Contributions to floristics in New Guinea and species delimitation in the Wanang Forest Dynamics Plot

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Dedication

This thesis is dedicated to my mother, Alia, who has always supported my academic endeavors despite them often leading me into far-off and sometimes questionable locations.

Abstract

As the world's largest tropical island, New Guinea is host to a rich flora and fauna at the same time boasts large swaths of highly intact forested ecosystems. Despite this however, it is consistently one of the least studied tropical regions in the world with comparatively sparse collection records from throughout much of the island. This dissertation aims to expand upon prior taxonomic research on the island by resolving issues concerning species delimitation and providing resources for understanding the floristic composition of New Guinea forests.

In Chapter 1, updates and additions were made to improve the classification of New Guinea endemic *Ficus* L. (Moraceae) from three separate sections. In *F.* sect. *Dammaropsis* (Warb.) C.C.Berg, sufficient morphological, molecular, and ecological evidence supported the hypothesis that the two altitudinally separated forms of *Ficus dammaropsis* Diels were indeed separate taxonomic entities, resulting in the description of the lowland form as ***Ficus brusii*** Weiblen **sp. nov.** and an amended description for the former. From *F.* sect. *Sycidium* Miq., the species *Ficus hystricicarpa* Warb. was resurrected from synonymy under *Ficus wassa* Roxb. on account of its distinct syconia. In *F.* sect. *Papuasyce* (Corner) C.C.Berg, a prior genetic study led to the discovery of a novel cryptic species found in the altitudinal contact zone between two sister taxa. The transitional species, described as ***Ficus umbrae*** Ezedin & Weiblen **sp. nov.,** was found to exhibit a rare functionally gynomonoecious sexual system, the first of its kind reported for *Ficus*.

In Chapter 2, contributions were made to a large international collaboration towards the first comprehensive checklist of vascular plants of New Guinea. The family Moraceae was revised for New Guinea, with 357 names revised for the family and 199 species accepted for the

island. Quality control checks were independently conducted for the entire checklist as part of the revisionary process, resulting in the addition of 259 accepted taxa. The completed checklist recorded 13,634 tracheophyte species as native to New Guinea. In a separate effort, the checklist was subsequently translated into a relational database and digitized online to track future taxonomic progress across the island. Corrections and updates to the checklist are also included.

In Chapter 3, the tree flora of the 50 hectare ForestGEO plot located near the village of Wanang (Madang Province, Papua New Guinea) was systematically revised. Despite witnessing a decade of research, including two plot-wide censuses, the plot had never been subject to a formal taxonomic survey. Over time, this led to unreliable species concepts along with uncertainty in the number of tree species and their identification. The primary goal was to assess the status of the 626 putative morphospecies recognized by the end of the second census. Our survey resulted in the verification of at least 428 accepted species and morphospecies, correcting numerous errors in the process. However, due to this revision having relied heavily on prior census data containing erroneous IDs and unstable species concepts, the tree flora of Wanang remains incomplete.

Through the development of both regional and local scale floras, this thesis contributes towards our broad understanding of New Guinea's floristic richness. Comprehensive botanical surveys of a given region or locality serve as a critical foundation, providing a myriad of benefits for all biodiversity and ecology research. With thousands of new species projected to await discovery and numerous taxonomic groups yet to be revised, the island's flora is undoubtedly still in its discovery phase. This work further demonstrates the clear need for detailed (re)examination of species concepts in large taxonomic groups such as *Ficus*. Such efforts are

necessary to facilitate a more accurate portrayal of species diversity for an island that is seldom subject to scientific inquiry.

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List of Abbreviations

A	Arnold Arboretum (herbarium)
B	Botanischer Garten, Freie Universität Berlin (herbarium)
BISH	Bishop Museum (herbarium)
FDP	Forest Dynamics Plot (part of the ForestGEO network)
ForestGEO	Forest Global Earth Observatory, Smithsonian
FRI	Forest Research Institute, Papua New Guinea (institute)
GBIF	Global Biodiversity Information Facility
ING / IDN	Indonesian New Guinea
K	Royal Botanic Gardens, Kew (herbarium)
L	Naturalis Biodiversity Center (herbarium)
LAE	Forest Research Institute, Papua New Guinea (herbarium)
LAE #	Herbarium collection series for the Forest Research Institute, PNG
MIN	Bell Museum, University of Minnesota (herbarium)
MPU	Université de Montpellier (herbarium)
NG	New Guinea (region)
NGBRC	New Guinea Binatang Research Centre
NGF #	Herbarium collection series for the Forest Research Institute, PNG
PNG	Papua New Guinea
POWO	Plants of the World Online
SING	Singapore Botanic Gardens (herbarium)
TNRS	Taxonomic Name Resolution Service
UPNG	University of Papua New Guinea (herbarium)
US	National Museum of Natural History, Smithsonian (herbarium)
WCA	Wanang Conservation Area
WFDP	Wanang Forest Dynamics Plot

Preface

This thesis is an amalgamation of three separate works linked to each other in their geographical and floristic relevance to island of New Guinea. Each chapter is written as an individual scientific publication. Chapter one has been published in the *Gardens' Bulletin Singapore*. Chapter two was a large international collaboration resulting in a complete checklist of vascular plants for New Guinea and its associated islands; this work has been published in *Nature*. Chapter three is intended to be published as a separate forthcoming book with the title *Tree Flora of the Wanang Forest Dynamics Plot*. In addition, four appendices are included at the end to incorporate work towards Chapter two and the bulk of writing for Chapter three. All resulting publications have or will have one or more co-authors, so plural pronouns are used in the text where applicable. As a significant contributing author, I am responsible for a significant portion of Chapters one and three. Chapter two is unique in being a large collaboration with 99 contributing authors. Contributions made towards this work were not originally considered as part of this thesis, however a two-year delay in fieldwork due to multiple unforeseen circumstances resulted in its eventual addition and replacement of another previously planned chapter.

Chapter 1: Additions and changes to *Ficus* (Moraceae) in New Guinea with comments on the world's largest fig

This work has been published in *Gardens' Bulletin Singapore* on 27 September 2019 with the full citation provided below. Chapter 1 author contributions: Z.E. & G.D.W. conceived of the study, Z.E. wrote the manuscript, examined herbarium specimens, and compiled species descriptions. Both authors participated in review and revision of the final manuscript.

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ABSTRACT

Two new species of *Ficus* in New Guinea are described and a third species is resurrected to improve the classification of *Ficus* sect. *Dammaropsis*, sect. *Sycidium*, and sect. *Papuasyce*. *Ficus* sect. *Dammaropsis* is extraordinary in producing by far the world's largest known figs. New morphological, ecological, and molecular observations support recognising as separate species the lowland and highland forms of *Ficus dammaropsis* (Warb.) Diels sensu lato. The lowland form, described here as *Ficus brusii* Weiblen, is distinguished from the highland form by its much smaller figs that bear recurved, acuminate lateral bracts. The description of *Ficus dammaropsis* is amended to refer to the highland form with the world's largest fig and includes *F. dammaropsis* var. *obtusa* Corner. Evidence from DNA suggests pollination by distinct fig wasp species and reproductive isolation between *Ficus brusii* and *F. dammaropsis*. *Ficus hystricicarpa* Warb. (sect. *Sycidium*) is resurrected from synonymy under *Ficus wassa* Roxb. on account of its conspicuously warty and hispidulous syconia. Lastly, an ecological genetic study led to the discovery of a third species occupying an altitudinal contact zone between *Ficus itoana* Diels of hill forest and *Ficus microdictya* Diels of montane forest. These members of the New Guinea endemic *Ficus* sect. *Papuasyce* point to a rare evolutionary shift in the sexual system from functional dioecy to monoecy. Here we describe *Ficus umbrae* Ezedin & Weiblen on the basis of morphological intermediacy and molecular evidence to report the first functionally gynomonoecious *Ficus* species.

INTRODUCTION

The cosmopolitan genus *Ficus* L. (Moraceae) is one of the largest genera of angiosperms with over 870 species described to date (POWO, 2019). It is the largest member of the Moraceae and is best known for its unique obligate mutualism with pollinating fig wasps (Hymenoptera: Chalcidoidea: Agaonidae). Coevolutionary dynamics between figs and fig wasps are estimated to have spanned at least the past 75 million years (Cruaud et al., 2012). The myriad of Ficus species span the breadth of all woody plant forms including trees, shrubs, climbers, epiphytes, and hemi-epiphytes (Berg & Corner, 2005). Despite its extraordinary ecological diversity, the genus is highly recognisable in the field due to ubiquitous features including conical stipules, copious white latex, and the unmistakable fig (syconium), an inflorescence comprised of small unisexual flowers lining the inner wall of an enclosed receptacle that is tightly sealed by apical bracts. Recognising the monophyly of the genus despite its remarkable evolutionary expansion and diversification across the world, Corner (1958) stated that if it were not for other Moraceae, Ficus would be treated as a family in its own right. New Guinea has long been considered to be an important centre of diversification for the genus with 157 species or nearly 20% of the global total (Corner, 1958; Rønsted et al., 2008; Whitfeld & Weiblen, 2010). Unlike other diverse genera found throughout the island, the diversification of *Ficus* in New Guinea is thought not only to have been driven by the active orogeny of the island during the past 40 million years but also by the specialised pollination system where the evolution of host preferences in figs wasps can lead to rapid speciation (Moe et al., 2012; Weiblen, 2006). Figs comprise an integral part of New Guinea forests as they are not only among the most commonly encountered forest plants, but also serve as an ecologically important source of food for native wildlife (Shanahan et al.,

2001). They are widespread in the lowlands, especially in disturbed forests. Numbers of species are highest in the lowlands and forests up to 900 m, although there are many montane species some of which reach elevations up to 2800 m. Local taxonomic diversity and the sheer abundance of the genus can be remarkable. For example, *Ficus* alone comprises some 15% of nearly 300,000 stems above 1 cm in diameter at the Wanang 50 ha forest dynamics plot in Madang Province, Papua New Guinea (Vincent et al., 2018). Furthermore, with 37 species known from the Wanang plot, New Guinea forests appear to rival many other tropical forest plots in numbers of fig species. It is perhaps not surprising that ecological and genetic studies in New Guinea continue to uncover new taxa in this active centre of diversification. Here we treat two new endemic species and a third is resurrected to improve the classification of New Guinea Ficus, increasing to 160 the total number of species known from the island.

METHODS

Ecological genetic research (Souto-Vilarós et al., 2018), recent collecting, and field observations made by the authors and colleagues in New Guinea have led to the recognition of new species and necessitate the taxonomic changes described below. Morphological measurements were performed either manually at the MIN herbarium or digitally using high-resolution images and ImageJ software (Schneider et al., 2012) in the case of material from other herbaria. Measurements and characteristics are for dried specimens unless otherwise noted. Taxonomic descriptions are formatted to mirror those of the *Flora Malesiana* for ease of comparison with Berg & Corner (2005) and to assist in highlighting newly recognised features that distinguish taxa. Geographic distributions for *Ficus dammaropsis* and *F. brusii* were inferred from

coordinate data and locality descriptions of herbarium specimen labels (Fig. 1-1). For specimens without coordinates, localities were estimated based on the verbatim locality data given on the herbarium label using web tools such as GoogleEarth and GeoLocate.

TAXONOMIC TREATMENT

1. *Ficus dammaropsis* Diels, Bot. Jahrb, Syst. 67: 205 (1935). – *Dammaropsis kingiana* Warb., Bot. Jahrb. Syst. 13: 296 (1891) [non = *Ficus kingiana* Hemsl. (1897)]. – TYPE: Papua New Guinea, Morobe Prov., Sattelberg, c. 850 m asl, (no date), *O. Warburg 20580* (lectotype B [B 10 0294149]; isolectotypes B [B 10 0294147 & 10 0294148]). (Fig. 1-2 & 1-3)

Ficus dammaropsis Diels var. *obtusa* Corner, Gard. Bull. Sing. 18: 42 (1960); Berg & Corner, Fl. Males. Ser. I, vol. 17: 377 (2005). – TYPE: Papua New Guinea, Northern Prov., Yodda River, 1300 m asl, 21 December 1935, C.E. Carr 13942 (holotype BM; isotypes CANB, L (n.v.), SING).

Small, sparsely branched pachycaul tree up to 10 m tall, latex white and copious. Twigs 10–30 mm thick, terete to subterete, white puberulous to subglabrous, with hollow cavities; periderm flaking off. Leaves spirally arranged, elliptic to sub-ovate, 32–75 × 23–60 cm, (sub)coriaceous, brittle when dry, apex apiculate to cuspidate, base cordate, margins strongly crenate to sublobate; adaxial surface glabrous to hispidulous or ± scabrous, rarely smooth; abaxial surface white puberulous to hirtellous to subtomentose or ± scabrous; cystoliths present beneath; secondary veins 7–11 pairs, basal pair branched, tertiary veins scalariform; waxy glands often present in

axils or furcations of the lateral veins; petiole (2–)4–9(–20) cm long, glabrous, white puberulous to hispidulous to sub-strigose, the epidermis sometimes flaking off; stipules 10–30 cm long, white hirtellous to substrigose to sericeous, caducous or subpersistent on fig-bearing nodes. Figs axillary, cauliflorous, solitary or paired, subsessile or with peduncle up to 1 cm long, basal bracts often indistinct, passing into the lateral bracts, when distinct up to 5.3 cm long; receptacle ovoid to ellipsoid, 5–9 × 3.5–6 cm when dry and up to 22 × 18 cm when fresh, walls up to 1 cm thick when dry and with noticeable rumination of the central cavity, internal hairs absent, covered in numerous obtuse bracts, apex ± convex, at maturity deep red to dark purple (seed figs) or remaining greenish (gall figs); lateral bracts 1–4 × 4–6 cm, subcircular and rounded to broadly ovate and subacute, imbricate, appressed but often slightly raised upon maturity; ostiole 1–1.5 cm in diam. when dry, surrounded by suberect apical bracts; galls 2.5 × 1.9 mm.

Distribution. Highland New Guinea – Papua, Indonesia and Papua New Guinea (Fig. 1-1).

Habitat and ecology. In montane forests from (850–)1200–2600 m elevation, often found in secondary forests and abandoned garden plots. Non-pollinating wasps (*Tenka percaudata* Boucek) associated with this species have been observed with extremely long ovipositors measured at up to 24 mm in length, among the longest of all fig wasps. This adaptation appears to be associated with parasitising the galls of the pollinator, *Ceratosolen abnormis* sensu lato by piercing the unusually thick syconium, among the thickest-walled of all figs. Although seed dispersal mechanisms have been recorded for *Ficus dammaropsis* sensu lato, it is not entirely known to which form they belong. For a list of all observed animal feeders of *Ficus*

dammaropsis sensu lato, see the entry under *F. brusii* below. One collection (Streimann NGF 21089) notes "end branches hollow, with ants" suggesting potential myrmecophily and yet ants are known predators of pollinating fig wasps (Weiblen et. al., 2001).

Local names and uses. Openha (Dunantina: Wagama), Emmi (Chimbu: Masul), Minimp (Minj: Wahgi), Minimbi (Tomba: Bo-Ung), Upit (Yawan: Yau), Kolep (Amung: Kal). The young leaves are cooked as vegetable greens and eaten, often with starchy tubers or meat. Leaves used to cover food when cooking with earth ovens. Cultivated or otherwise selectively retained at the interface of garden plots and regenerating forests throughout highland New Guinea.

Etymology. Named by Otto Warburg in reference to the striking similarity of the syconia to the cones of *Agathis dammara* (Lamb.) Poir, which is in turn named after the Malay word for resin.

Additional specimens examined. INDONESIA. Papua Province: Jaba Hoea, Mt. Jaya area, PT-Freeport Indonesia Concession, 1400 m asl, 24 May 2005, *Cook 184* (K, L); Bergwald im Memektal nordlich von Talim, 1600 m asl, 18 Mar 1976, *Hiepko & Schultze-Motel 1472* (L); Jayawaijaya Distr., Angguruk Area, 1400 m asl, 12 Jun 1975, *Sinke 75* (L). PAPUA NEW GUINEA. Chimbu Province: Mu Village, near Kundiawa, 1700 m asl, 14 Oct 2004, *Weiblen GW2142* (MIN). Eastern Highlands Province: On the road to Mt. Gahavisuka-Park, N of Goroka, 2100–2300 m asl, 14 Sep 1988, *Baltisberger, Erdelmeier & Rali 11811* (L); Aujura, 1800 m asl, Oct 1944, *NGF 1113* (L). Milne Bay Province: Bank of a stream in forest, N slopes of Mt. Dayman, Maneua Range, 1370 m asl, 1 Jul 1953, *Brass 23340* (L); Above Kabebe, nr. Mt. Otto,

21 Jun 1955, *Gressitt 2310* (BISH); Raba Raba Subdist., Mayu 2, Mt. Suckling complex, 1745 m asl, 9 Jun 1972, *LAE 54998* (L). Morobe Province: Yunzaing, 1300 m asl, 8 Aug 1936, *Clemens 3816* (L); Bubuu Valley, vicinity of Bedei (Camp 1), 1844 m asl, 17 Feb 2012, *Matoi SAJ0416* (BISH, LAE, MIN); Wau Subprovince, Manki Divide, Bulolo, 1000 m asl, 26 Jul 1979, *LAE 74472* (L); Below Manki trig, Bulolo, ca. 1600 m asl, 16 Apr 1965, *NGF 21089* (BISH); Yawan Village, 1721 m asl, 26 Aug 2010, *Weiblen YS4F0403* (LAE, MIN). Oro Province. Lala River, ca. 1500 m asl, 26 Dec 1935, *Carr 14026* (BISH, L). Western Highlands Province: Terreman, on N bank of Lai River, 1.5 miles WNW of Wabag, 1.5 miles from S.D.A. Mission, 2000 m asl, 24 Jul 1964, *Flenley ANU2054* (A, K, L, LAE); Between Dona and Nondugl, temporary village on sing-sing grounds, ca. 1700 m asl, 17 Sep 1960, *Fosberg 41210* (BISH); Near Tomba village, S slope of Mt. Hagen Range, 2550 m asl, 5 Sep 1956, *Hoogland 6138* (L, US); 10 miles from Kopiago on Koroba Road, Kopiago Subdistr., 1700 m asl, 4 Nov 1968, *NGF 37347* (A, BOG, BRI, CANB, K, L, SING).

Notes. Placed in *Ficus* subg. *Sycomorus* sect. *Dammaropsis*, this species is most notable for its large figs — the largest of any in the world. Delimiting the species has remained problematic ever since Corner (1960) described *Ficus dammaropsis* var. *obtusa* from collections above 1000 m. Two forms have been informally recognised in the field as 'highland' and 'lowland' *Ficus dammaropsis*. Populations are not continuous across the landscape and no contact zone between the two has been observed. We assumed that the type of *Dammaropsis kingiana* Warb., collected at 850 m asl (*Warburg 20580*), represented the lowland form but, despite being collected at a relatively low elevation, it clearly retains the highland features of strongly pleated leaves,

sublobate margins, and obtuse, semicircular bracts on the syconia. Corner's incomplete attempt to recognize two forms might be attributed to the limited number of collections available in 1960. Later, after personally observing *Ficus dammaropsis* in New Guinea, he wrote "the species clearly calls for further investigation of living plants to ascertain both variation and wild occurrence" (Corner, 1978). With recent collections and field observations of both forms, two species can now be accurately separated. Here, we sink *Ficus dammaropsis* var. *obtusa* into synonymy with the type variety and the lowland form is newly described as *Ficus brusii*.

2. *Ficus brusii* Weiblen, sp. nov.

Similar to *Ficus dammaropsis*, but differing by laminas that are smooth and weakly pleated when fully expanded and with smaller syconia bearing recurved, acute to acuminate lateral bracts. – TYPE: Papua New Guinea, Sandaun Prov., Near the Remo River, Utai, 300 m asl, 14 November 2003, *G.D. Weiblen GW2059* (holotype LAE; isotypes MIN, A, US). (Fig. 1-4 & 1-5)

Small, sparsely branched pachycaul tree to 13 m tall, latex white and copious. *Twigs* 7–28 mm thick, terete to subterete, subglabrous or sparingly hispidulous, with hollow cavities; periderm flaking off. *Leaves* spirally arranged, elliptic to sub-ovate, 40–80 × 30–65 cm, (sub)coriaceous to subchartaceous, brittle when dry, apex apiculate to cuspidate, base cordate, margins subentire to crenate; adaxial surface glabrous, smooth or rarely ± scabrous, abaxial surface glabrous to sparingly hispidulous; cystoliths present beneath; secondary veins 8–12 pairs, basal pair branched, tertiary veins scalariform; waxy glands often present in axils or furcations of the lateral veins; petiole (2–)4–17(–23) cm long, often glabrous, rarely white puberulous to

hispidulous, the epidermis often flaking off when glabrous; stipules 10–25 cm long, glabrous to white hirtellous, caducous or subpersistent on fig-bearing nodes. *Figs* axillary or cauliflorous, often solitary, subsessile or with peduncle up to 1.2 cm long, basal bracts often distinct and up to 3.6 cm long; receptacle subglobose to ovoid, 2.9–6 × 3.2–4.2 cm when dry and 6.5–8.5 × 4.5–8 cm when fresh, walls up to 0.7 cm thick when dry, with or without small projections into the central cavity, internal hairs absent, covered in numerous bracts completely obscuring syconium wall (rarely with syconium wall partially visible), apex ± convex, at maturity golden yellow brown to orangish brown to reddish brown, often with yellow-green longitudinal streaks; lateral bracts 1.5–4 × 1.2–4 cm, (sub)acute to strongly acuminate, tips reflexed, often helicoid, fully erect upon maturity, never appressed; ostiole 3–8 mm in diam. when dry, surrounded by usually erect, non-recurving bracts; galls 1.7–2.1 × 1.4–1.7 mm; seeds 1.2–1.6 × 0.7–0.9 mm.

Distribution. Lowland New Guinea – Papua, Indonesia and Papua New Guinea (Fig. 1-1).

Habitat and ecology. In lowland forests, up to 900(–1500) m elevation, often found along streams and rivers. Common in secondary forest, degraded areas, and in garden plots. DNA barcodes from *Ceratosolen abnormis*, the pollinator of *Ficus dammaropsis* sensu lato, indicate that there is sufficient genetic divergence between lowland and highland pollinator populations to recognise them as separate fig wasp species (Moe & Weiblen, 2010). The holotype and several paratypes of the pollinator were reared from lowland *Ficus dammaropsis* sensu lato (Wiebes, 1963), suggesting that the pollinator of *F. brusii* should be regarded as *Ceratosolen abnormis* while the pollinator of *F. dammaropsis* sensu stricto awaits description. The ostiolar

pore of gall figs opens to 0.5–1 cm wide as pollen-bearing female fig wasps exit the syconia and ants infest the interior to prey on escaping females and flightless males.

