	✓	\checkmark		\checkmark		✓
SAPIND.	Ulas	Guioa	myriadenia	✓	\checkmark		\checkmark		\checkmark
SAPIND.	Alahan-sinima	Guioa	reticulata	✓	\checkmark		\checkmark		\checkmark
SAPIND.	Sarakag	Lepisanthes	tetraphylla	✓	\checkmark		\checkmark		✓
SAPIND.	Alupag-amo	Litchi	chinensis ssp. philippinensis	✓	\checkmark		\checkmark		✓
SAPIND.	Malasalab	Mischocarpus	sundaicus	✓	\checkmark		\checkmark		✓
SAPIND.	Kapulasan	Nephelium	lappaceum var. pallens	✓	\checkmark	✓	\checkmark		\checkmark
SAPIND.	Malugai	Pometia	pinnata	✓	✓		✓		✓
SAPIND.	Salab	Trigonachras	cuspidata	\checkmark	\checkmark		\checkmark		\checkmark

SAPOT.	Betis-bundok	Ganua	manticola		\checkmark				\checkmark			✓
SAPOT.	Kabiki*	Mimusops	elengi	✓	\checkmark				\checkmark			✓
SAPOT.	Alakaak-tilos	Palaquium	elliptilimbum	✓	\checkmark		\checkmark		\checkmark	\checkmark		✓
SAPOT.	Tagatoi	Palaquium	foxworthyi	✓	\checkmark				\checkmark			\checkmark
SAPOT.	Alakaak	Palaquium	gigantifolium	✓	\checkmark				\checkmark			✓
SAPOT.	Palak-palak	Palaquium	lanceolatum	✓	\checkmark				\checkmark			✓
SAPOT.	Nato	Palaquium	luzoniense	✓	\checkmark				\checkmark			✓
SAPOT.	Dulitan	Palaquium	merrillii	✓	\checkmark				\checkmark			✓
SAPOT.	Malakmalak-bundok	Palaquium	montanum	\checkmark	\checkmark				\checkmark			✓
SAPOT.	Malakmalak	Palaquium	philippense	✓	\checkmark				\checkmark			✓
SAPOT.	Duklitan	Planchonella	nitida	\checkmark	\checkmark		\checkmark		\checkmark			✓
SAPOT.	White Nato	Pouteria	macrantha	✓	\checkmark				\checkmark			✓
SIM.	Malasapsap	Ailanthus	integrifolia	✓	\checkmark				\checkmark			✓
SIM.	Malakamias	Ailanthus	triphysa	✓	\checkmark				\checkmark			✓
SONN.	Loktob	Duabanga	moluccana	✓	\checkmark				\checkmark			✓
STAPHYI	L. Anongo	Turpinia	ovalifolia	✓	\checkmark				\checkmark			✓
SYMPL.	Agosip-tungko	Symplocos	trisepala		\checkmark				\checkmark			✓
ULM.	Magabuyo	Celtis	luzonica	✓	\checkmark				\checkmark			✓
ULM.	Anabiong	Trema	orientalis						\checkmark			\checkmark
URT.	Lipa	Dendrocnide	luzonensis var. luzonensis				\checkmark	✓	\checkmark			✓
URT.	Lipang-kalabau	Dendrocnide	meyenuana forma meyeniana		\checkmark				\checkmark			✓
URT.	Alagasi	Leucosyke	capitellata	✓	\checkmark				\checkmark		\checkmark	✓
VIT	Mali-mali	Leea	guineensis	✓	\checkmark				\checkmark			✓
VIT.	Kaliantan	Leea	philippinensis				\checkmark		\checkmark			✓
	Mammaho (Polillo)	Unknown		✓	\checkmark				\checkmark			\checkmark
			Sum	167	234	14	37	28	254	23	39	273
			Percentage of Total Species	61.2	85.7				93.0			100.0

Appendix II: Identification of Local Names given to Species on Polillo Islands

Primary indicates if species are found in primary (1) or secondary (2) or both types of forest (1.5). Numbers in bold are taken to be the average for each species group. Endemism scores indicate if species are found only on Polillo and surrounding provinces (1), the Luzon area (2), were endemic to the whole of the Philippines (3), or were found in other parts of south-east Asia or the World (3.5-4).