Most frugivores bite or remove figs from plants but some of the small birds and bats attracted to *Ficus brusii* lap up the gelatinous contents of mature seed figs as they are extruded through the ostiolar pore (Weiblen et al., 2010). This unusual seed dispersal mechanism among figs was first observed among honeyeaters (*Meliphaga* spp.) at lower elevations of Crater Mountain, PNG (Mack & Wright, 1996). Mammal species recorded feeding on the figs of *Ficus dammaropsis* sensu lato include: Rufous Spiny Bandicoot (*Echymipera rufescens*), Spiny Bandicoot (*Echymipera kalubu*), Raffray's Bandicoot (*Peroryctes raffrayanus*), Grey Cuscus (*Phalanger orientalis*), Silky Cuscus (*Phalanger vestitus*), Spotted Cuscus (*Spilocuscus maculatus*), Greater Naked-backed Bat (*Dobsonia mollucense*), Common Long-tongued Fruit Bat (*Macroglossus minimus*), Broad-striped Tube-nosed Bat (*Nyctimene aello*), Common Tube-nosed Bat (*Nyctimene albiventer*), Lesser Tube-nosed Bat (*Paranyctimene raptor*), Geoffroy's Rousette (*Rousettus amplexicaudatus*), and the Common Blossom Bat (*Syconycteris australis*) (Shanahan et al., 2001).

Local names and uses. Alaf (Ohu: Amele), Bacan (Nobanob: Amron), Gangan (Baitabag: Amron), Hokomun (Salemben: Amben), Pindo (Wolwale: Northern One), Magsuoh (Utai: Fas), Rokquam (Wamangu: Urimo). Leaves used as plates to serve food, to wrap food, or to cook food in earthen ovens.

Etymology. Named in honour of Brus Isua of Ohu Village, Amele District, Madang Province. A field botanist and founding member of the New Guinea Binatang Research Centre, Mr Isua first assisted the senior author with PhD dissertation fieldwork during 1995–1997. Lacking formal education, Isua is a parataxonomist and discovered the first palaeotropical braconid wasp associated with figs, *Ficobracon brusi* (Van Achterberg & Weiblen, 2000). He developed the "bush laboratory" concept in 1998 where local landowners build and operate village-based field stations. The model has been successfully deployed in ecological research throughout Papua New Guinea. It demonstrates the advantage of long-term observations and collecting that is beyond the reach of foreign students and expert investigators who can participate in fieldwork or supervise only periodically. He is a co-author of at least seven peer-reviewed publications (e.g. Novotny et al., 2007) and is acknowledged for his contributions in scores of others.

Additional specimens examined. INDONESIA. **Papua Province:** Hollandia and vicinity, c. 5 m asl, Jun 1938, *Brass 8892* (L); 6 km SW of Bernhard Camp, Idenburg River, 1200 m asl, Feb 1939, *Brass 12964* (L); Albatros biv., forest, 30 m asl, May 1926, *Docters van Leeuwen 9162* (L); Orion Mts., Tenma River, 1500 m asl, 19 May 1959, *Kalkman 4086* (L); Town of Sukarnapura (Hollandia), 200 m asl, 20 Jul 1966, *Kostermans & Soegang 13* (L); Weg naar Hollandia-Binnen, c. 5 m asl, 19 Sep 1956, *Versteegh BW3933* (L); Sekoli-vlakte, O.A. Hollandia, c. 75 m asl, 15 Feb 1960, *Versteegh BW7534* (L). PAPUA NEW GUINEA. **East Sepik Province:** Near Wamangu Village, 100 m asl, 19 Oct 2004, *Weiblen, Isua & Andreas 2195* (LAE, MIN). **Gulf Province:** Lohiki Village area, junction of Lohiki and Vailala rivers, 20 m asl, 24 Jan 1966, *Schodde & Craven 4281* (L); Kerema Subprovince, Near Lohike village,

Vilala River, 25 m asl, 26 Jun 1980, *LAE 72490* (L). **Madang Province:** Ohu Village, 2 Aug 1994, *Basset s.n.* (BISH); W of Madang, Kau Wildlife Area (Baitabag Village), 100 m asl, 24 Feb 1999, *Gardner 9208* (AK); Kau Wildlife Area, Baitabag Village near Madang, 50 m asl, 24 June 1995, *Weiblen 524A* (MIN); Ohu Conservation Area, Ohu Village nr. Gum River, 100 m asl, 17 Jun 1996, *Weiblen & Isua B110* (L); Kau Wildlife Area, Baitabag village, 50 m asl, 29 Jan 2003, *Weiblen & Dumont 1744* (MIN); Kau Wildlife Area, Baitabag village, 50 m asl, 30 Jan 2003, *Weiblen & Dumont 1752* (MIN); Morox Village, 60 m, 15 Feb 2005, *Isua 2795* (MIN). **Sandaun Province:** Along Pieni River near Walwali Village, Aitape Subdistr., ca. 30 m asl, 23 Jun 1961, *Darbyshire & Hoogland 8009* (L); Yapsiei, 112 m asl, 26 Mar 2004, *Janda Y074* (LAE, MIN); Wutung Subprovince, 10 km South of Wutung Patrol Post, 60 m asl, 4 Sep 1982, *LAE 56400* (L). **Western Province:** Nomad Subprovince, Junction of Rentoul & Strickland River, 80 m asl, 11 Nov 1979, *LAE 71555* (L); Near Base Camp, Kiunga Subdist., 760 m asl, 5 Nov 1969, *NGF 45824* (L, BRI, CANB, A); Baia River survey track C along Tikawe Creek, 290 m asl, 15 Feb 2008, *Takeuchi, Gambia & Jisaka 22976* (L).

Notes. This species had long been informally recognised as the lowland form of *Ficus dammaropsis* sensu lato and included by Corner in *Ficus dammaropsis* var. *dammaropsis*. It is clearly distinct from the highland form by its weakly pleated leaves when fully expanded, smaller figs, and acuminate recurved lateral bracts. Only two specimens, *Brass 12964* and *Kalkman 4086*, were collected above 1000 m in elevation and are perceived to be the extreme limit of its range, as it is most commonly encountered below 500 m. Both the latter specimens also possess lamina margins with deeper crenation and reddish venation, which appear to

approach that of the highland-type *Ficus dammaropsis*. *Johns 9148*, collected at 3300 m among "subalpine shrubbery and grassland" represents the highest collection by far of any *Ficus* species in New Guinea. Initially assumed to be *Ficus dammaropsis*, examination of figs preserved in spirit refer the specimen to *F. brusii*. Johns' collections around Freeport (Papua, Indonesia) were made along an elevational transect from sea level to 3300 m. If the label locality is not erroneous, cultivation might account for the presence of the lowland species in such an extreme location.

Corner noted the specimens of *Kostermans & Soegang 13* and *Brownhill 1* as potentially representing a separate third variety, which he informally named *Ficus dammaropsis* var. *parvibracteata*, based on the smaller syconia. The syconia (3 × 3.45 cm) fall well within the limits of *Ficus brusii*, the smallest of which is recorded in *Weiblen & Dumont 1744* (2.9 × 3.7 cm); moreover, they share other characters that justify placement under this species such as acuminate bracts, glabrous abaxial lamina, and weakly pleated leaves.

3. *Ficus hystricicarpa* Warb. in Schum. & Lauterb., Nachtr. Fl. Schutzgeb. Südsee 244 (1905). – TYPE: British New Guinea [Papua New Guinea], [no locality, no date], *H.O. Forbes s.n.* (holotype B [B 10 0279265]). (Fig. 1-6)

Small tree to 8 m tall, latex white. ***Twigs*** 3–4 mm thick, glabrous to sparsely hispidulous, periderm often flaking when dry; internodes mostly hollow. ***Leaves*** spirally arranged; lamina oblong to elliptic to subobvate, 12–25 × 5–9 cm, symmetric to slightly asymmetric, membranous

to (sub)coriaceous, base cuneate to obtuse, margin entire to coarsely crenate to dentate, often lobate when juvenile or with basal lobes at maturity, ± revolute; adaxial surface dark green, abaxial surface light green, cystoliths on both sides, lower surface drying darker than above or ± similar; secondary veins (4–)6–9 pairs, the basal pair running close to margin, up to 1/3 the length of the lamina, mostly unbranched, tertiary venation scalariform to reticulate; waxy glands at axils of lateral veins; petiole 0.8–2.5(–4) cm long, varying lengths on the same twig, glabrous to sparsely white hispidulous, epidermis often flaking off; stipules subulate, stiff and ± keeled, often finely striate, 0.3–1 cm long, glabrous to sparsely appressed puberulous, early caducous to (sub)persistent. ***Figs*** axillary and solitary or cauliflorous along trunk, on short clusters of spurs up to 7 mm long; peduncle up to 1.2 cm long; receptacle 0.8–1.4 × 1–1.5 cm when dry, covered with irregular acuminate warts, each terminating with a single hair with basal swelling, green to yellow-green at maturity, apex ± convex; ostiole up to 0.3 cm in diam. when dry, usually with few erect lateral bracts, often surrounded by an overhanging rim of warty outgrowths from the syconia; internal hairs sparse and minute or absent.

Distribution. Known only from Forbes' collection and recent material from Mt. Wilhelm in Madang Province, Papua New Guinea. Forbes' reference to British New Guinea is consistent with his 1885 expeditions to the mountains of southeastern New Guinea (Van Steenis-Kruseman & Van Steenis, 1950).

Habitat and ecology. Occurs in mid-montane forests, 1700–2700 m elevation. Unlike the bird-dispersed *Ficus wassa* with figs that ripen to a deep red colour and are dispersed by birds, the

yellow-green colour and cauliflorous placement of figs corresponds to a fruit syndrome associated with seed dispersal by fruit bats and other mammals rather than by birds (Shanahan et al., 2001).

Local names and uses. None recorded.

Etymology. Named by Otto Warburg; derived from *hystrix* = 'porcupine' in Greek + *carpus* = 'fruit' in Latin.

Additional specimens examined. PAPUA NEW GUINEA. **Madang Province:** Mt. Wilhelm vegetation plot 1700C, 1700 m asl, 2 Nov 2012, *Munzinger 6897* (MPU); Bananumbu, 1700 m asl, 21 Jun 2013, *Isua & Legi BAG-049* (MIN); Bananumbu, 1700 m asl, 20 Jun 2013, *Isua & Legi BAG-045* (MIN); Kiagimanigi, 2700 m asl, 22 Feb 2013, *Isua & Legi KM 95-007* (MIN).

Notes. This member of *Ficus* subg. *Sycidium* sect. *Sycidium* was synonymised into *Ficus wassa* by Berg & Corner (2005) as it was presumed to be an aberrant form of the latter that occurred in New Guinea. Recent field observations support the resurrection of this species on the basis of its figs with greenish colour at maturity and conspicuous, spiny warts each terminating in a single large bristle.

4. *Ficus umbrae* Ezedin & Weiblen, **sp. nov.**

Similar to *Ficus microdictya* Diels but is distinguished by larger syconia with thicker walls, figs with pustules, and wider leaves. Also differing from other members of *Ficus* sect. *Papuasyce* (monoecious *Ficus microdictya* and functionally dioecious *F. itoana* Diels) in having trees of two sexes, one bearing figs with pistillate florets and neutered staminate florets; the other bearing figs with functional staminate florets and pistillate florets producing either seed or insect galls. – TYPE: Papua New Guinea, Madang Prov., Degenumbu, Mt. Wilhelm transect, 1700 m asl, 2 October 2015, *Souto & Sisol DEG-IMI-008* (holotype LAE). (Fig. 1-7 & 1-8)

Tree to 20 m tall. ***Twigs*** 3.5–5.5 mm thick, glabrous, hollow; periderm of older parts ± flaking off. ***Leaves*** spirally arranged; lamina elliptic to oblong, 11–20 × 6.5–11 cm, symmetric, coriaceous, apex shortly acuminate, base subcuneate to rounded, margin entire; upper and lower surfaces glabrous and smooth; cystoliths present beneath only; lateral veins 6–10 pairs, the basal pair running ± parallel to the margin up to (1/4–)1/3 of the lamina length, unbranched, tertiary enation uniformly reticulate; paired or single waxy glands in the axils of the basal lateral veins (rarely absent); petiole 5–7.5 cm long, glabrous, the epidermis flaking off at its extremities; stipules 1.5–2.7 cm long, glabrous, early caducous. ***Figs*** functionally gynomonoecious, cauliflorous on clustered stout branched or unbranched leafless branchlets on trunk, often near the base); peduncle 2–3 cm long; basal bracts three, 3–4 mm long, subverticillate, coriaceous, glabrous; receptacle depressed-globose to (sub)pyriform, 2–2.8 × 2–3.5 cm when fresh, glabrous with pustules, syconia walls 3–6.5 mm thick, without lateral bracts, reddish to purplish brown at maturity, apex ± concave, ostiole 4.5 mm diam., ± prominent, internal hairs absent. Seed figs bearing pistillate florets and neutered staminate florets. Gall figs bearing staminate florets and

pistillate florets of two types. Pedicellate, short-styled florets with funicular stigmas are galled by *Ceratosolen* pollinators whereas sessile, long-styled florets with capitate stigmas set seed.

Distribution. Known from two localities, Mt. Wilhelm in New Guinea and Mt. Kavangi in New Britain.

Habitat and ecology. Occurs in mid-montane forests, around 1700 m elevation in mainland New Guinea and 800–1000 m in New Britain. Field observations on the mainland New Guinea suggest this species occurs in the contact zone between the lowland *Ficus itoana* (100–1200 m) and *F. microdictya* (upper montane, 1500–2000 m). The figs are pollinated by an unnamed *Ceratosolen* species (Souto-Vilarós et al., 2018) that appears to be morphologically intermediate between the pollinator of *Ficus itoana*, *Ceratosolen armipes* Wiebes, and that of *F. microdictya* (Souto-Vilarós et al., 2018), currently known as *Ceratosolen* sp. "kaironkensis" *nomen nudum* as it too lacks formal description (Weiblen, 2004). Recent molecular evidence placed the pollinator of *Ficus umbrae* as sister to *C.* sp. "kaironkensis" (Souto-Vilarós et al., 2018).

Local names and uses. None recorded.

Etymology. From classical Latin *umbra*- 'shadow' or alluding to a forest spirit. The name recognises Wanamo, the dog-headed spirit or *masalai* regarded by the people of Degenumbu as the guardian of their forests, the type locality of this species.

Additional specimens examined. PAPUA NEW GUINEA. **East New Britain:** Mount Kavangi, near Malpas, Wide Bay, ca. 800 m, 10 Jun 1995, *Weiblen 406* (A, LAE); Mount Kavangi, near Malpas, Wide Bay, c. 1000 m, 10 Jun 1995, *Weiblen 421* (A, LAE). **Madang**: Degenumbu, Mt. Wilhelm transect, 1700 m asl, 3 Oct 2015, *Souto & Sisol DEG-IMI-010* (MIN).

Notes. This third species of *Ficus* subg. *Sycomorus* sect. *Papuasyce* was initially recognised as differing from *Ficus itoana* and *F. microdictya* during fieldwork by Brus Isua along a transect from Upper Ramu to Mount Wilhelm and was thought to be a hybrid of the latter two. Bayesian admixture analysis of microsatellite genotypes from the type locality suggest that *Ficus umbrae* is genetically distinct from *F. microdictya* and *F. itoana*, albeit with some gene flow among the three (Souto-Vilarós et al., 2018). Morphologically, *Ficus umbrae* appears more similar to *Ficus microdictya* than to *Ficus itoana* and phylogenetic analysis resolved the former two as sister taxa with strong support (Souto-Vilarós et al., 2018). Despite its close affinity with *Ficus microdictya*, the volatile chemicals that attract pollinators to the figs are more similar to those of *F. itoana* (Souto-Vilarós et al., 2018).

These patterns suggest a possible hybridisation event in the past between *Ficus microdictya* and *F. itoana* in an elevational contact zone, but rather than recognise *F. itoana* × *microdictya*, there are several lines of evidence to support *F. umbrae* as a separate species. First, Bayesian analysis of microsatellite genotypes suggests that there are three genetically distinct lineages in sect. *Papuasyce* (Souto-Vilarós et al., 2018). Second, a population genetic and experimental hybridisation study of related New Guinea figs showed that distinct species can be maintained

even in sympatry despite some degree of gene flow when divergent pollinator species differ in their preferences for (and performance on) different host species (Moe & Weiblen, 2012). Lastly, each of the three *Ficus* species is pollinated by a morphologically and genetically distinct fig wasp species (Souto-Vilarós et al., 2018).

Discussion

This contribution to the taxonomy of New Guinea figs was inspired by David Mabberley's mentor, E.J.H. Corner. As a young student in 1992, the second author came across Corner's reprints in the library of the herbarium at Lae, Papua New Guinea. Mentors had discouraged studying New Guinea figs as "too big" and "too complex" and yet here were Corner's notes outlining clear problems in need of attention. After following in his footsteps for 27 years, it seems fitting to return to the question of *Ficus dammaropsis*. The largest syconia in the world fit perfectly with his Durian Theory—a pachycaulous tree in the centre of diversity for the genus was obvious evidence for the origin of the fig from a multibracteate-urceolate ancestor during the post-Jurassic (Corner, 1978). Pachycaul *Dammaropsis*, he posited, then gave rise to the leptocaulous lines of *Ficus* in New Guinea and around the world. There is now plenty of evidence to conclude that he was completely wrong (Clement & Weiblen, 2009). Or was he? In relating the New Guinea endemic *Antiaropsis* and New Caledonian *Sparattosyce* to *Ficus dammaropsis* on the basis of urceolate inflorescences bearing involucral bracts, it turns out that Corner (1978) had hit upon the key feature uniting *Ficus* with the tribe Castilleae (Moraceae). Their sister group relationship would not be recognised until 26 years later (Datwyler & Weiblen, 2004). Contrary to Corner's assertion, neither did *Ficus* originate in the "post-Jurassic

Solomon Islands" nor does phylogenetic evidence support pachycauly as the ancestral condition. So, while his theory may have been wrong, as always, his observations were right on the mark.

Our work was further motivated by Corner's poetic statements like "…it is clear that the wasps have classified the figs better than the botanists" (1955) and "there is such a close interaction between all the fig-insects, the flowers, and the atmosphere inside the fig, that…no detail of construction or chemistry can be neglected" (1988: 527). His writings continue to serve as an invitation to the field and to observe with care. In our case, contemplating the fig wasps and unusual sexual systems of *Ficus* sect. *Papuasyce* led to the discovery of *Ficus umbrae*.

Monoecious species such as *Ficus microdictya* produce seeds and pollen while supporting pollinators in the same syconium. Species such as *Ficus itoana* bear syconia of two types on separate trees (Weiblen, 2000). These syconia are morphologically gynodioecious but functionally dioecious. Seed figs have pistillate florets and neutered staminate florets whereas gall figs have functional staminate florets and pistillate florets, the latter being galled by pollinators instead of producing seed. Interactions between variable style lengths and ovipositor lengths are known to mediate whether syconia are functionally male, female, or hermaphroditic (Weiblen, 2004). With monoecy as the ancestral condition of the genus and an apparent transition to functional dioecy in *Ficus* subgenus *Sycomorus* (Weiblen, 2000), *Ficus microdictya* in *Ficus* sect. *Papuasyce* represents a rare evolutionary reversal to the ancestral monoecious condition. Berg & Corner (2005) reported uncharacteristic style length variation in *Ficus itoana* relative to other functionally dioecious species. Instead of short-styled florets in gall figs and

long-styled florets in seed figs, they reported pistillate florets of both types in seedbearing and pollen-bearing figs. We observed the same in *Ficus umbrae* but unlike *F. itoana*, the gall figs produce seed in addition to pollen. Souto-Vilarós et al. (2018) erroneously described this condition as functional androdioecy but, as a matter of fact, *Ficus umbrae* is functionally gynomonoecious. This newly discovered sexual system possibly represents an intermediate step in the co-evolutionary dynamics of fig pollination and an invitation for future study.

In closing we suggest that the first author, a third-generation student of Corner, like the second author before him, and Mabberley before him, continue to demonstrate that much is yet to be learned from the lives of plants. More than 50 years after scientific reductionism threatened to extinguish the study of whole organisms, Corner (1963) wrote, "…I have been rent…by two forces which would make of me a student of the microcosm of protoplasm and a disciple of its greatness. They are the forces splitting biology into macromolecules and macro-organisms, and I do not know how this rift may be spanned." and "The young botanist…models molecules and chromosomes, and works very largely in vitro". We think he was prescient in offering hope that "Nevertheless, if biology is not to stand still, the pendulum will return and its amplitude will be the strength of those who have put their trust in the macrocosm". Recognising that the multi-generational pendulum has indeed swung in favour of natural history, we dedicate our work to E.J.H. Corner and his student, D.J. Mabberley.