Local Name	Common Name	Genus	Species	Family	Primary E	ndemism
1Lumakaw	Putian	Alangium	javanicum var. jaheri	ALANG.	1	4
2 Dao	Dao	Dracontomelon	dao	ANAC.	1.5	4
3Amogis	Amugis	Koordersiodendron	pinnatum	ANAC.		
4Malamanga/Mangachapoi/Mangaseniora	Pahutan	Mangifera	altissima	ANAC.	1	4
	Paho / Malapaho	Mangifera	monandra	ANAC.		2
5Ilang Ilang	Ilang-Ilang	Cananga	odorata	ANNON.	1	4
6Lanutan / Lanutan dilau	Lanutan	Mitrephora	lanotan	ANNON.	1	
	Lanutan-dilau	Polyalthia	flava	ANNON.		3
	Lapnisan	Polyalthia	oblongifolia	ANNON.		
7Ilang Ilang Gubat / Lanutan puti	Lanutan-puti	Polyalthia	suberosa	ANNON.	1	
	Lanutan-laparan	Enicosanthum	grandifolium	ANNON.		
8Dita / Batino	Batino	Alstonia	macrophylla	APOCYN.	2	4
	Malabatino	Paralstonia	clusiacea	APOCYN.		
9 Laniti	Laneteng-gubat	Kibatalia	gitingensis	APOCYN.	1.5	1
10Bayagkambing	Bayag-kambing	Pagiantha	plumeriifolia	APOCYN.	1.5	
11Malakidya	Malakidia	Ilex	loheri	AQUIF.	1	
12Biga	Biga	Alocasia	macrorhizza	ARAC.		
13Malapapaya	Malapapaya	Polyscias	nodosa	ARAL.	2	4
14Milipili	Pagsahingin	Canarium	asperum	BURS.	1	4
	Milipili	Canarium	hirsutum	BURS.		4
15Pilaway gubat	Piling-liitan	Canarium	luzonicum	BURS.	1	2
16Pilaway / Pili	Pili	Canarium	ovatum	BURS.	1	2
17Bitanghol	Bitanghol	Calophyllum	blancoi	CLUS.	1	4
	Pamintaogon	Calophyllum	soulattri	CLUS.	1	4
18Dangkalan Gubat	Dangkalan	Calophyllum	obliquinervium	CLUS.	1.5	3.5
19Bilukaw	Binukau	Garcinia	binucao	CLUS.	1.5	3
	Taklang-anak	Garcinia	dulcis	CLUS.	1	4
20 Talisay gubat	Talisai-gubat	Terminalia	foetidissima	COMBR.	1	4
21 Kalumpit	Kalumpit	Terminalia	microcarpa	COMBR.	1	4
22Pako-Pako		Cyathea	spp.	CYATH.	1	
23Katmon	Katmon	Dillenia	philippinensis	DILL.	1	3