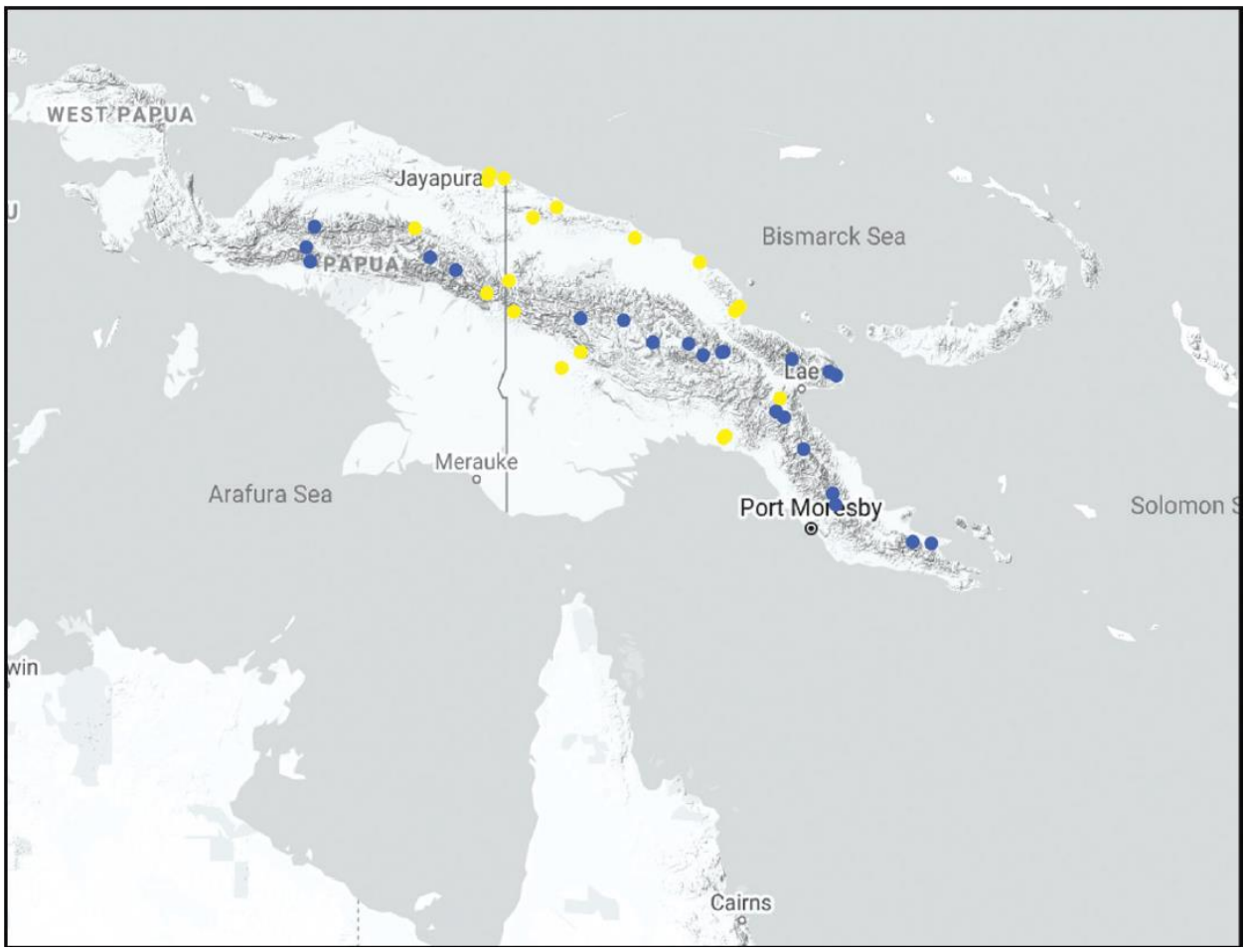

Figure 1-1. Distribution map illustrating the altitudinal separation of *Ficus brusii* and *F. dammaropsis*. The lowland species, *Ficus brusii*, (yellow) is commonly found below 900 m asl whereas *F. dammaropsis* (blue) is commonly encountered above 1200 m.

Figure 1-2. *Ficus dammaropsis* Diels. (A) Longitudinal cross section of a gall fig showing ostiolar bracts, lateral bracts and ruminate receptacle bearing short-styled pistillate florets in the central cavity and ostiolar staminate florets in bud. (B) Pleated leaves and stipules enclosing the

shoot apex. (C) Freshly stewed leaves served during a meal at Mu Village, Chimbu Province, PNG. (D) Syconium post-pollination exhibiting obtuse lateral bracts. A from *Weiblen 2956*. B–D from *Weiblen 2142*. [See species description for dimensions.] (Photos: A, R. Montgomery; B–D, G. Weiblen).

Figure 1-3. *Ficus dammaropsis* Diels. (A) Habit of a mature tree at Mu Village, Chimbu Province, PNG. (B) The senior author with large, mature syconia at Yawan, Morobe Province, PNG. A from *Weiblen 2142*. [See species description for dimensions.] (Photos: A, G. Weiblen).

Figure 1-4. *Ficus brusii* Weiblen. (A) Lateral cross-section of a pre-receptive gall fig bearing sparse lateral bracts. (B) Lateral cross-section of post-pollination gall figs displaying galled pistillate florets and ostiolar staminate florets in bud. (C) Pre-receptive syconia displaying acuminate, recurved lateral bracts. (D) Mature seed fig extruding gelatinous seed-bearing mass through the ostiole. A from *Ulai G 050*; B from *Weiblen 524A*; C from *Isua B 186*; D from *Weiblen & Dumont 1744*. [See species description for dimensions.] (Photos: G. Weiblen).

Figure 1-5. *Ficus brusii* Weiblen. (A) Lamina and syconium bearing fewer lateral bracts than *F. dammaropsis*. (B) Branch displaying shallowly pleated leaves compared to *F. dammaropsis* (WIAD Conservation Area, Ohu, Madang). (C) Brus Isua in 2002 at Yuat River, East Sepik Province, PNG. A from *Isua B 110*. [See species description for dimensions.] (Photos: G. Weiblen).

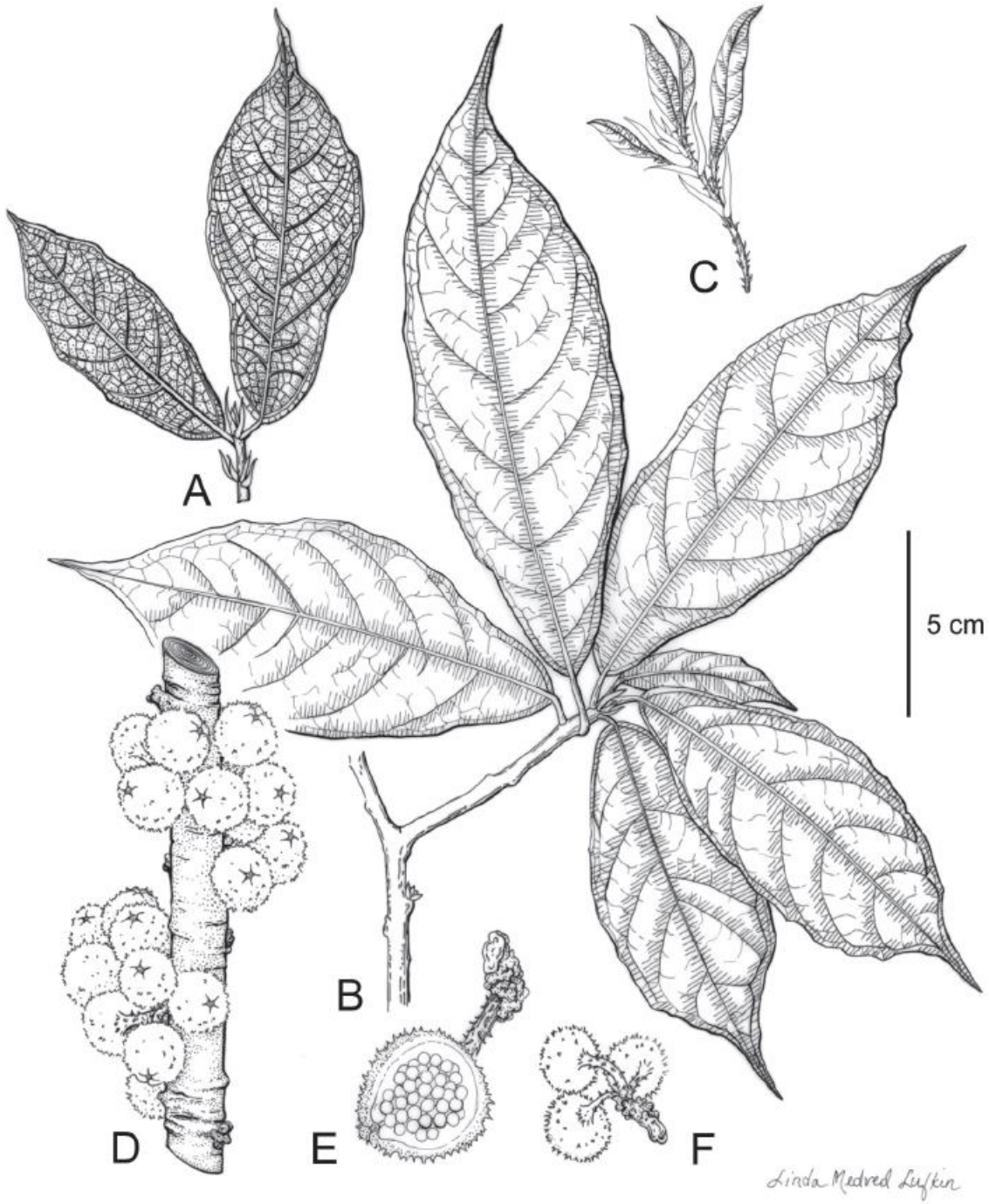

Figure 1-6. *Ficus hystricicarpa* Warb. (A) Shoot apex displaying abaxial leaf surfaces. (B) Branch displaying adaxial surface of leaves. (C) Expanding shoot apex displaying stipules and epidermal prickles. (D) Cauliflorous figs on short shoots. (E) Fig in lateral section displaying

achenes and pointed, warty epidermal protrusions on the surface of the receptacle. 2×scale. (F) Pedunculate figs. From *BAG-049*.

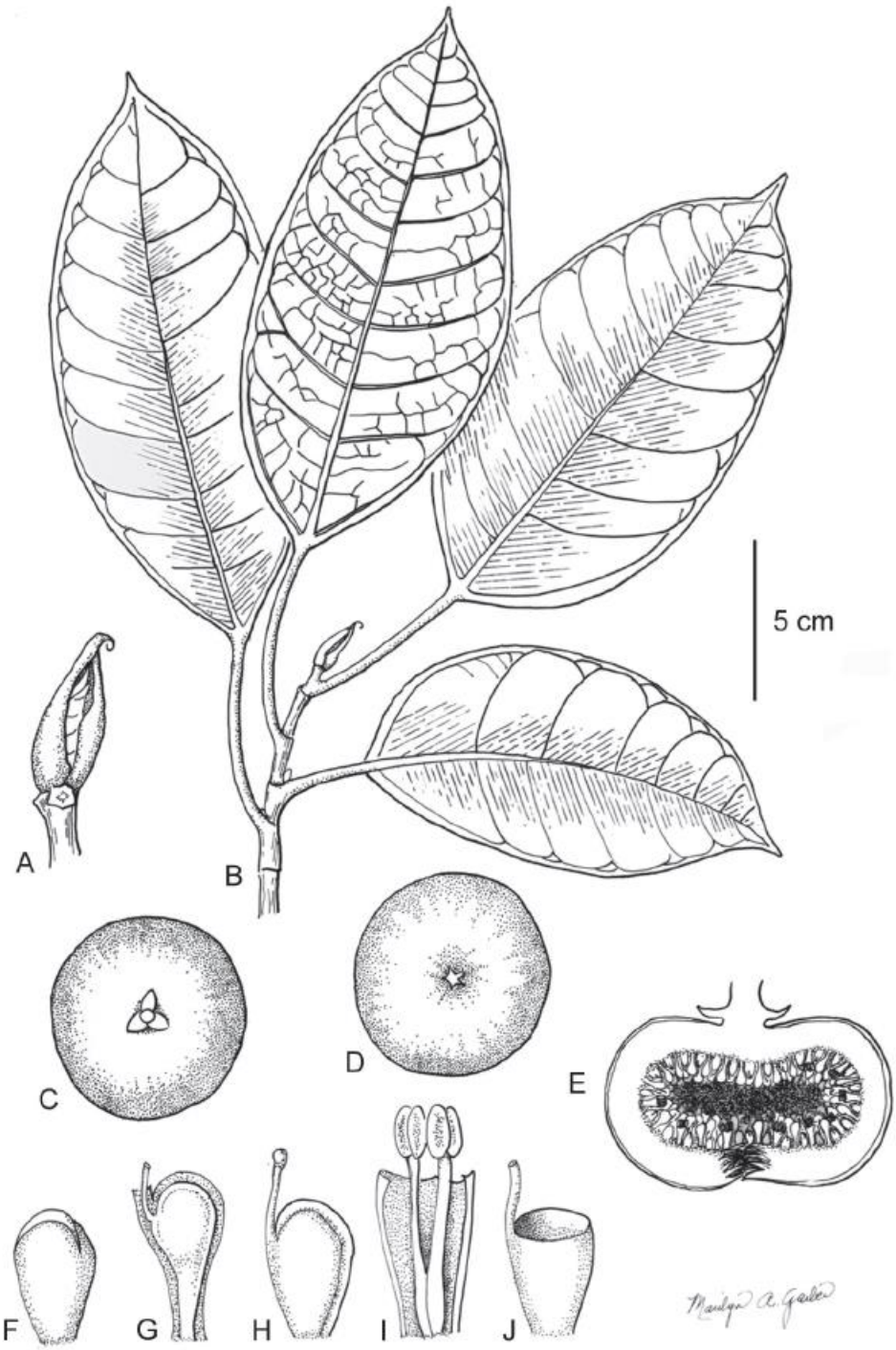

Figure 1-7. *Ficus umbrae* Ezedin & Weiblen with monoecious syconia. (A) Terminal bud with stipules; 2x scale. (B) Leafy branch. (C) Basal view of syconium displaying three persistent basal bracts. (D) Apical view of syconium displaying ostiolar bracts. (E) Lateral cross-section of

syconium displaying interlocking ostiolar bracts, dispersed staminate florets, and pistillate florets; 1.5× magnification. (F) Achene enclosed in gamophyllous perianth. 15× scale. (G) Short styled pedicellate pistillate floret with gamophyllous perianth. 15× scale. (H) Long-styled sessile floret. 15× scale. (I) Staminate floret with one of two bracts cut away. 15× scale. (J) Galled pistillate floret exhibiting fig wasp exit hole. 15× scale. A–D from *Souto & Sisol DEGIMI-010*; F–J from *Weiblen GW421*.

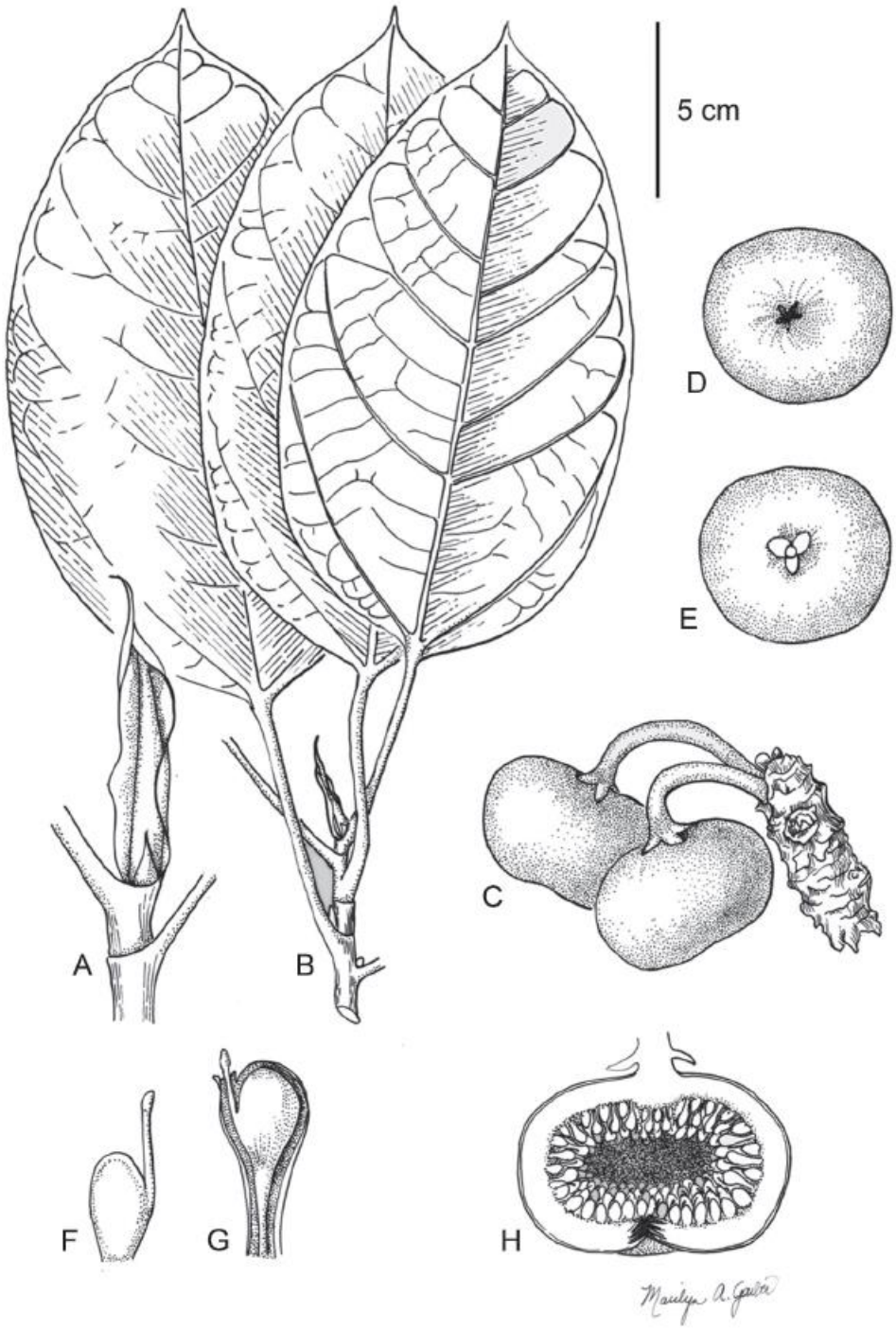

Figure 1-8. *Ficus umbrae* Ezedin & Weiblen with syconia bearing pistillate florets. (A) Terminal bud with stipules; 3×scale. (B) Leafy branch. (C) Cauliflorous spur bearing syconia (D) Apical view of syconium displaying ostiolar bracts. (E) Basal view of syconium displaying three,

persistent basal bracts. (F) Long-styled sessile floret. 15× scale. (G) Pedicellate, pistillate floret with gamophyllous perianth. 15× scale. (H) Lateral cross-section of syconium displaying interlocking ostiolar bracts and pistillate florets. 1.5×scale. A-B from *Souto & Sisol DEGIMI-008*; C-I from *Weiblen GW406*.

Chapter 2: Contributions towards a checklist of the vascular plants of New Guinea

This work has been published in *Nature* on 5 August 2020 with the full citation provided below. This paper represents a large international collaborative effort, with many authors contributing to the final manuscript. Each author contributed towards revising a specific taxonomic group of their expertise for the island's flora. Chapter 2 author contributions: Z.E. and G.D.W. revised the family Moraceae for New Guinea. In addition, Z.E. independently conducted quality control checks for the whole checklist, resulting in the addition of 259 accepted taxa from various families initially excluded in error. All authors participated in review and revision of the final manuscript. In-text references and figure numbers have been reformatted for this thesis. All extended data tables, figures, and supplemental information are excluded here and may be consulted in the original publication. Reviewed and accepted taxa checked by Z.E. for the checklist prior to publication are listed in Appendix 1 whereas corrections and updates thus far made to the paper and checklist by Z.E. following its publication are given in Appendix 2.

Cámara-Leret, R., Frodin, D.G., ... Zhang, L.-B. & van Welzen, P. [99 authors] (2020). New Guinea has the world's richest island flora. *Nature* 584: 579–583. https://doi.org/10.1038/s41586-020-2549-5

Following publication of the manuscript, Z.E. and G.D.W. translated the final checklist into a relational database, with Z.E. curating the database, correcting erroneous records, and tracking all newly published species. This database was published online as part of the Minnesota Biodiversity Atlas hosted by the Bell Museum; a link to the database is provided below. The online checklist may be updated at a future date.

Weiblen, G.D. & Ezedin, Z. (2020). A Dynamic Checklist of the Flora of New Guinea. Minnesota Biodiversity Atlas. https://bellatlas.umn.edu/checklists/checklist.php?clid=135&emode=1.

ABSTRACT

New Guinea is the world's largest tropical island and has fascinated naturalists for centuries (Frodin 2007; Conn 1994). Home to some of the best-preserved ecosystems on the planet (Mittermeier et al. 1998) and to intact ecological gradients—from mangroves to tropical alpine grasslands—that are unmatched in the Asia-Pacific region (Paijmans 1976; Roos et al. 2004), it is a globally recognized centre of biological and cultural diversity (Loh & Harmon 2005; Cámara-Leret & Dennehy 2019). So far, however, there has been no attempt to critically catalogue the entire vascular plant diversity of New Guinea. Here we present the first, to our knowledge, expert-verified checklist of the vascular plants of mainland New Guinea and surrounding islands. Our publicly available checklist includes 13,634 species (68% endemic), 1,742 genera and 264 families—suggesting that New Guinea is the most floristically diverse island in the world. Expert knowledge is essential for building checklists in the digital era: reliance on online taxonomic resources alone would have inflated species counts by 22%. Species discovery shows no sign of levelling off, and we discuss steps to accelerate botanical research in the 'Last Unknown' (Souter 1963).

INTRODUCTION

Great uncertainty remains as to the number of New Guinea plant species known to science, with conflicting estimates ranging from 9,000 to 25,000 species (Good 1960; Supriatna et al. 1999). To narrow this range, here we catalogue the entire known vascular flora (angiosperms, gymnosperms, ferns and lycophytes) of mainland New Guinea and its surrounding islands (hereafter 'New Guinea'; Fig. 2-1a, Extended Data Fig. 1). We do so through a large-scale collaborative effort in which 99 plant experts verified the identity of 23,381 taxonomic names derived from 704,724 specimens (see Methods). Overall, we find that New Guinea supports 13,634 described species, 1,742 genera and 264 families of vascular plants (Supplementary Tables 1, 2). This suggests that New Guinea is the world's most floristically diverse island, with a known vascular plant flora 19% larger than the 11,488 species recorded in Madagascar (Madagascar Catalogue 2019) and 22% larger than the 11,165 species recorded in Borneo (http://www.plantsoftheworldonline.org, accessed 27 April 2019). New Guinea contains almost three times the 4,598 spermatophyte species of Java (Backer & Bakhuizen van den Brink 1968) and 1.4 times the 9,432 vascular plant species of the Philippines (Pelser et al. 2011–)—the only Malesian island regions for which Floras have been published. The vascular plant flora of New Guinea is divided between two political entities (Fig. 2-1a): Papua New Guinea, with 10,973 species, has 44% more species than Indonesian New Guinea (Papua Barat and Papua provinces), which has 7,616. Papua New Guinea also has more genera (1,654 versus 1,511) and families (260 versus 248). These differences partly arise from the lower collecting density in Indonesian New Guinea (Conn 1994; Frodin 2007) (Fig. 2-1a). Nevertheless, the order of country rankings in plant diversity is unlikely to change with further collections because Papua

New Guinea has a larger area, and surface area is the strongest predictor of island plant diversity (MacArthur & Wilson 1967). Our species total for Papua New Guinea differs markedly from the 29,756 species that were presented in an unverified list of the Global Biodiversity Information Facility (Webb et al. 2010) and our total number of genera for New Guinea is 28% lower than the 2,437 unverified genera reported in a previous macroecological study (Hoover et al. 2017). Together, these differences underscore the need for expert validation in the digital era, which we discuss below.

FLORISTIC PATTERNS

Five species-rich families make up 35% of the flora of New Guinea: Orchidaceae (2,856 species), Rubiaceae (784), Ericaceae (438), Poaceae (376) and Myrtaceae (352) (Fig. 2-1b, Extended Data Table 1). Orchidaceae account for 20% and 17% of the flora of Papua New Guinea and Indonesian New Guinea, respectively. The floristic importance of orchids is comparable to that in other megadiverse countries such as Ecuador (23% of total flora) and Colombia (15%) (Ulloa Ulloa et al. 2017). The five largest genera of vascular plants in New Guinea are Bulbophyllum (658 species; Orchidaceae), Dendrobium (614 species; Orchidaceae), Syzygium (207 species; Myrtaceae), Ficus (179 species; Moraceae) and Rhododendron (171 species; Ericaceae) (Fig. 2-2, Extended Data Table 2). Of the 1,742 genera found, 13 have more than 100 species and make up 21% of all species, whereas 692 genera are represented by a single species in New Guinea.

ENDEMISM

Plant endemism in New Guinea is remarkably high: it is the only Malesian island group with more endemic than non-endemic species (9,301 endemic species; 68% of the total). This preponderance of endemic species was noted in earlier studies, although these were based on smaller floristic samples (Good 1960; van Welzen et al. 2005). The uniqueness of New Guinea within Malesia may be explained by its greater land surface area and habitat diversity (Roos et al. 2005); its location, marking the junction between Malesia, Australia and the Pacific; and its highly complex tectonic history (Baldwin et al. 2012). Geographically, 53% of the endemic species have been found only in Papua New Guinea and 24% occur only in Indonesian New Guinea. Of the total species from Papua New Guinea, 64% are endemic, and 58% of the total species from Indonesian New Guinea are endemic. Such high richness of endemic species means that both countries have a unique responsibility for the survival of this irreplaceable biodiversity. Given the general trend of plant endemism to increase with elevation (Steinbauer 2016), the conservation of ecosystems along altitudinal gradients is particularly critical. Angiosperms have higher species endemism (71%) than ferns and lycophytes (46%) or gymnosperms (41%). Endemism within families is highly uneven, with just eight angiosperm families comprising 50% of all endemics: Orchidaceae (2,464 endemic species), Rubiaceae (669), Ericaceae (431), Arecaceae (257), Myrtaceae (255), Gesneriaceae (218), Apocynaceae (196) and Lauraceae (195) (Fig. 2-1c). The families with the highest proportions of endemism are Ericaceae (98% of species endemic), Gesneriaceae (96%) and Zingiberaceae (95%). All New Guinea species of *Vaccinium* (Ericaceae) are endemic and over 95% of species of *Begonia* (Begoniaceae), *Cyrtandra* (Gesneriaceae), *Glomera* (Orchidaceae), *Psychotria* (Rubiaceae), *Rhododendron* (Ericaceae), *Saurauia* (Actinidiaceae) and *Taeniophyllum* (Orchidaceae) are endemic. There are 61 endemic

genera in New Guinea and these contain 164 species (ranging from 1–17 species per genus) or 2% of the endemic species (Extended Data Table 3). However, molecular research is urgently needed to test the monophyly of endemic genera, as phylogenetic data are absent for 59% of these (for example, GenBank: https://www.ncbi.nlm.nih.gov/Taxonomy/TaxIdentifier/tax_identifier.cgi).

LIFE FORMS

There are 3,962 species of trees in New Guinea, and these account for 29% of the flora (Fig. 2-3). The most-diverse 'tree families' (that is, those in which more than 50% of species are trees) are Myrtaceae (329 tree species), Lauraceae (240), Euphorbiaceae (204), Phyllanthaceae (167) and Moraceae (161). For comparison, Amazonia has 2.6 times more tree species, but in an area 6.4 times larger (ter Steege et al. 2019). Taxonomic monographs have been completed for Moraceae for Flora Malesiana (an international project initiated in 1950 that aims to name, describe and inventory the vascular plants of the Malay Archipelago [van Steenis 1950]), and partly for Euphorbiaceae and Phyllanthaceae, but monographs are urgently needed for the large families of trees Lauraceae and Myrtaceae (Supplementary Tables 3, 4). Species with 'non-tree' life forms (herbs, epiphytes, shrubs, climbers, palms and tree ferns) account for 71% of the vascular plant diversity of New Guinea (9,672 species; see Methods). The endemism of non-tree species resembles that for trees (68%) and the majority of the species diversity in New Guinea's endemic genera consists of non-trees (63% of species). Non-tree species diversity is greatest in Orchidaceae, Rubiaceae, Poaceae, Ericaceae and Arecaceae, and non-tree species of these families constitute about one third of the New Guinea flora. Except for Ericaceae, Flora

Malesiana accounts are lacking for these species-rich non-tree families (Supplementary Tables 3, 4).

EXPERT KNOWLEDGE IN THE DIGITAL ERA

We sought to ascertain what the total number of vascular plant species reported for New Guinea would be if we resolved names using online tools rather than expert knowledge. To assess this, we first submitted the list of 23,381 unique names to the Taxonomic Name Resolution Service (TNRS), an online name standardization platform (Boyle et al. 2013) that is regularly used in macroecological studies (Lamanna et al. 2014). We found that TNRS accepted 17,518 vascular plant species, or 75% of the names in the original list, whereas our 99 experts accepted 53%. There were significant differences in the number of species reported by TNRS and by experts; the numbers ranged from 0–275 species per family (mean, 16 ± 35; Wilcoxon signed-rank test, $V = 1{,}712$, $P < 0.001$). We reviewed all accepted TNRS names to assess whether these were native to New Guinea, because even accepted names can have geographic errors (non-native taxa). We found that 14% of taxonomically valid TNRS species were false presences. The families with the greatest incidence of false presences were Orchidaceae (244 species; 10% of total false presences), Poaceae (7%), Fabaceae (5%) and Myrtaceae (3%). To assess the quality of our checklist, we also performed an independent comparison with a New Guinea list in Plants of the World Online (POWO; http://www.plantsoftheworldonline.org, accessed 21 December 2019). POWO is a dynamic taxonomic portal based on mined literature that aims to become the most comprehensive single information resource covering all vascular plants by 2020. We found that POWO accepted 13,073 species for New Guinea, of which 1,714

species were synonyms and/or non-native taxa according to experts—making the final species count in POWO 17% lower than ours. Still, the POWO list had 259 native and accepted species (that is, not synonymized) that experts missed and which were subsequently added to the checklist. Overall, the independent comparisons with TNRS and POWO confirm the high quality of our checklist and highlight the need for expert knowledge in the digital era. Although New Guinea lags behind other tropical regions in taxonomic effort, uncertainty in taxonomic names and geographic occurrences is common even in better-studied regions. For example, an improved knowledge of the size of the Amazonian tree flora (ter Steege et al. 2019) was only achieved after a series of steps that reduced uncertainty (ter Steege et al. 2016; Cardoso et al. 2017)—underscoring the importance of dynamic lists and international collaboration networks. Because the importance of online taxonomic tools will continue to grow in the digital era, collaboration among taxonomists, ecologists and maintainers of online synonymy portals will be essential to enhance the quality of online tools such as TNRS.

Completing the New Guinea Flora

Our checklist with resolved plant names, geographic distributions and life forms (Supplementary Tables 1, 2) represents the first, to our knowledge, large-scale international attempt to catalogue the entire native flora of New Guinea beyond local lists (Coode et al. 1997). Since the publication of the Flora of Java 50 years ago (Backer & Bakhuizen van den Brink 1968) and that of the Philippines in 2011 (Pelser et al. 2011–), ours is the only other published vascular plant checklist of a large Malesian island or island group. An expert-vetted checklist for New Guinea will be invaluable for conservation planning, as accepted plant names and geographic distributions are the basis of policy-relevant International Union for Conservation of

Nature (IUCN) Red List assessments, and are also used for modelling the effects of changes in climate and land use on species ranges. In addition, an authoritative checklist of plant names will improve the accuracy of biogeographic studies (for example, bioregionalization, molecular phylogenies) and trait-based approaches. DNA sequence data are lacking for most taxa in New Guinea, and our checklist will enable more-precise targeting of taxa for sequencing in species-rich groups with poor generic delimitation and high endemism (for example, Lauraceae). Finally, our checklist will aid in the discovery and characterization of more species by taxonomists. By cataloguing 13,634 plant species in the world's most biodiverse island in one year, our rapid collaborative assessment—facilitated by centuries of botanical collections and digital verifiable records—can also serve as a model for accelerating research in other hyperdiverse areas (for example, Borneo and Sumatra). Three conditions will help to increase the speed at which verified species checklists are produced in other hyperdiverse regions: (i) specimens and literature are accessible, physically and digitally in online portals; (ii) family experts exist and their institutions support them; and (iii) coordinator(s) have clear goals, time-delimited guidelines and promote international collaboration.

Species discovery shows no sign of levelling off, especially for non-tree life forms (Fig. 2-4) and we propose six steps to accelerate the cataloguing of the New Guinea flora. First, training the next generation of resident plant taxonomists is urgently needed. The plants of New Guinea have been studied mostly by people who are not residents (Conn 1994), and 40% of the experts in our consortium are either retired or within ten years of turning 65 (International Plant Names Index, https://www.ipni.org). Unless the number of resident taxonomic leaders increases, the future of taxonomy in New Guinea will continue to depend on foreign experts. Thus, in-

country and international training programmes (for example, postgraduate studies, parataxonomy courses [Webb et al. 2010; Basset et al. 2000]) will continue to be essential both for documenting the flora of the region and to increase exchange with Malesian plant taxonomy experts. To build capacity at all levels—from Indigenous citizen scientists to postgraduate students—universities and botanical gardens should align their training and research plans, and partner with embedded institutions such as non-governmental organizations (NGOs). Second, international-scale efforts to digitize and unify historical collections—as proposed by the Distributed System of Scientific Collections initiative (https://www.dissco.eu), for example—are critically needed to underpin research and to repatriate type specimens in digital format. So far, Indonesia's largest herbarium (Herbarium Bogoriense) has digitized around 20,000 type specimens (http://ibis.biologi.lipi.go.id/) but not the general collection; the Royal Botanic Gardens, Kew, the Royal Botanic Gardens and Domain Trust in Sydney and Singapore Botanic Gardens have digitized less than 30% of their New Guinea collections, and the Australian National Herbarium and the Papua New Guinea Forest Research Institute just 50%; the Naturalis Biodiversity Center in Leiden has photographed all specimens and most label information is available online; and only Queensland Herbarium is almost fully digitized. It is insufficient to digitize herbaria, however, if there are high rates of specimen misidentification (Goodwin et al. 2015). Thus, our third recommendation is that critical taxonomic research—especially in species-rich genera (Extended Data Table 2)—needs long-term institutional and financial support if substantial advances are to be made. Otherwise, erroneous taxonomic determinations will persist, causing species numbers to be over- or underestimated. For example, the early twentieth century boom in botanical discoveries in New Guinea (Fig. 2-4) was largely due to Rudolf Schlechter, who

described more than 1,000 new species and had long-term support. Often, scientists trained abroad who return home encounter heavy teaching loads, large administrative obligations and low salaries (Goss 2011). This may explain why only two complete Flora Malesiana accounts, and few genera in multi-authored accounts, have been written by an Indonesian person, and none by an individual from Papua New Guinea. Currently, there are very limited career opportunities for plant taxonomists in Indonesian New Guinea and Papua New Guinea. Boosting the role of resident botanists in understanding the New Guinea flora will thus require governmental measures that create jobs, improve professional conditions for taxonomists and reward scientific productivity and merit. A fourth step will be to increase the number and quality of user-friendly plant field guides (Conn & Damas 2019). This will be crucial to raise awareness of the region's plants and enhance collecting, identification and cataloguing efforts. As a fifth step, countries should support more international collaborations, because reciprocal exchanges to co-write taxonomic papers provide tangible benefits to Flora projects (Newman et al. 2017). Finally, collecting effort is still low (fewer than 25 collections per 100 km2 throughout much of New Guinea [Conn 1994]; Fig. 2-1a) and land-use change is an increasing threat (Cámara-Leret et al. 2019), so more botanical exploration is therefore urgently needed if unknown species are to be collected before they disappear. Considering that 2,812 new species have been published since 1970, and that larger and higher-diversity genera still need to be tackled, we estimate that in 50 years 3,000–4,000 species will be added to the number of vascular plants in New Guinea. Species discovery, however, will ultimately depend on enough experts being available to study the large number of collections that have been amassed in the past decades (Extended Data Fig. 2), including thousands of specimens that remain unidentified (Extended Data Table 4).

Knowledge on the flora of New Guinea has remained scattered for too long, which has limited basic and applied research in this highly diverse tropical wilderness area. Here, we have built an expert-verified checklist of New Guinea's 13,634 known vascular plant species and made it openly available to the global community. The checklist suggests that New Guinea is the most floristically diverse island in the world and that its high level of endemism is unmatched in tropical Asia. Our work demonstrates that international collaborative efforts using verified digital data can rapidly synthesize biodiversity information. In doing so, such initiatives inform other branches of science and pave the way for the grand challenge of conserving New Guinea's rich flora.

METHODS

Study area

We defined the study area as the region encompassing the main island of New Guinea and the surrounding smaller islands that were connected to mainland New Guinea during the Last Glacial Maximum. We delimit it by selecting areas within a depth of −120 m of mainland New Guinea from the General Bathymetric Chart of the Oceans (http://www.gebco.net) (Extended Data Fig. 1). Accordingly, the study area spans a latitudinal range of 0.08° S to 10.66° S and a longitudinal range of 129.42° E to 150.21° E and excludes the Moluccas and Kai Islands to the west, Bougainville and the Solomon Islands to the east and the Micronesian islands to the north. Large islands in our study area include New Guinea, the Aru islands, the Raja Ampat islands, Biak, Yapen, New Britain, New Ireland and the Louisiade, Admiralty and Western islands.

Data compilation

An initial list of plant names for the study area was compiled from specimen data after four steps. First, we downloaded specimens within the extent of our study area from the Global Biodiversity Information Facility (GBIF, https://www.gbif.org/occurrence/download/0064983-160910150852091, n = 394,821 records), Consortium of Pacific Herbaria (CPH, https://www.re3data.org/repository/r3d100012011, n = 30,188), Australasian Virtual Herbarium (AVH, http://avh.ala.org.au, n = 42,714) and Kew Herbarium Catalogue (http://apps.kew.org/herbcat/, n = 4,618). Second, we obtained herbarium specimen records from institutional repositories of the Naturalis Biodiversity Center (n = 189,382), Royal Botanic Gardens, Kew (n = 56,522) and University of Papua New Guinea (n = 17,929). Third, we downloaded type specimens from the Harvard University Herbaria (https://kiki.huh.harvard.edu/databases/specimen_index.html, n = 5,571), Natural History Museum (https://data.nhm.ac.uk, n= 1,325), New York Botanical Garden (http://sweetgum.nybg.org/science/collections, n = 1,236), Royal Botanic Garden Edinburgh (https://data.rbge.org.uk/search/herbarium, n = 1,200), Smithsonian National Museum of Natural History (https://collections.nmnh.si.edu/search/botany, n = 1,025), Missouri Botanical Garden (http://www.tropicos.org, n = 51) and Muséum National d'Histoire Naturelle (https://science.mnhn.fr/institution/mnhn/search, n = 32). Fourth, we obtained data curated by taxonomists for Orchidaceae (n = 12,830), Arecaceae (n = 3,684), Araliaceae (n = 1,713) and Cyatheaceae (n = 1,662). We manually unified headers and standardized entries for the fields of family, genus, species, collector name, collector number, date and elevation. Family

circumscriptions were based on the Angiosperm Phylogeny Group IV (angiosperms; APG IV 2016), on the Pteridophyte Phylogeny group (ferns and lycophytes; PPG I 2016) and on a previous study (gymnosperms; Christenhusz et al. 2011). All records from outside the study area were removed (that is, from Sumatra, Java, Borneo, Bali, Komodo, Flores, Moluccas, Solomon Islands and Bougainville). Names of collectors were verified using the Cyclopaedia of Malesian Collectors (http://www.nationaalherbarium.nl/FMCollectors/). Collectors' names that were absent from the Cyclopaedia of Malesian Collectors were reviewed by R.C.-L. and D.G.F., the latter an expert on the history of biological exploration in New Guinea (Frodin 2007). We applied different quality filters to clean scientific names. First, fungi, lichens, algae, bryophytes and marine species (for example, sea grasses) were excluded. Second, doubtful species identifications (for example, 'cf.', 'sp. nov.', 'aff.', 'sp.') were classified to generic level. The list of genera was then used as the basis to query TNRS (Boyle et al. 2013). Misspelled genera were manually corrected and doubtful cases excluded. We removed all known hybrids from the analyses. The resulting list of 23,381 taxonomic names was submitted to TNRS for verification.

Expert review

From April to November 2018, 99 taxonomic, floristic and monographic experts (see author list) of the New Guinea flora reviewed the list of original names in their respective families of expertise (Supplementary Tables 1, 2). Each expert verified whether the original list of names was correctly resolved by TNRS, and included additional information about taxonomy (basionym name, basionym year), geographic range (native, endemic, distribution in Indonesia and/or Papua New Guinea) and life form (tree, herb, shrub, epiphyte, palm, etc.). When experts considered that a name that was accepted by TNRS was not correct, they wrote the correct name

and cited the source(s) for these changes. Similarly, when experts considered a species not to be native, they were asked to write an explanation (for example, geographic error, taxonomic misidentification). Finally, experts also included names that had been missed from the original list (n = 1,263). To assess the discrepancy between TNRS and expert verification, we compared the total number of accepted species in both lists for 254 plant families by using a Wilcoxon signed-rank test. We then performed an independent comparison against a list of 13,073 accepted species names contained in POWO for the 'New Guinea' locality (http://www.plantsoftheworldonline.org, accessed 21 December 2019). POWO was launched in 2017 with an initial focus on tropical Africa, but aims to become a single point of access for authoritative information on all plant species by 2020. Accordingly, for the names in the POWO list that were missing in our checklist, experts assessed whether they were incorrect (that is, synonyms) and/or not native to the study area, and which names were correct and native. The former represent false presences in POWO; the latter represent species that experts overlooked and which were subsequently included in the final checklist.

Life forms and species discovery over time

To assess the percentage of tree and non-tree species within each family, we considered 'non-trees' to comprise the following life forms that lack distinct secondary wood growth or have multiple woody stems: herbs, epiphytes, shrubs, climbers, palms and tree ferns (Fig. 2-3). Families in which more than 50% of the species were trees were considered 'tree families'. To assess the rate at which species names in the checklist have been described and accepted, we compiled the year of publication of basionyms from the primary literature, the International Plant

Names Index (https://www.ipni.org) and the Tropicos database (https:// tropicos.org). To map collections of native species (Fig. 2-1a), we discarded duplicate records (that is, those with the same collector name, collector number, latitude and longitude) and records that lacked coordinates or that had coordinates within the sea. This resulted in a total of 153,979 unique records. A richness map using a 25 × 25-km grid was built in R (R Core Team 2019) using commands from the libraries raster (Hijmans & van Etten 2019) and letsR (Vilela & Villalobos 2015) and artwork was designed using QGIS (QGIS Development Team 2020).

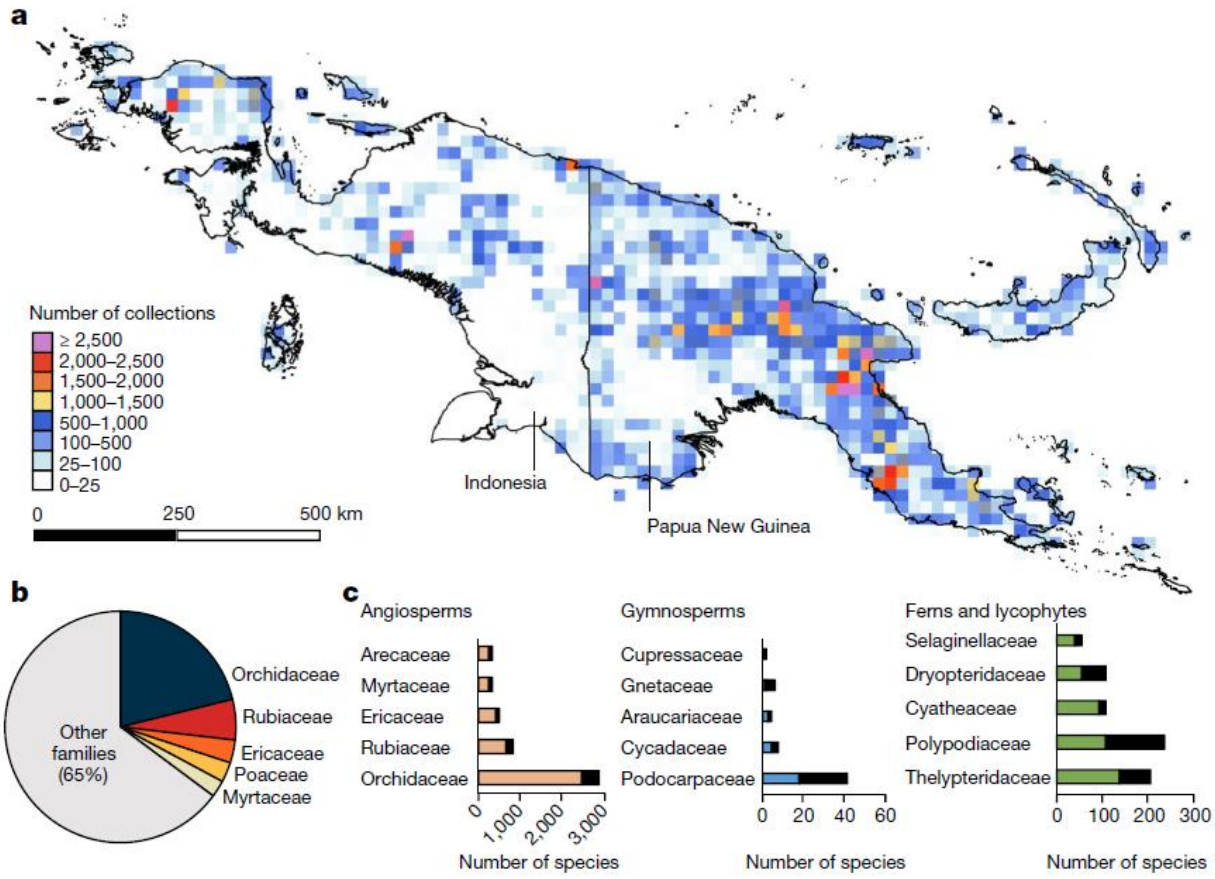

Figure 2-1. Floristic patterns in New Guinea. (A) Map of the study area of mainland New Guinea and surrounding islands, showing the number of digitized collections per grid cell of 25 × 25 km. (B) The five plant families that comprise 35% of the flora. (C) Families with highest species endemism in angiosperms (orange), gymnosperms (blue) and ferns and lycophytes (green), arranged by increasing number of endemic species. Black bars depict the number of non-endemic species.