	Katmon-kalabau	Dillenia	reifferscheidtia	DILL.	1	2
24Palosapis	Dagang	Anisoptera	aurea	DIPT.	1	1
	Palosapis	Anisoptera	thurifera ssp. thurifera	DIPT.	1	2
25 Apitong / Apitong Anahowin / Apitong Bayabasing	Hairy-leafed Apitong	Dipterocarpus	alatus	DIPT.	1	4
	Panau	Dipterocarpus	gracilis	DIPT.	1	4
	Apitong	Dipterocarpus	grandiflorus	DIPT.	1	4
26 Apitong Hagakhak	Broad-winged Apitong	Dipterocarpus	kunstleri	DIPT.	1	4
	Round-leafed Apitong	Dipterocarpus	orbicularis	DIPT.	1	1
27 Dalingdingan	Yakal-kaliot	Нореа	malibato	DIPT.	1	2
28White Lauan / Bagtikan	Bagtikan	Parashorea	malaanonan	DIPT.	1	3.5
	White Lauan	Shorea	contorta	DIPT.	1	3
29Red Lauan / Red Lauan Hagakhak	Almon	Shorea	almon	DIPT.	1	3.5
/ Red Lauan Tiaong / Red Lauan Langisan	Red Lauan	Shorea	negrosensis	DIPT.	1	3
	Tiaong	Shorea	ovata	DIPT.	1	4
30 Yakal	Yakal	Shorea	astylosa	DIPT.	1	3
	Guijo	Shorea	guiso	DIPT.	1	4
31 Pura / Mayapis	Mayapis	Shorea	palosapis	DIPT.	1	3
32Tangile	Tangile	Shorea	polysperma	DIPT.	1	3
33 Yakal Blanco	Thick-leafed Narig	Vatica	pachyphylla	DIPT.	1	1
34Kamagung	Kamagong	Diospyros	discolor	EBEN.	1.5	4
35 Bolong-eta / Adgaw	Bolong-eta	Diospyros	philosanthera var. philosanthera	EBEN.	1	4
	Anang	Diospyros	pyrrhocarpa	EBEN.	1	4
36 Malatubig	Tabian	Elaeocarpus	monocera	ELEA.	1	3
37 Matang-hipon	Matang-hipon	Breynia	vitis-idaea	EUPH.	2	4
38 Amlang	Gubas	Endospermum	peltatum	EUPH.	1.5	4
39 Takipasin	Hamindang	Macaranga	bicolor	EUPH.	2	3
40 Buta-Buta	Binungang-ahas	Macaranga	cuernosensis	EUPH.	2	3
41 Minounga	Binunga	Macaranga	tanaris	EUPH.	2	4
42 Gapas Gapas	Hinlaumo	Mallotus	mollissimus	EUPH.	2	4
43 Alum	Alim	Melanolepis	multiglandulosa var. multiglandulosa	EUPH.	2	4
44 No name, but recognised	Tiagkot	Archidendron	clypearia var. clypearia	FABAC.	1.5	4
45 Ipil	Ipil	Intsia	bijuga	FABAC.	1.5	4
46 Narra	Prickly Narra	Pterocarpus	indicus forma echinatus	FABAC.	1	4
	Narra	Pterocarpus	indicus forma indicus	FABAC.	1	4
47 Babaysakan	Babaisakan	Lithocarpus	buddii	FAG.	1	2
	Manggasiriki	Lithocarpus	ovalis	FAG.	1	2
48Laniti puti	Bitongol	Flacourtia	rukam	FLAC.	2	4

49Boutong-manok	Bago	Gnetum	gnemon var. gnemn	GNET.	1	4
50 Igang / Tapat Tapat / Lima Lima	Dangula / Sasalit	Teijsmanniodendron	ahernianum	LAMIA.	1.5	1
	Igang	Syzygium	garciae	MYRT.	1.5	
51Kamagai	Kamigai	Cryptocarya	ilocana	LAUR.	1	
52 Arahan	Arahan	Litsea	albayana	LAUR.	1	
	Ulas	Guioa	myriadenia	SAPIND.	1	2
53Marang puti	Marang-laparan	Litsea	ampla	LAUR.	2	
	Sablot-linis	Litsea	baractanensis	LAUR.	2	
54 Marang	Sablot	Litsea	glutinosa	LAUR.	2	4
	Puso-puso	Neolitsea	vidalii	LAUR.		
55Marang bitikoleen	Batikuling	Litsea	leytensis	LAUR.	2	2
56Marang dilaw / Marang aso	Marang	Litsea	perrottetii	LAUR.	2	4
57 Putat Gubat	Putat	Barringtonia	racemosa	LECYTH.	1.5	4
58Malobo / Balobo	Balobo	Diplodiscus	paniculatus	MALV.	1.5	3
59 Tan-ag	Tan-ag	Kleinhovia	hospita	MALV.	2	4
60Kiling	Kamuling	Microcos	stylocarpa	MALV.	2	3
	Karaksan	Linociera	ramiflora	OLEAC.	2	4
61 Banilad	Banilad	Sterculia	comosa	MALV.	2	4
62Malaruhat na pula / Malasaging	Malasaging	Aglaia	edulis	MELIAC.	1	4
63Malasantol	Santol	Sandoricum	koetjape	MELIAC.	1.5	4
64 Antipolo	Antipolo	Artocarpus	blancoi	MORAC.	2	3
65 Kamansai (Breadfruit)	Rimas	Artocarpus	communis	MORAC.	2	4
66 Nangka (Jackfruit)	Nangka	Artocarpus	heterophylla	MORAC.	2	4
67 Grabling / Anubing	Kalulot	Artocarpus	rubrovenius	MORAC.	1.5	2
68 Antipolo Gumihan	Gumihan	Artocarpus	sericicarpus	MORAC.	2	4
69 Opling-gubat / Malaopli	Upling-gubat	Ficus	ampelas var. ampelas	MORAC.	2	4
	Is-is	Ficus	ulmifolia	MORAC.	2	3
70 Balete	Balete	Ficus	balete	MORAC.	1	2
	Baleteng-mabolo	Ficus	cucurbitina var. cucurbitina	MORAC.	1	4
71 Tibig (small fruit)	Malatibig	Ficus	congesta var. congesta	MORAC.	1.5	4
72 Ayimit	Hagimit	Ficus	minahassae	MORAC.	1	4
73 Tibig (large fruit)	Tibig	Ficus	nota	MORAC.	1.5	4
	Dolalog	Ficus	variegata var. sycomoroides	MORAC.		4
74Tangisang-bayawak	Tangisang-bayawak	Ficus	variegata	MORAC.	1.5	4
	Malahauili	Ficus	septica var. salicifolia	MORAC.		3
75 Saging	Saging-matsing	Musa	acuminata	MUSA.	1.5	
	Abaca	Musa	textilis	MUSA.		