Figure 2-2. Representatives of species-rich genera with more than 80 species in New Guinea. (A) *Bulbophyllum*. (B) *Dendrobium*. (C) *Crepidium*. (D) *Taeniophyllum*. (E) *Oberonia*. (F) *Phreatia*. (G) *Glomera*. (H) *Syzygium*. (I) *Rhododendron*. (J) *Cyrtandra*. (K) *Timonius*. (L) *Freycinetia*. (M) *Saurauia*. (N) *Begonia*. (O) *Medinilla*. (P) *Ficus*. (Q) *Myristica*. (R) *Psychotria*. (S) *Vaccinium*. Photograph credits: A.S. (a–f), W.J.B. (g, s), Y.W.L. (h), T.U. (i–l, o, q), M.S.A. (m, n) and Z.E. (p, r).

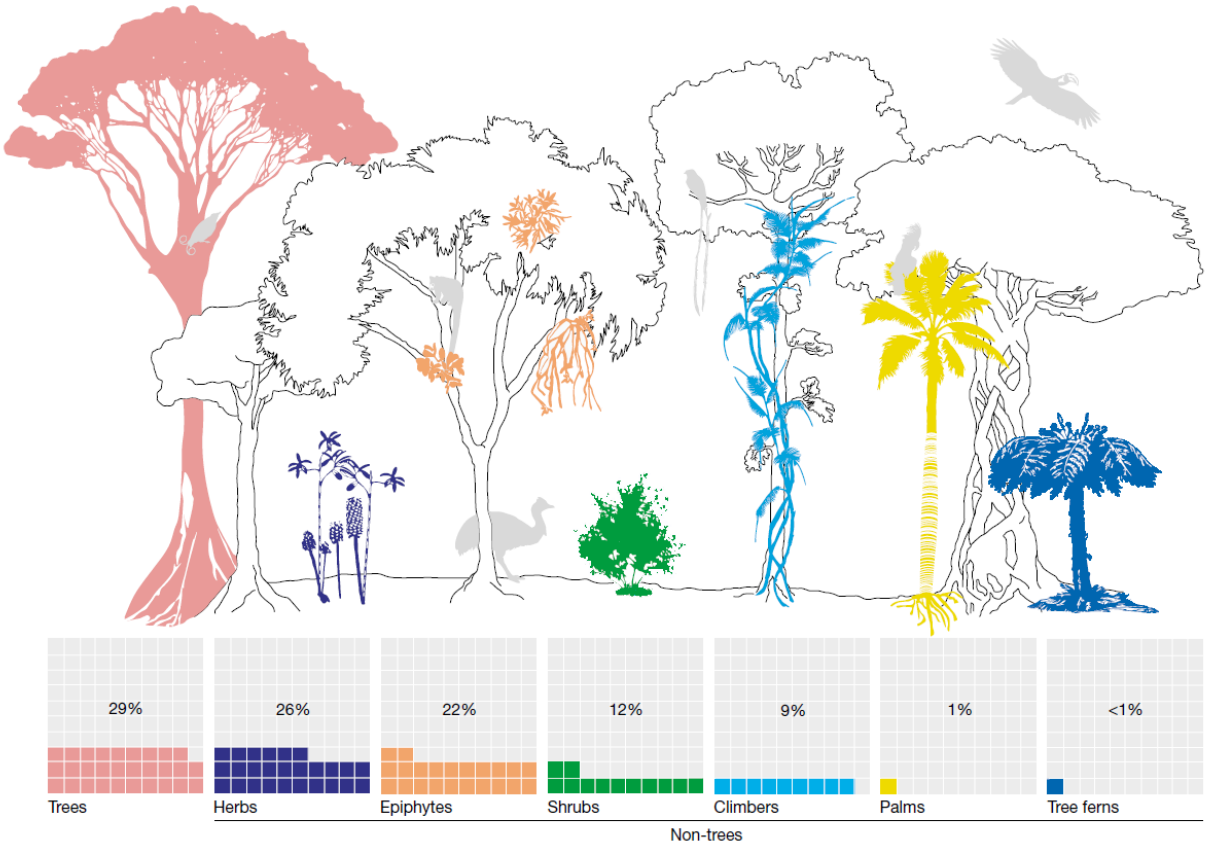

Figure 2-3. Breakdown of the New Guinea flora by life form. Fraction of species that are trees (pink), herbs (dark blue), epiphytes (orange), shrubs (green), climbers (light blue), non-climbing palms (yellow) and tree ferns (mid blue).

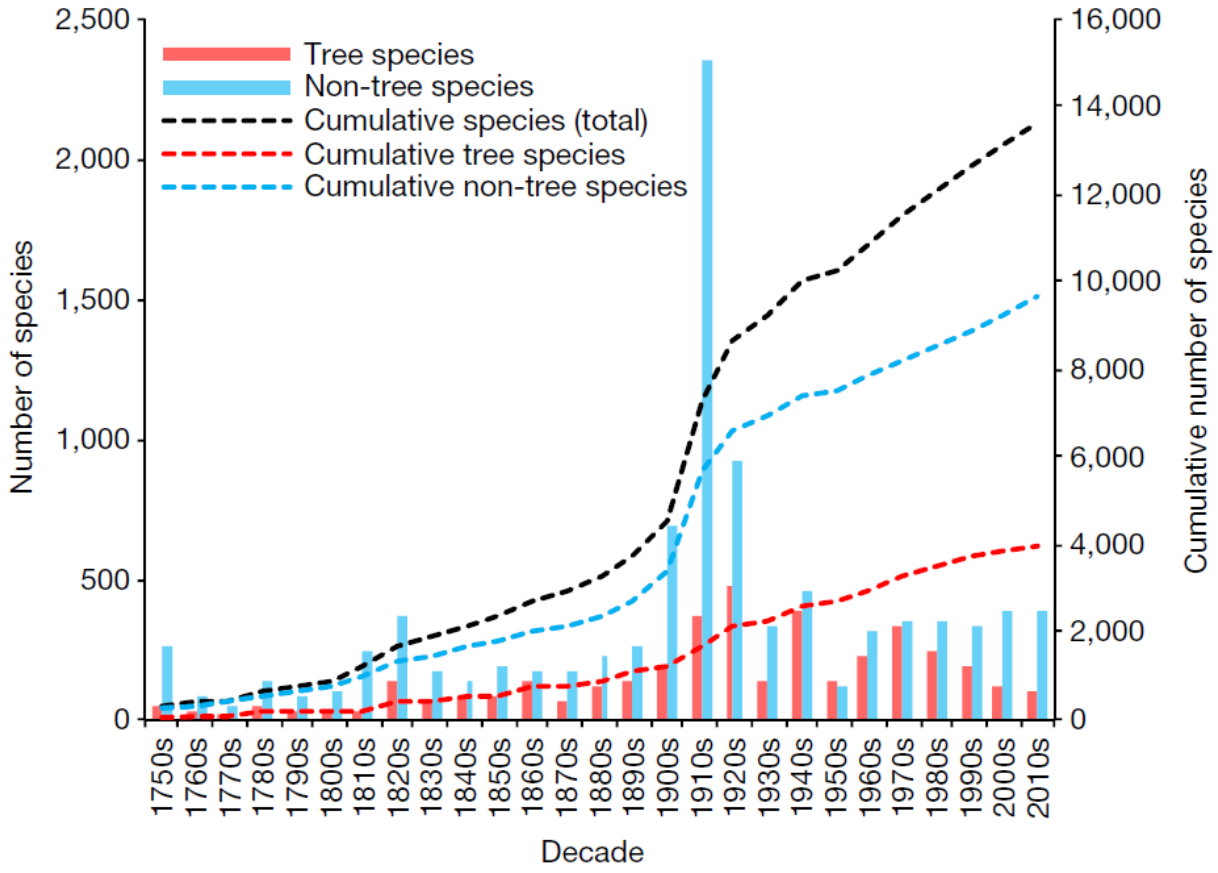

Figure 2-4. Species described per decade in New Guinea. The number of plant species (basionyms) described per decade from 1753 to 2019, grouped into tree species (red bars) and non-tree species (blue bars); and the cumulative number of verified species of trees (red dotted line), non-trees (blue dotted line) and total (black dotted line).

Chapter 3: Partial Tree Flora of the Wanang Forest Dynamics Plot

This chapter is to be published as part of a book. Chapter 3 author contributions: Z.E. and Wanang field assistants conducted the plot's floristic survey, collected, and sorted specimens, whereas Z.E. independently examined herbarium specimen data both in person and online, verified species names, and compiled all species accounts. Partially completed accounts of all 428 accepted species recognized thus far are given in Appendix 3 while examples of a select few completed species accounts are given in Appendix 4.

ABSTRACT

New Guinea's floristic diversity is exceptionally rich yet remains poorly studied compared to other tropical island systems. The 50-hectare Wanang Forest Dynamics Plot (WFDP; Madang Province, Papua New Guinea) is the only large permanent forest plot in New Guinea and the Oceanian region and is one of the few places which facilitates research aimed at better understanding the island's floristic diversity and ecology. Established in 2008 and having undergone two censuses since, the plot had not yet been subjected to a formal taxonomic treatment. Over time, the lack of a formal floristic treatment and specimen-based identification of taxa led to confusion over proper identification of the 626 morphospecies that were being recognized. This resulted in incorrect and inconsistent application of scientific names, erroneous identifications of individual trees, and incoherent species concepts. The lack of a stable tree flora has continued to have significant downstream consequences for many ecological research projects carried out at the plot site which depend on a stable and accurate taxonomy. Presented here is a comprehensive revision of the WFDP's tree flora, based on renewed fieldwork at the plot site where species concepts were revised using fresh vegetative material. Several thousand individual collections from the plot were made and examined while fresh, with 1,292 of those subsequently dried as vouchers. Verification of species names was based on detailed comparison of fresh specimens taken at Wanang against digitized New Guinea collections as well as in-person visits to herbaria. The total number of verified tree taxa thus far known to occur within the plot's boundaries is 428, with 32 of these representing unknown or potentially undescribed morphospecies. An additional 19 taxa were collected in the areas immediately surrounding the plot, with high likelihood of occurring inside. Due to this floristic revision being based entirely

on prior census data, the tree flora of the WFDP should not be considered complete as there is potential for additional unassessed taxa to be present inside the plot.

INTRODUCTION

The Wanang Forest Dynamics Plot (WFDP) is a 50 ha permanent forest plot located within the Wanang Conservation Area (WCA), an 11,000 ha protected tract of largely undisturbed forest located in the middle Ramu River basin of Madang Province, Papua New Guinea (5°13'39.7"S, 145°04'47.2"E; Fig. 3-1). It forms part of the Forest Global Earth Observatory (ForestGEO), a network of 76 permanent plots used to for the long-term monitoring and study of the world's forests (Davies et al. 2021). Although the size of each plot varies widely from 2–52 ha, the protocols used in data collection at each site remains the same. The goal of ForestGEO is to increase understanding of forest dynamics, ecology, and biodiversity through the long-term monitoring of forests globally (Anderson-Teixeira et al. 2015). Since the establishment of the first forest dynamics plot at the Barro Colorado Island of Panama in 1981, the now global consortium of forest plots has resulted in several publications on forest ecology and diversity (Erikson et al. 2014; Memiaghe et al. 2016; LaManna et al. 2017; Lutz et al. 2018; Piponiot et al. 2022).

Due to its location and circumstances surrounding its establishment and management, the WFDP stands apart from other FDPs in the ForestGEO network. As the only permanent forest plot in the Melanesian region, it represents a critical foundation in facilitating long-term research to better understand the often understudied forests of this region (Vincent et al. 2018). Of particular consequence is the location of the plot in the Ramu basin and more specifically within the broader protected area of the WCA. The Ramu basin is known to experience the second highest rates of deforestation and resource extraction of all lowland river basins in PNG after the Sepik (Shearman & Bryan 2011), with relatively fewer areas of intact lowland forest remaining.

This heightened level of development has continued to affect indigenous communities across the basin, including at Wanang. Recognizing the threat posed by logging industries operating in the region, the representative clans of Wanang, together with the assistance of researchers, formed a conservation agreement whereby separate tracts of forested ancestral lands passed down through each clan for generations were combined into a protected area collectively managed by the community. This resulted in the establishment of the WCA in 2000, the first indigenous led and managed conservation area in PNG (Fig. 3-1). In order to better preserve and study the forest, the 50 ha WFDP was eventually established in 2008 (Fig. 3-2). Due to these circumstances, it remains the only plot in the ForestGEO network to be entirely managed by an indigenous community. Furthermore, much of the fieldwork at the plot site is conducted by locals from the community who are trained by scientists in data collection, monitoring techniques, and field identification.

Prior census data

Since its establishment, the WFDP has been host to two plot-wide censuses (2008-9 and 2015-16), four smaller censuses, and numerous ecological and zoological studies conducted at the site. From these data, a number of ecological studies have been published (Whitfeld et al. 2012a, 2012b, and 2014; Vincent et al. 2018). At the end of the most recent plot-wide census, a total of 261,406 individual stems were recorded from the plot, assigned to a total of 626 putative morphospecies identified by the census teams. However, due to inconsistencies in how the censuses were conducted and the species identified, the species count was largely believed to be inaccurate by both scientists and locals. Previous reported estimates of tree species diversity at

the WFDP ranged from a rough estimate of ca. 500 (Anderson-Teixeira et al. 2015) to 576 (Vincent et al. 2018). However, following the most recent census dataset, a cumulative total of 626 species codes were still in use, with each having at least one stem registered under it. The uncertainty in the counting of taxa became a source of uncertainty at Wanang, hindering – or perhaps in some cases even undermining – active efforts in forest ecology research. More importantly, a detailed botanical inventory had never been carried out at the site previously, neither prior to nor during the first census and as a result, species concepts were never uniformly assessed nor properly understood.

The initial census was led by botanists from the Forest Research Institute (FRI) and trained parataxonomists from the New Guinea Binatang Research Institute (NGBRC). Due to the large size of the plot, field assistants were divided into two teams, each led by a trained parataxonomist in charge of making identifications for each census team. However, both teams worked independently of each other in making identifications, making it difficult to reconcile differences in taxonomic opinion between teams. These practices eventually led to the proliferation of issues including misidentification of individual trees, incorrect application of species names, incoherent species concepts, and confusion among a number of species and even some genera. As a result of the confusion among field crews, the IDs of well over 10,000 individual stems (3% of all trees) were marked as "unknown" by the end of the second census. Inconsistencies in identifications between the field teams coupled with instances of guessing, particularly for speciose genera and those with variable or complex vegetative morphologies, led to an increase in the number of erroneous tree IDs. Additionally, due to species names having largely been provided by in-country botanists, many scientific names applied at Wanang were

outdated as several had long been synonymized. The aims of this study were to conduct a revision of the species recognized during the past two censuses in order to verify species and better clarify species concepts through specimen collection and subsequent comparison in order to develop a verified checklist of species of the WFDP.

METHODS

In order to carry out a detailed floristic revision, seven months of fieldwork (May–December 2022) were undertaken on-site at the WFDP, based at Swire Research Station, a field station located within the WCA and immediately adjacent to the plot. The primary goal was to perform a complete vetting of the 626 morphospecies recognized at the end of the most recent census of 2015-16. In order to verify each of these putative taxa, multiple individual trees for each taxon were visited in the field and vouchers collected. All species identified in prior censuses were collected more than once. For rare species identified from the census with stem counts of ten or less, all individuals were collected. The survey particularly focused on validating rare species as these are limited in number and more prone to erroneous identification. A team of local field assistants carried out daily collections from the plot, averaging ca. 100 collections per day.

Climate and vegetation

The forest at Wanang may be classified as seasonal wet tropical lowland with a closed canopy that is moderately stratified and reaches a max height of ca. 50 m. Although lowland, the terrain is hilly and largely unstable, with numerous steep ridges and deep gullies and an

elevational range of 80–180 m asl (Fig. 3-2). The mean annual temperature is 26°C with annual rainfall totaling ca. 3500 mm (Whitfeld et al. 2014). There is a slight, yet distinct dry season lasting from June to October where there is noticeably less rainfall. During this time, it is common for some tree species to be partially or fully deciduous, although this is often not uniform within a given species and at times appears site dependent.

Wanang is located squarely within the Northern New Guinea lowland rain and freshwater swamp forests ecoregion (Dinerstein et al. 2017), which essentially covers all lowland forests north of the Central Cordillera of New Guinea. Unlike the dipterocarp-dominated forests of western Malesia, the floristic makeup is not dominated by any singular family. Within the plot, the families with the highest stem counts are Meliaceae (15% of all stems), followed by Moraceae (10%) and Rubiaceae (6.6%). According to the most recent census data, the five most common species are *Ficus hahliana* (10,355 stems), *Celtis latifolia* (9,348), *Gnetum gnemon* (8,299), *Gymnacranthera farquariana* (7,797), and *Mastixiodendron pachyclados* (7,502). The upper canopy is mostly formed by *Pometia*, *Intsia*, and *Neonauclea*, with *Mastixiodendron*, *Pterocarpus*, and *Vitex* appearing to a lesser extent. Of the rare species at Wanang, several are narrow endemics to either the Ramu basin or northern Papua.

Census protocol

All trees within the plot's boundaries are censused every five years according to the protocols developed by ForestGEO (formerly Center for Tropical Forest Science, CTFS) to standardize practices in long-term research across all FDPs (Condit 1998). The 50 ha plot at Wanang is divided into 1,250 quadrats each measuring 20 × 20 m, with each of these then further

divided into sixteen 5 × 5 m subquadrats to give a total of 20,000 subquadrats. For the census, all non-lianescent woody stems above 1 cm in diameter at breast height (or dbh; defined as 1.3 m above ground level) are measured, tagged, and identified to species level as best as possible.

Each tree in the plot is assigned a six-digit unique tag number and a six-letter species code. A tag number is a unique identifier assigned to each censused tree within the plot; these numbers are displayed on a metal tag secured to the stem. The first two digits refer to 1-ha sized columns of 20 × 500 m each (representing columns 01–50) and the latter four digits referring to consecutively numbered trees (0001–9999). For example, the tag no. 052958 refers to tree number 2958 in column 05. A species code is a mnemonic code applied universally at ForestGEO sites to aid in rapid identification and data entry. They are formed by joining the first four letters of the genus name with the first two letters of the species epithet (e.g., PIMEAM for *Pimelodendron amboinicum*). If an individual cannot be identified to a known species with any confidence, it is identified as best as possible to genus level then assigned a generic two-digit morphospecies ID number following it; the same is replicated in its code (e.g., ACTI01 for *Actinodaphne sp. 01*). A morphospecies is here defined as either (1) a taxon that is considered morphologically distinct from other species within a given genus yet does not appear to match specimens of those that are thus far described or (2) a clearly distinct taxon that has yet to be assigned to a described species with any confidence. If an individual cannot be identified to genus level or otherwise cannot be examined properly by members of the census team, its ID is given as unknown.

Census data management

All census data are kept in a relational database in Microsoft Access which allows for long-term curation and management of large datasets (Fig. 3-3). Census data are collected in the field and are recorded onto sheets provided to locally trained field assistants. These data are then transferred into the digital database by local staff and revised for errors at the University of Minnesota. The use of a customizable referential database allows for ease of data entry by native PNG assistants while allowing for exportation to a ForestGEO-compatible format. Additionally, custom search queries and reports may be generated from the tabulated data, allowing for quick synthesis and easier interpretation of census data.

Results of our survey has significant implications for both the "species codes" and "stem measurements" tables (Fig. 3-3). However, revisions to species concepts are handled separately from changes in identity of individual trees. Due to the prior use of incoherent species concepts, particularly in larger genera, the newly adopted concepts for some taxa may not be uniform due to lingering incorrect IDs for a subset of individuals. Any incorrectly identified trees will eventually need to be corrected and its species code reassigned.

Botanical survey

The field survey was carried out by a total of eight locally trained field assistants and up to three parataxonomists, who along with the author, worked daily for the greater part of seven months at the plot site. Recognizing the scale of this project, on several occasions, assistance was kindly given by some other field staff present at Swire Station. To cover greater ground within the large 50-ha plot, the assistants were divided usually into three groups, but sometimes two or four groups depending on availability of assistants. To maximize efficiency and accuracy,

collecting efforts were often focused on one or a few taxonomic group(s) at a time; these groups being either entire families or, in the case of large families, single genera. The census database was used to guide our targeted collecting efforts to validate as many of the 626 putative taxa recognized at the end of the last census. As all trees within the plot are tagged with unique identifying numbers, we were able to conduct a targeted and precise survey of trees.

Every day, the field teams were assigned a select list of roughly ca. 25 tree tag numbers to retrieve fresh twig samples from. Due to the collective experience and knowledge of the local field staff, maps were not needed to locate specific tag numbers. To verify each of the 626 species previously recognized, a minimum of at least ca. 5–7 individuals were collected for each, with the anticipation of some being likely incorrectly identified. Due to the limited number individual stems for rare species (here defined as >10 stems), collection efforts were largely centered around individuals assigned a rare species code. Trees were selected generally based on (1) their status as living during the second census, (2) their small size (roughly >12 cm dbh) to make for easier reach for field crews to collect, and (3) relative proximity to individuals identified as rare taxa. To facilitate greater efficiency in collecting and reduce excessive wandering, field teams were sent to collect stems from a select group of adjacent columns in the plot (e.g., columns 22–30). Field teams would start heading into the plot around 9:00 am morning local time and would often return to the station at around 4:00 pm in the evening. Some taxonomic groups took more than one day to complete depending on species diversity and number of individual trees (e.g., Myristicaceae took five days) and a few complex groups had to be revisited a second time to verify concepts from the first round (e.g., *Dysoxylum* s.l.).

Once collected, fresh vouchers were returned to the station and first sorted by eye into morphologically corresponding groups (i.e., morphospecies) using vegetative characters alone, with particular focus on the venation, laminar, and stem morphology. Flower and fruit characters were not used, even if available for some, due to these not being consistently available for all taxa within a given group. The resulting piles of fresh stems grouped by morphology and distinguished from one another through clear breaks in morphological similarity were then assigned temporary group numbers that were denoted as "*G#*" (e.g., Myristicaceae G7). While still fresh, individuals of each morphospecies were then photographed, with one or a few of the best ones subsequently pressed and dried as voucher specimens. In addition to trees, other life forms including lianas, herbs, epiphytes, and hemiparasites were also collected from inside and outside the plot as a broader effort to better understand the overall floristic diversity of the region. In total, 1,292 voucher specimens were pressed from both inside and outside the plot, with 899 of these additionally preserved *in silica* for use in future molecular investigations, if desired. Voucher specimens are to be deposited at MIN, with any available duplicates to be distributed to other herbaria, namely A, K, LAE, and US.

Species were then identified using both collected specimens and field photos compared against herbarium specimens. The application of names heavily relied on historic collections from the surrounding region. Species known to occur within the middle Ramu basin were given priority and their specimens were examined first whereas species known more from the broader floristically linked lowland region following the NE–SW trending fault line along the Ramu-Markham-Sepik basins were examined next. In particular, historical collections from the nearby settlements such as Faita (visited by J.C. Saunders), Gogol (P. Katik, P.F. Stevens), Koropa

(R.D. Hoogland), Dumpu (D.B. Foreman), Josephstaal–Atitau (R. Pullen, W. Takeuchi, various), and Aiome (various) were heavily referenced. For all verified species, the closest matching specimens are cited with the collector and collector number. Specimens with increased geographic proximity to the WFDP and the degree of morphologic overlap with Wanang material were often given more weight. Collections from other parts of the island or nearby archipelagos were cited only if they were found to be close or near matches to the Wanang material. Digital scans of type material were consulted whenever available online.

The purpose of developing a tree flora for the plot is to aid in the identification of taxa at Wanang while also to mirror that of other tree floras published for other ForestGEO plot sites (Lee et al. 2002; Thomas et al. 2003; Co et al. 2006; Su et al. 2007). For each verified taxon, a page of information is given which includes a vegetative (sterile) field description, along with notes on its distribution, easily confused taxa, ecology, and taxonomy where relevant. Fertile characters are excluded from the accounts due to the transient availability of flowers and fruits in the field, although photos will be provided if available. The information gathered on these pages will eventually constitute the bulk of a planned book, the *Tree Flora of Wanang FDP* (Appendix 3). These pages will serve as the draft to publishing a full account of the plot's tree flora with detailed accounts of all species. The purpose of this floristic account will be help aid in the proper identification of taxa found within the plot for future censuses as well as to provide field notes on many poorly known New Guinea lowland taxa.

Indigenous nomenclature

In addition to revising the flora, efforts were made to accurately document indigenous names of as many species as possible. Following the sorting of specimens, elderly members of the field team (Jorry Umbiang, Albert Mansa, Jonathan Kepe, and Willie Kumba) were regularly consulted to aid in the documentation of indigenous names of tree taxa present within the plot. The indigenous language spoken by the community of Wanang, known as Magɨ, was until recently unknown to Western linguists until its formal description less than a decade ago. Upon discovery, it was classified as critically endangered with less than 50 known remaining speakers (Daniels 2016). In an attempt to help preserve the local biocultural knowledge, names in Magɨ were documented for all species that were recognized by community members who could recall their name. Taxa which were not recognized by community members are left without an indigenous name. Certain names that were provided by community members in doubt or uncertainty were also excluded. In addition to the documentation of several Magɨ names, the conventions and patterns used in Magɨ traditional nomenclature were studied and are briefly reported here.

RESULTS & DISCUSSION

Taxonomic summary

Following our field survey, we isolated 428 distinct taxa from within the plot's boundaries (Table 1). Of these, 367 were identified to species level with good to high confidence, 29 are identified with moderate to low confidence (with "cf." preceding the species epithet), and the remaining 32 are unidentified morphospecies ("sp. #" designations). Taxa identified with good to high confidence represent those that either exactly or closely matched

historical specimen data. Taxa identified with moderate to low confidence represent those with morphologies approaching a subset of specimens seen from a given species; due to lingering uncertainty in identity, these taxa are denoted with "cf." to indicate varying degrees of uncertainty in the ID of the Wanang material. These taxa are often seemingly aligned to a given species but with minor to clear morphological differences, the uncertainty is often exacerbated due to the sterile nature of most collected vouchers.

Of the 626 species names from the prior census dataset, 386 were verified to occur within the plot; of these, 265 species names found to be correct and remained unchanged, 56 were found to be incorrectly applied, 48 were found to be synonyms of other names, and the remaining 17 names were either clarified further down to subspecific level or had the certainty of their ID questioned. Opposingly, the remaining 230 names from the census data were found to be erroneous and removed. Among the removed names, the bulk of these (149) were removed due to being either not located during the survey (102), to being non-tree taxa (40), to being invalid names (6), or due to not meeting the minimum census requirements of 1 cm diameter stem size (1). The other 81 removed names were found to be duplicates of other taxa that were being recognized under different names. For the latter case, the incorrectly duplicated names were removed, and their stems subsequently transferred or merged under a single correct name. The remaining ten names were removed from the dataset for either being found outside the plot or due to outstanding issues in the verification of their identity.

Of the 428 accepted names, 42 (9.8%) were newly introduced following our survey, having not been recorded in prior census data. In addition to those verified within the plot, 19 tree species remain unverified due to being either collected from forests in the immediate vicinity

(>3 km) of the plot or due to needing further confirmation (Table 2). Of those, ten are species that were recognized in prior census data but were discovered to be misidentified individuals during our survey. Instead, we managed to match material collected from outside the plot to those same species.

Floristic makeup

The WFDP's tree flora is typical of the New Guinea lowland flora with 222 genera and 70 families represented. The five most speciose tree families in the plot are: Moraceae (44 spp.), Meliaceae (32), Euphorbiaceae (26), Lauraceae (21), and Sapindaceae (21). Likewise, the five most speciose tree genera are: *Ficus* (35 spp.), *Cryptocarya* (12), *Syzygium* (12), *Aglaia* (10), and *Macaranga* (9). On the flip side, 147 genera and 17 families are represented by a single species. Three of the most diverse families at the WFDP – Euphorbiaceae, Lauraceae, and Moraceae – are also within the top five most speciose 'tree families' of New Guinea, as defined by Cámara-Leret et al. (2020). In addition, several of the most diverse families at WFDP also appear to be ecologically dominant, particularly Meliaceae, Moraceae, and Lauraceae, contributing a substantial portion of the total forest biomass (Vincent et al. 2018). These findings are similar to those of an earlier plot-based comparative diversity study by Paijmans (1970).

Of the tree species accepted in this treatment, 143 or 33.4% of them are endemic to the island of New Guinea while another 63 are near endemics, extending into the neighboring regions of Moluccas and/or Solomon Islands. While the low endemicity rate at Wanang may seem odd given that ca. 70% of the vascular plants of New Guinea are endemic, the vast majority of endemic New Guinea taxa are found in the highlands. This is evidenced by the high numbers

of taxa in predominantly montane families such as Ericaceae and Orchidaceae (Cámara-Leret et al. 2020).

Magɨ taxonomy

Most tree species found within the WFDP have known local names in the native language of Wanang. Taxa with known indigenous names and their traditional uses are recorded in the species accounts pages (Appendix 3). While there are some naming conventions are unique to Magɨ, others appear familiar. Similar to botanical nomenclature, plant names in Magɨ utilize a binomial system comprised of a family name plus a descriptor word, which act in a similar manner to the genus and species epithet respectively. Similar to botanical nomenclature, plant names in Magɨ utilize a binomial system comprised of a family/base name plus a descriptor word, which act in a similar manner to the genus and species epithet respectively. Many names are based off of uses and applications of the plants themselves, the most common being references to the use of wood for building material, with many species bearing names relating to this. Other common applications recorded include medicines, foods, bark fibers for textiles, dyes, or spiritual.

There are some common themes that stand out in Magɨ taxonomy. Among them is the distinction between tree (*té*) and liana (*simi*), often treated as separate classes of names. While nearly all lianas have *simi* incorporated as part of their name to denote their status as a climber, trees rarely have the word *té* incorporated into the name, although there are some that do (e.g., té ámaské niŋi for *Casearia clutiifolia*). This was the only major class-level distinction documented between types of plants. Another regularly encountered theme in Magɨ classification is the use of

nomenclatural pairs, where two (to three) species under the same family name are treated as close pairs and assigned descriptor words indicating opposing or related concepts. The most notable pairing is male/female, although there are a few others such as big leaf/little leaf, long leaf/short leaf, and few/plenty. An example of the gendered pair can be seen with the two species of *Ryparosa* Blume (Achariaceae) present in the WFDP, which have similar morphologies and share the same Magɨ base name, *aŋ sɨgi*. The two species are distinguished only by their gender version, being assigned either male (*makɨ*) or female (*niŋi*) distinction based on overall leaf size and width. The female distinction is given to *R. amplifolia*, which is thus named "aŋ sɨgi niŋi" whereas the male version, *R. calotricha*, is predictably named "aŋ sɨgi makɨ". Nomenclatural pairing may be found across several genera and families of trees.

Due to the shared use of binomial nomenclature, comparisons may be made between the botanical and indigenous taxonomic concepts of defining groups of closely related plant taxa. Upon examination of the Magɨ nomenclature, four distinct naming patterns emerge. The first is when a group of taxa which share the same base name also display similar morphology and are actually phylogenetically closely related, thus making the indigenous concept more or less equivalent to the botanical concept. From the example given above, the accepted botanical genus concept of *Ryparosa* is respectively recognized by the community under the base name *aŋ sɨgi*. The second is when a common Magɨ base name is shared among taxa which look morphologically similar but are phylogenetically distant. This may be seen in *Galearia celebica* (Pandaceae) and *Baccaurea papuana* (Phyllanthaceae) which share the same base name of *mukus* but are not closely related botanically. Instead, their shared base name hints at similarities in their inflorescences being long, cauliflorous racemes, a very specific and unusual trait. The

third pattern is when the indigenous name given to a taxon is unique and the species itself is likewise morphologically and phylogenetically unique. An example of this can be seen with *Gigasiphon schletcheri* (Fabaceae), a morphologically distinct species with the Magɨ name *baim* – a name that is likewise distinct and not shared by any other taxa at Wanang. Given the implications surrounding their usage, the use of singular, unrepeating names may possibly be interpreted as the indigenous conceptual equivalent of a monotypic taxon. Finally, the last pattern is when a single taxon is given a unique name despite being closely related to and sharing morphological features with several other taxa which easily form a group. This is best seen in the genus *Artocarpus* J.R.Forst. & G.Forst. (Moraceae), for which there are five species recognized at Wanang and all share the same Magɨ base name of *wara* – except one. The species *A. camansi* is instead given the unique name *amɨké*, going against the naming convention used for the group. This is despite its clear morphological links to other *Artocarpus* species, which local community members indicated awareness of upon inquiry. It is likely that some taxa may be assigned unique names in spite of otherwise clear morphologic alliance to a group; these taxa may hold some unspecified significance to the community.

Next steps at the WFDP

Due to the current floristic revision having been based upon past census data which often included errors in identification, the tree flora of Wanang remains incomplete. The main issue being the relatively high number of incorrectly identified trees from prior censuses. Several of what were previously believed to be rare species, particularly those with minimal stem counts, often turned out to be incorrectly identified common species. Contrasting this, a few individuals

that had been identified as common species turned out to be incorrectly identified rare species, some of which were not recorded in prior censuses. Since it would not have been possible for us to survey all 260,000+ stems, the greatest issue remaining involves locating any rare or uncommon species that may remain hidden inside the plot due to possible misidentification. It is uncertain how many more species could still be within the plot however, given the richness of New Guinea's flora (Paijmans 1976; Roos et al. 2004; Cámara-Leter et al. 2020), it is reasonable to expect a notable amount of tree species could still be unaccounted for. Thus, the following censuses should be conducted in a careful manner in order to correct past erroneous identifications of which there are many, properly identify any stems which have yet to be given a species ID, and to isolate any potentially new taxa not accounted for here.

A secondary issue is the need to address any remaining ambiguity in the species-level nomenclature. Vouchers of taxa that were identified with moderate to low confidence need to be further investigated to assess whether or not they can be assigned to already named species. Similarly, the as of yet unidentified morphospecies will need to be comparatively assessed with other vouchered material from across New Guinea and Melanesia, as some may potentially represent scientific novelties. A subset of these morphospecies, particularly those which have ambiguous generic placements such as *Claoxylon sp. 01* and *Eumachia sp. 01*, may benefit from molecular investigation to place them in an evolutionary context with broad sampling inclusive of other closely related genera. Some of the groups present at Wanang require taxonomic revision due to recent molecular findings of issues with species delimitation. Such is the case with *Chisocheton* Blume (Meliaceae), where several New Guinea species, including those in the plot, have been found to be non-monophyletic (Holzmeyer et al. 2021). Finally, the 19 species

collected from the immediate vicinity of the WFDP's boundaries should be carefully considered in future censuses as they may likely be present inside the plot.

In addition, some naturally challenging taxonomic groups present at Wanang need to be revisited. These include Annonaceae, Lauraceae, Sapindaceae, *Archidendron* F.Muell. (Fabaceae), *Dysoxylum* Blume ex Raspail s.lat. (Meliaceae), *Garcinia* L. (Clusiaceae), *Myristica* Gronov. (Myristicaceae), and *Terminalia* L. (Combretaceae). Groups that are especially in need of attention are those that require fertile material for positive identification such as Myristicaceae, *Memecylon* L. (Melastomataceae), and *Syzygium* P. Browne ex Gaertn. (Myrtaceae). Perhaps the most pressing of these is the family Pandanaceae, which was the only group that was not revised during the survey due to lack of fertile material which is essential. And in the absence of fertile specimens, the utilization of molecular sequencing data, such as barcoding of certain loci, may provide useful in confirming the identity of certain unresolved morphospecies such as *Hopea sp. 01*. For larger genera with decent amounts of publicly available sequence data, certain loci may be sequenced to inform species-level identifications.

Species diversity patterns

Since the tree flora of Wanang remains incomplete, discussions of floristic diversity and comparisons with other similarly sized plots may seem quite premature. However, assuming that most species present in the plot have been accounted for by our survey, we may be able to make some preliminary assumptions on how Wanang compares to other sites in New Guinea and elsewhere. Within New Guinea, there are no permanent plot sites of a near similar size to that of the WFDP and local forest diversity studies are minimal across the island. Nonetheless, an early

comparative study based on four plots surveyed by Paijmans (1970) showed that while local scale floristic diversity may be low, the same species are not often shared between any two sites. Sampled plot sites that were as close as >1 km in distance were noted to have distinct species composition, with the number of shared taxa at just over half. Whereas only a mere four species were found to be shared between all four plot sites located within a >30 km area. Furthermore, the plot at the lowest elevation (600 m) was found to have the lowest species diversity of all other plots, located at higher elevations (Paijmans 1970).

From a global perspective, the tree diversity of WFDP thus far known appears to be rather moderate when compared to other 50-ha plots, being dwarfed by notable high-diversity sites such as Yasuní FDP in Ecuador (1,114 tree taxa reported), Lambir Hills FDP in Malaysia (1,182), and Pasoh FDP in Malaysia (814) (Anderson-Teixeira et al. 2015). Wanang is also dwarfed by other sites in tropical Asia such as the 50-ha Khao Chong FDP in Thailand (593) and the 20-ha Xishuangbanna FDP in China (468) (Anderson-Teixeira et al. 2015). Instead, tree diversity at Wanang appears to be most comparable to that of the African ForestGEO plots. These include the 40-ha Ituri FDP in the Democratic Republic of the Congo with 445 species reported (Anderson-Teixeira et al. 2015) and the 50-ha Korup FDP in Cameroon with 468 species reported initially (Thomas et al. 2003) then later revised to 494 (Anderson-Teixeira et al. 2015). Assuming the tree flora reported here accounts for the vast majority of species at Wanang, the comparatively low diversity of the site would be notable and perhaps even odd for Malesia, which is often considered to harbor far greater diversity than the Afrotropics (Kier et al. 2005; Raven et al. 2020).

Taken together, these data suggest that the preliminary species estimates from the WFDP, while considerably lower than its many of its Malesian counterparts, may not be entirely out of line for the New Guinea lowlands. However, given its newfound status as the world's most floristically diverse island (Cámara-Leret et al. 2020), findings of relatively low local-scale diversity may appear contradictory. As the only ForestGEO site in New Guinea and among the few permanent sites on the island subject to regular field research, a stable taxonomy at the WFDP is essential to aiding our understanding of New Guinea's forests as a whole.

CONCLUSION

Although there remains additional work to completing the floristic account of the WFDP, our field survey and resulting taxonomic revision provides a more stable foundation for which future work may build on. Collections resulting from the survey allow for increased specimen data for many rare and otherwise poorly encountered species. The identification of unidentified morphospecies allow for potentially novel taxa to be discovered and named, contributing to the growth of New Guinea's rich flora. Most importantly, our survey allows for the accurate identification of tree taxa at the WFDP by researchers at the site. This in turn, better facilitates long-term ecological study of each individual tree species, many of which are also known from elsewhere on the island.

Our long-term field survey demonstrates the benefits of floristic research in providing an accurate taxonomic account of a site's botanical diversity. Despite being primarily used to facilitate forest ecology research, ForestGEO plots offer an unparalleled opportunity for the study of taxonomic diversity at local scales, which serves to better inform our understanding of

regional floristic diversity. Other FDP sites across the network may similarly benefit from detailed, rigorous taxonomic vetting of species concepts as errors during censuses are fairly common, potentially leading to unstable species counts.

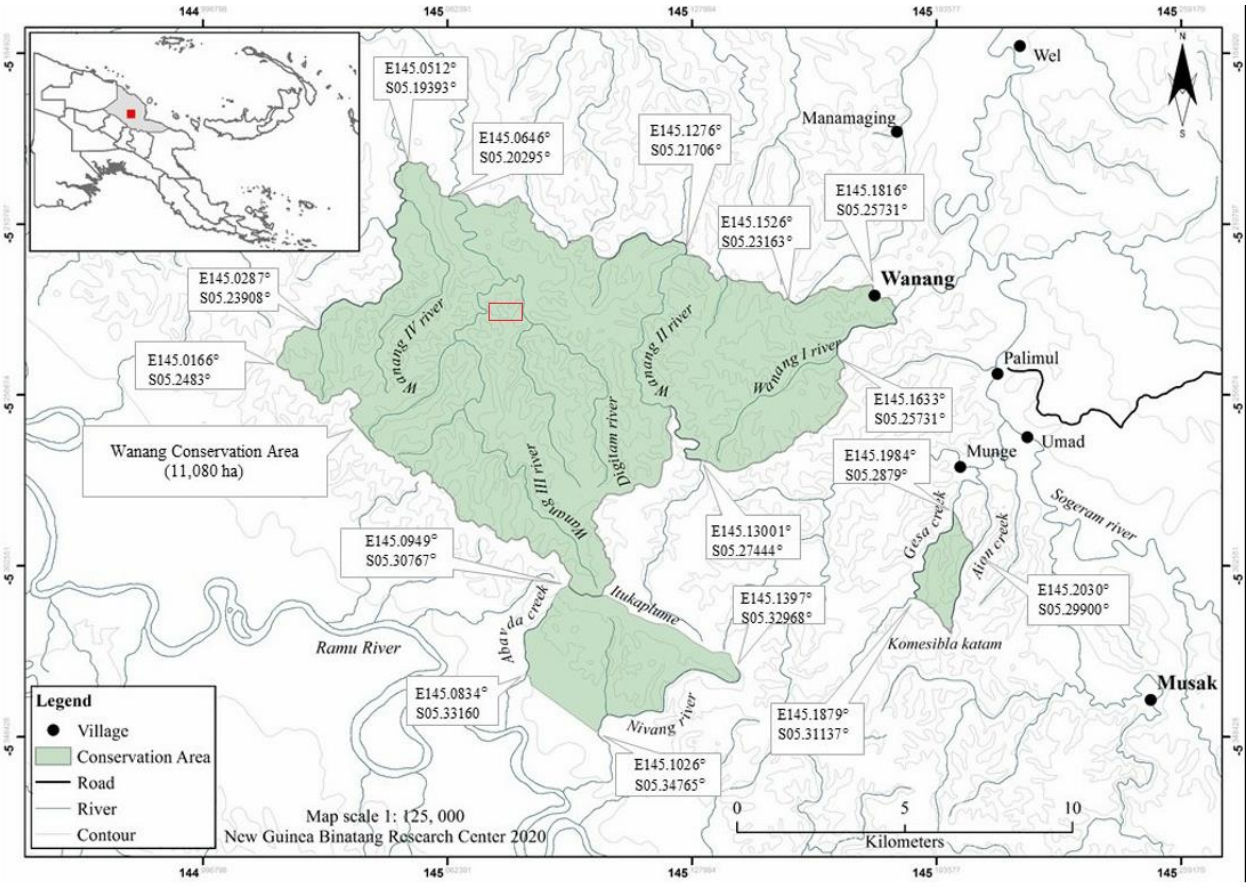

Figure 3-1. Map of the Wanang Conservation Area. The region is referred to as the "Middle Ramu", due to being located at the middle portion of the Ramu basin. The red rectangle approximately corresponds to the location of the 50-ha plot immediately south of the confluence of the Digitam and Wanang III rivers.

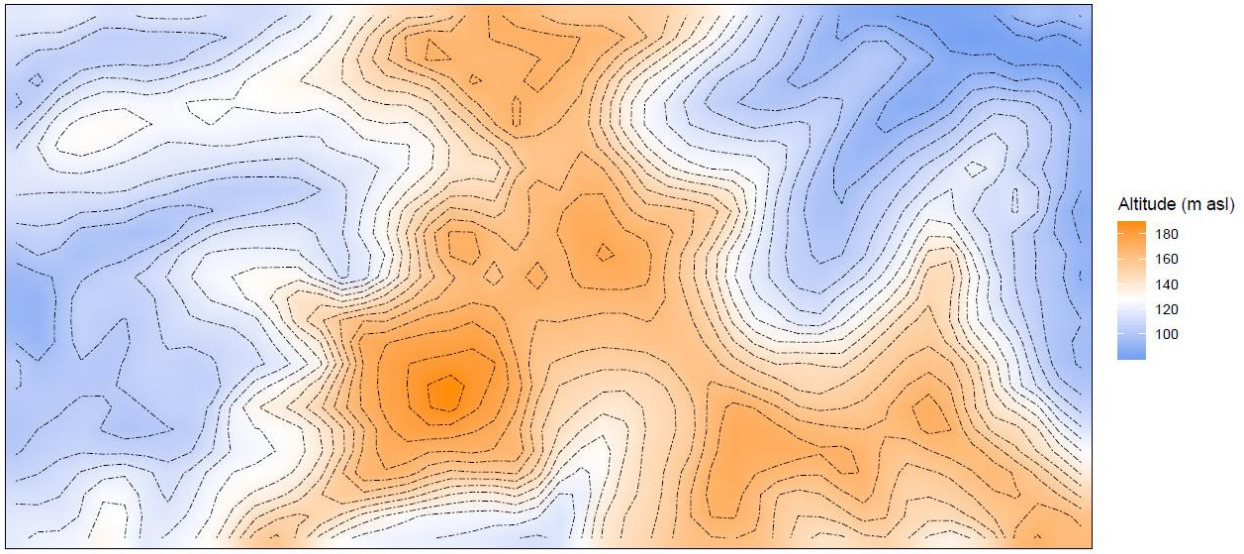

Figure 3-2. Elevation contour map of the Wanang Forest Dynamics Plot.