76 Duguan puti / pula	Tambalau	Knema	glomerata	MYRIST.	1	3
	Tanghas	Myristica	elliptica var. simiarum	MYRIST.	1	4
	Duguan	Myristica	philippinensis	MYRIST.	1	3
77 Malaruhat puti	Malaruhat	Cleistocalyx	operculatus	MYRT.	1	
-	Malaruhat-puti	Syzygium	bordenii	MYRT.		
78 Lipoting-gubat	Lipoteng-gubat	Syzygium	curtiflorum	MYRT.	1	2
	Malatampui	Syzygium	xanthophyllum	MYRT.		2
79 Makaasim	Makaasim	Syzygium	nitidium	MYRT.	1	3
80 Malabayabas	Malabayabas	Tristanopsis	decorticata	MYRT.	1	3.5
81 Tamahuyan	Tamayuan	Strombosia	philippinensis	OLAC.	1	3.5
82Bunga (Betelnut palm)	Bunga	Areca	cathecu	PALM.	1.5	
83 Pugahan	Pugahan	Caryota	cumingii	PALM.	1	
•	Takipan	Caryota	rumphiana var. philippinensis	PALM.		
84Niog	Niog (Coconut)*	Cocus	nucifera	PALM.	2	
85 Anahau	Anahau	Livistonia	rotundifolia var. luzonensis	PALM.	1.5	
86 Anibong	Anibong-liitan	Oncosperma	gracilipes	PALM.	1	2
	Anibong	Oncosperma	tigillaria	PALM.		
87Tokyong	Sarauag	Pinanga	insignis	PALM.	1	3
88 Pandan	Bariu	Pandanus	copelandii	PANDAN.	1	
	Alas-as	Pandanus	luzonensis	PANDAN.		
	Karagumoi	Pandanus	simplex	PANDAN.		
89 Balutan-ginto	Dalisai	Prunus	clementis	ROSAC.	1.5	3.5
	Taingang-babui	Gonocaryum	calleryanum	ICAC.		
90 Panabang	Kubili	Cubilia	cubili	SAPIND.	1.5	4
91 Alupag / Magluson	Alupag-amo	Litchi	chinensis ssp. Philippinensis	SAPIND.	1.5	3.5
92 Bulala	Kapulasan	Nephelium	lappaceum var. pallens	SAPIND.	1	4
93 Dulitan pasak / Dulitan	Alakaak-tilos	Palaquium	elliptilimbum	SAPOT.	1	1
	Malakmalak-bundok	Palaquium	montanum	SAPOT.	1	3
94Dulitan dilau	Dulitan	Palaquium	merrillii	SAPOT.	1	3
95Dulitan puti	Duklitan	Planchonella	nitida	SAPOT.	1	4
96Malaetmo	Magabuyo	Celtis	luzonica	ULM.	1.5	3
97 Hanadgang	Anabiong	Trema	orientalis	ULM.	2	4
Unidentified, but used with consistency						
98Kawung				PALM.	1	
99 Kaninag					1	
100Mamaho					1	