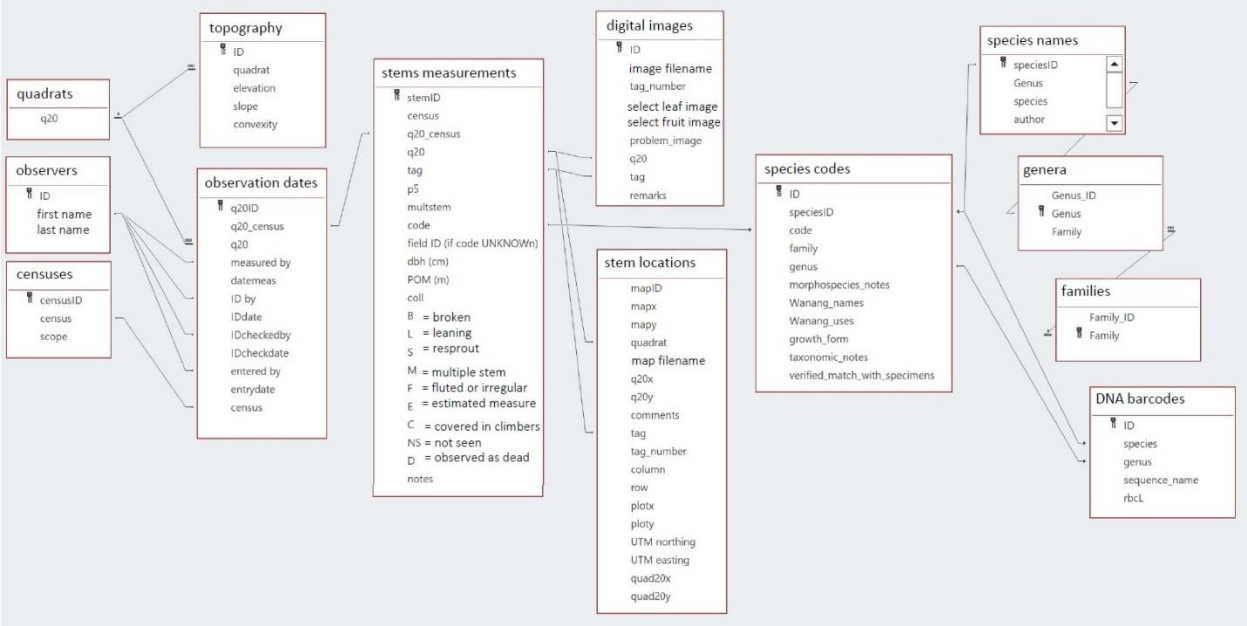

Figure 3-3. Wanang FDP database schema as implemented in Microsoft Access.

Table 3-1. Checklist of accepted tree species and morphospecies verified to occur within the Wanang Forest Dynamics Plot. Only accepted names are listed. New Guinea endemic status is indicated.

No.	Family	Scientific Name	Endemic
1	Gnetaceae	Gnetum costatum K.Schum	
2	Gnetaceae	Gnetum gnemon L.	
3	Podocarpaceae	Podocarpus neriifolius D.Don	
4	Myristicaceae	Endocomia macrocoma subsp. prainii (King) W.J.de Wilde	
5	Myristicaceae	Gymnacranthera farquhariana var. zippeliana (Miq.) R.T.A.Schouten	
6	Myristicaceae	Horsfieldia basifissa W.J.de Wilde	y
7	Myristicaceae	Horsfieldia hellwigii (Warb.) Warb.	y
8	Myristicaceae	Horsfieldia cf. pilifera Markgr.	y
9	Myristicaceae	Horsfieldia sinclairii W.J.De Wilde	y
10	Myristicaceae	Horsfieldia subtilis Warb.	
11	Myristicaceae	Horsfieldia sylvestris Warb.	
12	Myristicaceae	Myristica globosa Warb.	
13	Myristicaceae	Myristica hollrungii Warb.	y
14	Myristicaceae	Myristica inutilis subsp. papuana (Markgr.) W.J.de Wilde	y
15	Myristicaceae	Myristica cf. markgraviana A.C.Smith	y
16	Myristicaceae	Myristica sp. 01	
17	Myristicaceae	Myristica subalulata Miq.	
18	Myristicaceae	Myristica sulcata Warb.	y
19	Myristicaceae	Myristica cf. tristis Warb.	
20	Annonaceae	Cananga odorata (Lam.) Hook.f. & Thomson	
21	Annonaceae	Drepananthus petiolatus (Diels) Survesw. & R.M.K.Saunders	
22	Annonaceae	Drepenanthus sp. 01	
23	Annonaceae	Goniothalamus aruensis Scheff.	
24	Annonaceae	Goniothalamus imbricatus Scheff.	y
25	Annonaceae	Goniothalamus sp. 01	
26	Annonaceae	Maasia glauca (Hassk.) Mols, Kessler & Rogstad	
27	Annonaceae	Mitrephora diversifolia (Span.) Miq.	
28	Annonaceae	Monoon oblongifolium (C.B.Rob.) B.Xue & R.M.K.Saunders	
29	Annonaceae	Monoon sp. 01	y
30	Annonaceae	Phaeanthus ophthalmicus (Roxb. ex G.Don) J.Sinclair	
31	Annonaceae	Polyalthia longirostris (Scheff.) B.Xue & R.M.K.Saunders	
32	Annonaceae	Pseuduvaria coriacea Y.C.F.Su & R.M.K.Saunders	y

33	Annonaceae	Pseuduvaria macrocarpa (Burck) Y.C.F.Su & R.M.K.Saunders	
34	Annonaceae	Xylopia sp. 01	
35	Hernandiaceae	Hernandia ovigera L.	
36	Lauraceae	Actinodaphne sp. 01	
37	Lauraceae	Actinodaphne nitida Teschn.	
38	Lauraceae	Alseodaphne cf. archboldiana (C.K.Allen) Kosterm.	y
39	Lauraceae	Cinnamomum grandiflorum Kosterm.	y
40	Lauraceae	Cryptocarya apamifolia Gamble	y
41	Lauraceae	Cryptocarya caloneura (Scheff.) Kosterm.	y
42	Lauraceae	Cryptocarya depressa Warb.	y
43	Lauraceae	Cryptocarya cf. endiandrifolia Kosterm.	
44	Lauraceae	Cryptocarya iridescens Kosterm.	y
45	Lauraceae	Cryptocarya laevigata Blume	
46	Lauraceae	Cryptocarya multinervis Teschner	y
47	Lauraceae	Cryptocarya multipaniculata Teschner	y
48	Lauraceae	Cryptocarya murrayi F.Muell.	y
49	Lauraceae	Cryptocarya sp. 01	
50	Lauraceae	Cryptocarya sp. 02	y
51	Lauraceae	Cryptocarya cf. weinlandii K.Schum.	
52	Lauraceae	Endiandra brassii C.K.Allen	y
53	Lauraceae	Endiandra euadenia Kosterm.	y
54	Lauraceae	Litsea collina S.Moore	
55	Lauraceae	Litsea globosa Kosterm.	y
56	Lauraceae	Litsea sp. 01	
57	Lauraceae	Litsea timoriana Span.	
58	Monimiaceae	Steganthera hirsuta (Warb.) Perkins	
59	Pandanaceae	Benstonea cf. stenocarpa (Solms) Callm. & Buerki	
60	Pandanaceae	Pandanus cf. kaernbachii Warb.	
61	Asparagaceae	Cordyline fruticosa (L.) A.Chev.	
62	Asparagaceae	Dracaena angustifolia Roxb.	
63	Arecaceae	Caryota rumphiana Mart.	
64	Arecaceae	Hydriastele costata F.M.Bailey	
65	Arecaceae	Licuala cf. lauterbachii Dammer & K.Schum.	y
66	Arecaceae	Orania lauterbachiana Becc.	y
67	Poaceae	Neololeba atra (Lindl.) Widjaja	
68	Poaceae	Neololeba cf. hirsuta (Holttum) Widjaja	y
69	Sabiaceae	Meliosma pinnata subsp. macrophylla (Merr.) van Beusekom	
70	Proteaceae	Helicia cf. amplifolia Sleumer	y
71	Proteaceae	Helicia cf. obtusata Sleumer	y
72	Proteaceae	Finschia chloroxantha Diels	

73	Proteaceae	Finschia sp. 01	
74	Dilleniaceae	Dillenia castaneifolia Martelli	y
75	Vitaceae	Leea indica (Burm.f.) Merr.	
76	Fabaceae	Adenanthera novoguineensis Baker f.	
77	Fabaceae	Archidendron aruense (Warb.) de Wit	
78	Fabaceae	Archidendron molle (K.Schum.) de Wit	y
79	Fabaceae	Archidendron ptenopum Verdc.	y
80	Fabaceae	Cynometra lenticellata (C.T.White) Rados.	
81	Fabaceae	Cynometra megalocephala (Harms) Rados.	y
82	Fabaceae	Cynometra psilogyne (Harms) Rados.	y
83	Fabaceae	Cynometra schefferi (K.Schum.) Rados.	
84	Fabaceae	Falcataria falcata (L.) Greuter & R.Rankin	
85	Fabaceae	Gigasiphon schlechteri (Harms) de Wit	y
86	Fabaceae	Inocarpus fagifer (Parkinson ex F.A.Zorn) Fosberg	
87	Fabaceae	Intsia bijuga (Colebr.) Kuntze	
88	Fabaceae	Kingiodendron novoguineense Verdc.	y
89	Fabaceae	Kingiodendron sp. 01	
90	Fabaceae	Millettia pinnata (L.) Panigrahi	
91	Fabaceae	Ormosia calavensis Azaola	
92	Fabaceae	Pterocarpus indicus Willd.	
93	Fabaceae	Serianthes hooglandii (Fosberg) Kanis	
94	Polygalaceae	Eriandra cf. fragrans Royen & Steenis	y
95	Polygalaceae	Xanthophyllum papuanum Whitmore ex van der Meijden	
96	Rosaceae	Prunus gazelle-peninsulae (Kaneh. & Hatus.) Kalkman	
97	Rosaceae	Prunus schlechteri (Koehne) Kalkman	
98	Rhamnaceae	Ziziphus angustifolia (Miq.) Hatus. ex Steenis	
99	Cannabaceae	Aphananthe philippinensis Planch.	
100	Cannabaceae	Celtis latifolia (Blume) Planch.	
101	Cannabaceae	Celtis philippensis Blanco	
102	Cannabaceae	Celtis rigescens (Miq.) Planch.	
103	Cannabaceae	Trema orientalis (L.) Blume	
104	Moraceae	Antiaris toxicaria subsp. macrophylla (R.Br.) C.C.Berg	
105	Moraceae	Artocarpus cf. altilis (Parkinson) Fosberg	
106	Moraceae	Artocarpus camansi Blanco	
107	Moraceae	Artocarpus papuanus (Becc.) Renner	
108	Moraceae	Artocarpus sepicanus Diels	y
109	Moraceae	Artocarpus vrieseanus Miq.	
110	Moraceae	Ficus adelpha K.Schum. & Lauterb.	y
111	Moraceae	Ficus adenosperma Miq.	
112	Moraceae	Ficus ampelas Burm.f.	
113	Moraceae	Ficus archboldiana Summerh.	y

114	Moraceae	Ficus arfakensis King	
115	Moraceae	Ficus aurantiacifolia Weiblen & Whitfeld	y
116	Moraceae	Ficus badiopurpurea Diels.	y
117	Moraceae	Ficus botryocarpa subsp. hirtella C.C.Berg	y
118	Moraceae	Ficus congesta Roxb.	
119	Moraceae	Ficus conocephalifolia Ridl.	y
120	Moraceae	Ficus copiosa Steud.	
121	Moraceae	Ficus drupacea Thunb.	
122	Moraceae	Ficus erythrosperma Miq.	
123	Moraceae	Ficus glandifera Summerh.	
124	Moraceae	Ficus gul K.Schum. & Lauterb.	
125	Moraceae	Ficus hahliana Diels	y
126	Moraceae	Ficus hispidioides S.Moore	y
127	Moraceae	Ficus hombroniana Corner	
128	Moraceae	Ficus melinocarpa Blume	
129	Moraceae	Ficus mollior F.Muell. ex Benth.	
130	Moraceae	Ficus nodosa Teijsm. & Binn.	
131	Moraceae	Ficus pachyrrhachis K.Schum. & Lauterb.	y
132	Moraceae	Ficus phaeosyce K.Schum. & Lauterb.	y
133	Moraceae	Ficus polyantha Warb.	
134	Moraceae	Ficus primaria Corner	y
135	Moraceae	Ficus pseudojaca Corner	y
136	Moraceae	Ficus pungens Reinw. ex Blume	
137	Moraceae	Ficus rubrivestimenta Weiblen & Whitfeld	y
138	Moraceae	Ficus semivestita Corner	y
139	Moraceae	Ficus subcuneata Miq.	
140	Moraceae	Ficus subtrinervia K.Schum & Lauterb.	
141	Moraceae	Ficus trachypison K.Schum.	
142	Moraceae	Ficus variegata Blume	
143	Moraceae	Ficus virens Aiton	
144	Moraceae	Ficus wassa Roxb.	
145	Moraceae	Parartocarpus venenosus (Zoll. & Moritzi) Becc.	
146	Moraceae	Paratrophis ascendens (Corner) E.M.Gardner	
147	Moraceae	Paratrophis philippinensis (Bureau) Fern.-Vill.	
148	Urticaceae	Dendrocnide cordata (Warb. ex H.J.P.Winkl.) Chew	
149	Urticaceae	Dendrocnide ternatensis (Miq.) Chew	
150	Urticaceae	Oreocnide rubescens (Blume) Miq.	
151	Urticaceae	Leucosyke capitellata (Poir.) Wedd.	
152	Urticaceae	Pipturus argenteus (G.Forst.) Wedd.	
153	Tetramelaceae	Octomeles sumatrana Miq.	
154	Tetramelaceae	Tetrameles nudiflora R.Br.	

155	Celastraceae	Lophopetalum sp. 01	
156	Celastraceae	Siphonodon celastrineus Griff.	
157	Elaeocarpaceae	Aceratium oppositifolium DC.	
158	Elaeocarpaceae	Elaeocarpus amplifolius Schltr.	y
159	Elaeocarpaceae	Elaeocarpus angustifolius Blume	
160	Elaeocarpaceae	Elaeocarpus coloides Schltr. subsp. coloides	y
161	Elaeocarpaceae	Elaeocarpus dolichodactylus Schltr.	y
162	Elaeocarpaceae	Elaeocarpus miegei Weibel	
163	Elaeocarpaceae	Elaeocarpus undulatus Warb.	y
164	Elaeocarpaceae	Sloanea sogerensis Baker f.	y
165	Pandaceae	Galearia celebica Koord. var. celebica	
166	Pandaceae	Galearia celebica var. pubescens Forman	y
167	Rhizophoraceae	Carallia brachiata (Lour.) Merr.	
168	Euphorbiaceae	Alchornea rugosa (Lour.) Müll.Arg.	
169	Euphorbiaceae	Claoxylon indicum (Reinw. ex Blume) Hassk.	
170	Euphorbiaceae	Claoxylon sp. 01	
171	Euphorbiaceae	Croton womersleyi Airy Shaw	y
172	Euphorbiaceae	Endospermum moluccanum (Teijsm. & Binn.) Kurz	
173	Euphorbiaceae	Endospermum medullosum L.S.Sm.	
174	Euphorbiaceae	Homalanthus novoguineensis K.Schum.	
175	Euphorbiaceae	Melanolepis multiglandulosa Rchb. & Zoll.	
176	Euphorbiaceae	Macaranga aleuritoides F.Muell.	
177	Euphorbiaceae	Macaranga bifoveata J.J.Sm.	y
178	Euphorbiaceae	Macaranga fallacina Pax & K.Hoffm.	y
179	Euphorbiaceae	Macaranga inermis Pax & K.Hoffm.	
180	Euphorbiaceae	Macaranga neobritannica Airy Shaw	y
181	Euphorbiaceae	Macaranga novoguineensis J.J.Sm.	y
182	Euphorbiaceae	Macaranga punctata K.Schum	y
183	Euphorbiaceae	Macaranga quadriglandulosa Warb.	
184	Euphorbiaceae	Macaranga tanarius (L.) Müll.Arg.	
185	Euphorbiaceae	Mallotus floribundus (Blume) Müll.Arg.	
186	Euphorbiaceae	Mallotus peltatus (Geiseler) Müll.Arg.	
187	Euphorbiaceae	Mallotus philippensis (Lam.) Müll.Arg.	
188	Euphorbiaceae	Mallotus sp. 01	
189	Euphorbiaceae	Mallotus sp. 02	
190	Euphorbiaceae	Neoscortechinia forbesii (Hook.f.) S.Moore	
191	Euphorbiaceae	Pimelodendron amboinicum Hassk.	
192	Euphorbiaceae	Spathiostemon javensis Blume	
193	Euphorbiaceae	Syndyophyllum excelsum K.Schum. & Lauterb.	y
194	Phyllanthaceae	Antidesma excavatum Miq.	
195	Phyllanthaceae	Aporosa praegrandifolia (S.Moore) Schot	y

196	Phyllanthaceae	Baccaurea papuana F.M.Bailey	y
197	Phyllanthaceae	Bischofia javanica Blume	
198	Phyllanthaceae	Breynia cernua (Poir.) Müll.Arg.	
199	Phyllanthaceae	Breynia sp. 01	
200	Phyllanthaceae	Bridelia macrocarpa Airy Shaw	
201	Phyllanthaceae	Bridelia insulana Hance	
202	Phyllanthaceae	Glochidion granulare Airy Shaw	y
203	Chrysobalanaceae	Maranthes corymbosa Blume	
204	Putranjivaceae	Drypetes longifolia (Blume) Pax & K.Hoffm.	
205	Putranjivaceae	Drypetes sp. 01	
206	Salicaceae	Casearia clutiifolia Blume	
207	Salicaceae	Flacourtia rukam Zoll. & Moritzi	
208	Salicaceae	Homalium foetidum Benth.	
209	Violaceae	Rinorea bengalensis (Wall.) Kuntze	
210	Achariaceae	Ryparosa amplifolia (K.Schum.) Mildbr.	y
211	Achariaceae	Ryparosa calotricha Mildbr.	y
212	Achariaceae	Erythrospermum candidum Becc.	
213	Achariaceae	Pangium edule Reinw.	
214	Calophyllaceae	Calophyllum soulattri Burm.	
215	Clusiaceae	Garcinia assugu Lauterb.	y
216	Clusiaceae	Garcinia dulcis Kurz	
217	Clusiaceae	Garcinia hunsteinii Lauterb.	y
218	Clusiaceae	Garcinia cf. latissima Miq.	
219	Clusiaceae	Garcinia ledermannii Lauterb.	y
220	Combretaceae	Terminalia complanata K.Schum.	
221	Combretaceae	Terminalia impediens Coode	y
222	Combretaceae	Terminalia kaernbachii Warb.	
223	Combretaceae	Terminalia microcarpa Decne. subsp. microcarpa	
224	Combretaceae	Terminalia sepicana Diels	
225	Lythraceae	Duabanga moluccana Blume	
226	Lythraceae	Lagerstroemia celebica Blume	
227	Myrtaceae	Decaspermum neurophyllum K.Schum. & Lauterb.	y
228	Myrtaceae	Syzygium aeoranthum (Diels) Merr. & L.M.Perry	y
229	Myrtaceae	Syzygium cf. branderhorstii Lauterb.	
230	Myrtaceae	Syzygium cf. fastigiatum (Blume) Merr. & L.M.Perry	
231	Myrtaceae	Syzygium gonatanthum (Diels) Merr. & L.M.Perry	y
232	Myrtaceae	Syzygium goniopterum (Diels) Merr. & L.M.Perry	y
233	Myrtaceae	Syzygium hylophilum (K.Schum. & Lauterb.) Merr. & L.M.Perry	y
234	Myrtaceae	Syzygium cf. iteophyllum Diels	y
235	Myrtaceae	Syzygium longipes (Diels) Merr. & L.M.Perry	y

236	Myrtaceae	Syzygium malaccense (L.) Merr. & L.M.Perry	
237	Myrtaceae	Syzygium pteropodum (K.Schum. & Lauterb.) Merr. & L.M.Perry	y
238	Myrtaceae	Syzygium sp. 01	
239	Myrtaceae	Syzygium sp. 02	
240	Melastomataceae	Astronia hollrungii Cogn.	y
241	Melastomataceae	Medinilla quadrifolia Blume	
242	Melastomataceae	Memecylon excelsum Blume	
243	Melastomataceae	Memecylon cf. lilacinum Zoll. & Moritzi	
244	Melastomataceae	Memecylon cf. papuanum Merr. & L.M.Perry	y
245	Melastomataceae	Memecylon sp. 01	
246	Burseraceae	Canarium acutifolium (DC.) Merr.	
247	Burseraceae	Canarium asperum Benth.	
248	Burseraceae	Canarium indicum L.	
249	Burseraceae	Canarium macadamii Leenh.	y
250	Burseraceae	Canarium vitiense A.Gray	
251	Burseraceae	Garuga floribunda Decne.	
252	Burseraceae	Haplolobus floribundus (K.Schum.) H.J.Lam	
253	Burseraceae	Haplolobus lanceolatus H.J.Lam	y
254	Burseraceae	Haplolobus pachypodus (Lauterb.) H.J.Lam	y
255	Anacardiaceae	Buchanania arborescens (Blume) Blume	
256	Anacardiaceae	Buchanania cf. macrocarpa Lauterb.	
257	Anacardiaceae	Dracontomelon dao (Blanco) Merr. & Rolfe	
258	Anacardiaceae	Dracontomelon lenticulatum H.P.Wilk.	y
259	Anacardiaceae	Euroschinus papuanus Merr. & L.M.Perry	y
260	Anacardiaceae	Mangifera minor Blume	
261	Anacardiaceae	Semecarpus australiensis Engl.	
262	Anacardiaceae	Semecarpus forstenii Blume	
263	Anacardiaceae	Semecarpus magnificus K.Schum.	y
264	Anacardiaceae	Semecarpus schlechteri Lauterb.	y
265	Anacardiaceae	Semecarpus sp. 01	
266	Anacardiaceae	Spondias dulcis Forst.	
267	Sapindaceae	Alectryon ferrugineus (Blume) Radlk.	
268	Sapindaceae	Allophylus cobbe (L.) Forsyth f.	
269	Sapindaceae	Arytera litoralis Blume	
270	Sapindaceae	Cnesmocarpon discoloroides Adema	y
271	Sapindaceae	Cupaniopsis cf. stenopetala Radlk.	
272	Sapindaceae	Cupaniopsis macropetala Radlk.	
273	Sapindaceae	Dictyoneura obtusa Blume	y
274	Sapindaceae	Ganophyllum falcatum Blume	
275	Sapindaceae	Guioa comesperma Radlk.	

276	Sapindaceae	Guioa sp. 01	
277	Sapindaceae	Harpullia arborea (Blanco) Radlk.	
278	Sapindaceae	Harpullia crustacea Radlk.	y
279	Sapindaceae	Harpullia longipetala Leenh.	y
280	Sapindaceae	Harpullia ramiflora Radlk.	
281	Sapindaceae	Jagera javanica (Blume) Blume ex Kalkman	
282	Sapindaceae	Lepidopetalum cf. micans K.Schum. & Lauterb.	y
283	Sapindaceae	Lepidopetalum sp. 01	
284	Sapindaceae	Mischocarpus largifolius Radlk.	
285	Sapindaceae	Mischocarpus sundaicus Blume	
286	Sapindaceae	Pometia pinnata J.R.Forst. & G.Forst.	
287	Sapindaceae	Tristiropsis acutangula Randlk.	
288	Rutaceae	Citrus hystrix DC.	
289	Rutaceae	Melicope elleryana (F.Muell.) T.G.Hartley	
290	Rutaceae	Micromelum minutum (G.Forst.) Wight & Arn.	
291	Rutaceae	Wenzelia dolichophylla (K.Schum. & Lauterb.) Tanaka	y
292	Rutaceae	Zanthoxylum pluviatile T.G.Hartley	y
293	Simaroubaceae	Ailanthus integrifolia Lam.	
294	Simaroubaceae	Picrasma javanica Blume	
295	Meliaceae	Aglaia agglomerata Merr. & L.M.Perry	y
296	Meliaceae	Aglaia argentea Blume	
297	Meliaceae	Aglaia cf. flavescens C.DC.	y
298	Meliaceae	Aglaia lepidopetala Harms	y
299	Meliaceae	Aglaia lepiorrhachis Harms	y
300	Meliaceae	Aglaia parviflora C.DC.	
301	Meliaceae	Aglaia rimosa Merr.	
302	Meliaceae	Aglaia sapindina (F.Muell.) Harms	
303	Meliaceae	Aglaia subcuprea Merr. & L.M.Perry	
304	Meliaceae	Aglaia tomentosa Teijsm. & Binn.	
305	Meliaceae	Aphanamixis polystachya (Wall.) R.Parker	
306	Meliaceae	Chisocheton ceramicus Miq.	
307	Meliaceae	Chisocheton cumingianus Harms	
308	Meliaceae	Chisocheton lasiocarpus (Miq.) Valeton	
309	Meliaceae	Chisocheton longistipitatus (F.M.Bailey) L.S.Sm.	
310	Meliaceae	Dysoxylum acutangulum subsp. foveolatum (Radlk.) Mabb.	
311	Meliaceae	Dysoxylum kaniense Harms	
312	Meliaceae	Dysoxylum latifolium Benth.	
313	Meliaceae	Dysoxylum sp. 01	
314	Meliaceae	Didymocheton mollis (Miq.) Holzmeyer & Hauenschild	
315	Meliaceae	Didymocheton papuanus (Merr. & L.M.Perry) Mabb.	

316	Meliaceae	Didymocheton pettigrewianus (F.M.Bailey) Hauenschild & Holzmeyer	
317	Meliaceae	Didymocheton setosus (Span.) Mabb. & Holzmeyer	
318	Meliaceae	Epicharis alata (Harms) Harms	y
319	Meliaceae	Epicharis parasitica (Osbeck) Mabb.	
320	Meliaceae	Epicaharis sp. 01	
321	Meliaceae	Goniocheton arborescens Blume	
322	Meliaceae	Goniocheton brassii (Merr. & L.M.Perry) Hauenschild & Holzmeyer	y
323	Meliaceae	Prasoxylon alliaceum (Blume) M.Roem.	
324	Meliaceae	Prasoxylon excelsum (Spreng.) Mabb.	
325	Meliaceae	Sandoricum koetjape (Burm.f.) Merr.	
326	Meliaceae	Toona sureni (Blume) Merr.	
327	Malvaceae	Bombax ceiba L.	
328	Malvaceae	Commersonia bartramia (L.) Merr.	
329	Malvaceae	Kleinhovia hospita L.	
330	Malvaceae	Microcos argentata Burret	y
331	Malvaceae	Microcos grandiflora Burret	y
332	Malvaceae	Microcos triflora (Blanco) R.C.K.Chung	
333	Malvaceae	Trichospermum pleiostigma (F.Muell.) Kosterm.	
334	Malvaceae	Talipariti ellipticifolium (Borss.Waalk.) Fryxell	y
335	Malvaceae	Thespesia fissicalyx Borss.Waalk.	y
336	Malvaceae	Heritiera novoguineensis Kosterm.	y
337	Malvaceae	Pterocymbium beccarii K.Schum.	y
338	Malvaceae	Pterygota forbesii F.Muell.	y
339	Malvaceae	Sterculia ampla Baker f.	y
340	Malvaceae	Sterculia tantraensis Morat	
341	Thymelaeaceae	Phaleria macrocarpa (Scheff.) Boerl.	y
342	Thymelaeaceae	Phaleria perrottetiana (Decne.) Fern.-Vill.	
343	Dipterocarpaceae	Hopea sp. 01	
344	Dipterocarpaceae	Vatica rassak (Korth.) Blume	
345	Nyctaginaceae	Ceodes longirostris (Teijsm. & Binn.) Merr. & L.M.Perry	
346	Nyctaginaceae	Ceodes umbellifera J.R.Forst. & G.Forst.	
347	Lecythidaceae	Barringtonia apiculata Lauterb.	y
348	Lecythidaceae	Barringtonia calyptrocalyx K.Schum. var. mollis Lauterb.	y
349	Lecythidaceae	Planchonia papuana R.Knuth	y
350	Pentaphylacaceae	Ternstroemia cherryi (F.M.Bailey) Merr. ex J.F.Bailey & C.T.White	y
351	Sapotaceae	Donella lanceolata (Blume) Aubrév.	
352	Sapotaceae	Palaquium morobense P.Royen	y
353	Sapotaceae	Palaquium supfianum Schltr.	
354	Sapotaceae	Palaquium warburgianum Schltr. ex K.Krause	y

355	Sapotaceae	Planchonella myrsinodendron (F.Muell.) Swenson, Bartish & Munzinger	
356	Sapotaceae	Planchonella sp. 01	
357	Sapotaceae	Planchonella thyrsoidea C.T.White	
358	Sapotaceae	Planchonella torricellensis (K.Schum.) H.J.Lam	
359	Sapotaceae	Pleioluma firma (Miq.) Swenson	
360	Ebenaceae	Diospyros elliptica (J.R.Forst. & G.Forst.) P.S.Green	
361	Ebenaceae	Diospyros ferrea (Willd.) Bakh.	
362	Ebenaceae	Diospyros lolin Bakh.	
363	Ebenaceae	Diospyros lolinopsis Kosterm.	y
364	Ebenaceae	Diospyros sp. 01	
365	Primulaceae	Conandrium polyanthum (Lauterb. & K.Schum.) Mez	
366	Primulaceae	Maesa haplobotrys F.Muell.	
367	Actinidiaceae	Saurauia sp. 01	y
368	Actinidiaceae	Saurauia poolei C.T.White & W.D.Francis	y
369	Icacinaceae	Merrilliodendron megacarpum (Hemsl.) Sleumer	
370	Icacinaceae	Rhyticaryum longifolium K.Schum. & Lauterb.	
371	Icacinaceae	Rhyticaryum sp. 01	
372	Rubiaceae	Canthium aurantiacum Merr. & L.M.Perry	y
373	Rubiaceae	Eumachia leptothyrsa (Miq.) Barrabé, C.M.Taylor & Razafim. var. leptothyrsa	
374	Rubiaceae	Eumachia sp. 01	
375	Rubiaceae	Gardenia hansemannii K.Schum.	y
376	Rubiaceae	Ixora amplexifolia Lauterb.	y
377	Rubiaceae	Ixora novoguineensis Mouly & B.Bremer	y
378	Rubiaceae	Ixora timorensis Decne.	
379	Rubiaceae	Ixora sp. 01	
380	Rubiaceae	Mastixiodendron pachyclados Melch.	
381	Rubiaceae	Morinda bracteata Roxb.	
382	Rubiaceae	Mussaenda cylindrocarpa Burck	
383	Rubiaceae	Mussaenda scratchleyi Wernham	y
384	Rubiaceae	Nauclea tenuiflora Merr.	y
385	Rubiaceae	Nauclea orientalis (L.) L.	
386	Rubiaceae	Neonauclea clemensiae Merr. & L.M.Perry	y
387	Rubiaceae	Neonauclea coronata Ridsdale	y
388	Rubiaceae	Neonauclea maluensis Arn.	
389	Rubiaceae	Neonauclea obversifolia (Valeton) Merr. & L.M.Perry	y
390	Rubiaceae	Pavetta platyclada K.Schum. & Lauterb.	
391	Rubiaceae	Psychotria ramuensis Sohmer var. ramuensis	y
392	Rubiaceae	Psydrax cymiger (Valeton) S.T.Reynolds & R.J.F.Hend.	
393	Rubiaceae	Randia schumanniana Merr. & L.M.Perry	y
394	Rubiaceae	Ridsdalea macromera (Lauterb. & K.Schum.) J.T.Pereira	y

395	Rubiaceae	Timonius pulposus C.T.White	y
396	Rubiaceae	Timonius timon (Spreng.) Merr.	
397	Rubiaceae	Timonius kaniensis Valeton	y
398	Loganiaceae	Neuburgia corynocarpa (A.Gray) Leenh.	
399	Apocynaceae	Alstonia scholaris (L.) R.Br.	
400	Apocynaceae	Cerbera floribunda K.Schum.	
401	Apocynaceae	Ochrosia citrodora K.Schum. & Lauterb.	y
402	Apocynaceae	Ochrosia coccinea (Teijsm. & Binn.) Miq.	
403	Apocynaceae	Tabernaemontana aurantiaca Gaudich.	
404	Apocynaceae	Tabernaemontana pandacaqui Lam.	
405	Apocynaceae	Voacanga grandifolia (Miq.) Rolfe	
406	Apocynaceae	Wrightia laevis Hook.f.	
407	Solanaceae	Lycianthes oliveriana (Lauterb. & K.Schum.) Bitter	
408	Oleaceae	Chionanthus brassii (Kobuski) Kiew	y
409	Oleaceae	Chionanthus ramiflorus Roxb.	
410	Oleaceae	Chionanthus sessiliflorus (Hemsl.) Kiew	
411	Gesneriaceae	Cyrtandra erectiloba G.W.Gillett	
412	Lamiaceae	Callicarpa longifolia Lam.	
413	Lamiaceae	Callicarpa pentandra Roxb.	
414	Lamiaceae	Clerodendrum porphyrocalyx K.Schum. & Lauterb.	y
415	Lamiaceae	Clerodendrum tracyanum (F.Muell.) Benth.	
416	Lamiaceae	Gmelina moluccana Backer ex K.Heyne	
417	Lamiaceae	Premna serratifolia L.	
418	Lamiaceae	Teijsmanniodendron cf. bogoriense Koord.	
419	Lamiaceae	Vitex cofassus Reinw. ex Blume	
420	Lamiaceae	Vitex cf. glabrata R.Br.	
421	Acanthaceae	Calycacanthus magnusianus K.Schum.	y
422	Acanthaceae	Graptophyllum pictum (L.) Griff.	y
423	Stemonuraceae	Gomphandra cf. ramuensis (Lauterb.) Sleumer	
424	Stemonuraceae	Medusanthera laxiflora (Miers.) R.A.Howard	
425	Cardiopteridaceae	Citronella suaveolens (Blume) R.A.Howard	
426	Pittosporaceae	Pittosporum sinuatum Blume	y
427	Araliaceae	Polyscias spectabilis (Harms) Lowry & G.M.Plunkett	
428	Araliaceae	Osmoxylon cf. boerlagei (Warb.) Philipson	y

Table 3-2. Checklist of tree species not yet verified for the Wanang Forest Dynamics Plot. These taxa have a high likelihood of occurring within the plot. New Guinea endemic status is indicated.

Family	Scientific Name	Reason	Endemic
Annonaceae	Pseuduvaria aff. subcordata Y.C.F.Su & R.M.K.Saunders	From plot's vicinity	y
Lauraceae	Cryptocarya sp. 03	ID pending	
Lauraceae	Litsea guppyi F.Muell. ex Forman	Needs confirmation	
Monimiaceae	Steganthera hospitans (Becc.) Kaneh. & Hatus.	Needs confirmation	
Arecaceae	Hydriastele wendlandiana (F.Muell.) H.Wendl. & Drude	From plot's vicinity	
Dilleniaceae	Dillenia papuana Martelli	From plot's vicinity	y
Fabaceae	Archidendron lucyi F.Muell.	Needs confirmation	
Fabaceae	Archidendron glabrum (K.Schum.) K.Schum. & Lauterb.	From plot's vicinity	y
Phyllanthaceae	Breynia sp. 02	From plot's vicinity	
Achariaceae	Trichadenia philippinensis Merr.	Needs confirmation	
Clusiaceae	Garcinia maluensis Lauterb.	From plot's vicinity	
Myrtaceae	Syzygium versteegii (Lauterb.) Merr. & L.M.Perry	From plot's vicinity	y
Burseraceae	Canarium oleosum (Lam.) Engl.	From plot's vicinity	
Anacardiaceae	Rhus taitensis Guill.	From plot's vicinity	
Meliaceae	Didymocheton gaudichaudianus A.Juss.	From plot's vicinity	
Santalaceae? Annonaceae?	Unknown	Needs confirmation, ID uncertain	
Sapotaceae	Planchonella keyensis H.J.Lam	From plot's vicinity	
Gentianaceae	Utania volubilis (Wall.) Sugumaran	From plot's vicinity	
Lamiaceae	Gmelina sessilis C.T.White & W.D.Francis ex Lane-Poole	From plot's vicinity	y

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Appendix 1

Taxa reviewed and accepted by Z.E. for the New Guinea checklist. The following entries are taken from Supplemental Table 1 of the published *Nature* paper (citation given at beginning of Chapter 2). This account includes 246 accepted taxa and does not include all 404 names reviewed by Z.E. for the paper, as synonyms and erroneous taxa have been excluded here.

This shortened table of select columns was created by filtering for "Z. Ezedin" in the checked_by column. Table has been shortened and reformatted for brevity.

Only the following seven columns from the original Supp. Table 1 are included (some renamed):

- family_expert_verified (as Family)
- fullname_expert_verified + authorname_expert_verified* (as Scientific Name)
- endemic (as End.)
- IDN (as is)
- PNG (as is)
- life_form (as Habit)

ING = Indonesian New Guinea; PNG = Papua New Guinea.
**Note: The two separate columns for the binomial name and author name are here concatenated to give a single column.*

Family	Scientific Name	End.	IDN	PNG	Habit
Actinidiaceae	Saurauia rufescens B.J.Conn & Damas	y	n	y	shrub
Apocynaceae	Secamone timorensis Decne.	n	y	y	climber
Arecaceae	Calyptrocalyx amoenus Dowe & M.D.Ferrero	y	n	y	palm
Arecaceae	Orania grandiflora A.P.Keim & J.Dransf.	y	y	n	Palm
Begoniaceae	Begonia maguniana H.P.Wilson	y	y	y	herb
Calophyllaceae	Calophyllum macrophyllum Scheff.	y	y	n	tree
Celastraceae	Celastrus subspicatus Hook.	y	n	y	scandent shrub
Cyperaceae	Anthelepis undulata (Thwaites) R.L.Barrett & K.L.Wilson & J.J.Bruhl	n	n	y	herb
Cyperaceae	Carex papualpina K.L.Wilson	y	n	y	herb
Cyperaceae	Carex sclerophylla (Nelmes) K.L.Wilson	y	n	y	herb
Cyperaceae	Carex subtrigona (Nelmes) K.L.Wilson	y	n	y	herb
Ericaceae	Diplycosia papuana Mustaqim, Utteridge & Heatubun	y	y	n	epiphytic shrub
Ericaceae	Rhododendron cravenii Danet	y	y	n	epiphytic shrub
Fabaceae	Cynometra grandiflora A.Gray	n	y	n	Tree
Fabaceae	Grona trichostachya (Benth.) H.Ohashi & K.Ohashi	n	y	y	herb
Fabaceae	Leptodesmia microphylla (Thunb.) H.Ohashi & K.Ohashi	n	y	y	shrub
Fabaceae	Oxytes brachypoda (A.Gray) H.Ohashi & K.Ohashi	n	n	y	herb
Fabaceae	Pleurolobus gangeticus (L.) J.St.-Hil. ex H.Ohashi & K.Ohashi	n	y	y	shrub, subshrub
Fabaceae	Sohmaea laxiflora (DC.) H.Ohashi & K.Ohashi	n	y	y	shrub, subshrub
Fabaceae	Sohmaea zonata (Miq.) H.Ohashi & K.Ohashi	n	y	y	shrub
Goodeniaceae	Scaevola burnettii W.N.Takeuchi	y	y	n	shrub
Malvaceae	Grewia savannicola R.L. Barrett	n	n	y	shrub
Moraceae	Antiaris toxicaria Lesch.	n	y	y	tree
Moraceae	Antiaropsis decipiens K.Schum.	y	y	y	tree, shrub
Moraceae	Antiaropsis uniflora C.C.Berg	y	n	y	tree
Moraceae	Artocarpus altilis (Parkinson) Fosberg	n	y	y	tree
Moraceae	Artocarpus integer (Thunb.) Merr.	n	y	n	tree
Moraceae	Artocarpus lacucha Buch.-Ham.	n	y	y	tree
Moraceae	Artocarpus nitidus TrÈcul	n	y	y	tree
Moraceae	Artocarpus sepicanus Diels	y	y	y	tree
Moraceae	Artocarpus teijsmannii Miq.	n	y	y	tree
Moraceae	Artocarpus treculianus Elmer	n	n	y	tree

Moraceae	Artocarpus vrieseanus Miq.	n	y	y	tree
Moraceae	Broussonetia papyrifera (L.) Vent.	n	n	y	tree
Moraceae	Fatoua villosa (Murray) Nakai	n	y	y	herb
Moraceae	Ficus adelpha Lauterb. & K.Schum.	y	y	y	tree
Moraceae	Ficus adenosperma Miq.	n	y	y	tree
Moraceae	Ficus albipila (Miq.) King	n	y	y	tree
Moraceae	Ficus ampelas Burm.f.	n	y	y	shrub, tree
Moraceae	Ficus ampulliformis Corner	y	y	n	root climber
Moraceae	Ficus arbuscula Lauterb. & K.Schum.	n	y	y	shrub
Moraceae	Ficus archboldiana Summerh.	y	n	y	tree
Moraceae	Ficus arfakensis King	n	y	y	tree
Moraceae	Ficus armitii King	y	y	y	shrub, tree
Moraceae	Ficus aurantiacifolia Weiblen & Whitfeld	y	n	y	tree
Moraceae	Ficus aurata Miq.	n	y	n	shrub, tree
Moraceae	Ficus aurita Reinw. ex Blume	n	y	y	shrub, tree
Moraceae	Ficus austrina Corner	n	y	y	tree
Moraceae	Ficus baccaureoides Corner	y	n	y	tree
Moraceae	Ficus badiopurpurea Diels	y	n	y	tree
Moraceae	Ficus baeuerlenii King	n	y	y	root climber
Moraceae	Ficus benjamina L.	n	y	y	tree
Moraceae	Ficus bernaysii King	n	y	y	tree
Moraceae	Ficus biakensis C.C.Berg	y	y	n	shrub
Moraceae	Ficus boanensis C.C.Berg	y	n	y	tree
Moraceae	Ficus botryocarpa Miq.	n	y	y	tree
Moraceae	Ficus brusii Weiblen	y	y	y	tree
Moraceae	Ficus calopilina Diels	y	y	y	tree
Moraceae	Ficus camptandra Diels	n	y	y	root climber
Moraceae	Ficus carinata C.C.Berg	y	y	n	tree
Moraceae	Ficus casearioides King	n	y	y	tree
Moraceae	Ficus caulocarpa (Miq.) Miq.	n	y	y	tree
Moraceae	Ficus chrysolepis Miq.	n	y	y	tree
Moraceae	Ficus cinnamomea Corner	y	y	y	root climber
Moraceae	Ficus colobocarpa (Corner) C.C.Berg	y	y	n	root climber
Moraceae	Ficus comitis King	y	y	y	tree
Moraceae	Ficus complexa Corner	y	n	y	tree
Moraceae	Ficus congesta Roxb.	n	y	y	tree
Moraceae	Ficus conocephalifolia Ridl.	y	y	y	shrub
Moraceae	Ficus copiosa Steud.	n	y	y	tree
Moraceae	Ficus crassiramea (Miq.) Miq.	n	y	y	tree
Moraceae	Ficus cryptosyce Corner	y	y	n	tree
Moraceae	Ficus cumingii Miq.	n	y	y	shrub

Moraceae	Ficus cynaroides Corner	y	n	y	tree
Moraceae	Ficus dalbertisii King	y	n	y	tree
Moraceae	Ficus dammaropsis Blanco	y	y	y	shrub, tree
Moraceae	Ficus devestiens Corner	n	y	n	root climber
Moraceae	Ficus disticha Blume	n	y	y	root climber
Moraceae	Ficus distichoidea Diels	y	y	y	tree
Moraceae	Ficus drupacea Thunb.	n	y	y	tree
Moraceae	Ficus edelfeltii King	y	y	y	tree
Moraceae	Ficus elmeri Merr.	n	n	y	shrub, tree
Moraceae	Ficus endochaete Summerh.	y	y	y	tree
Moraceae	Ficus erinobotrya Corner	n	y	y	shrub, tree
Moraceae	Ficus erythrosperma Miq.	n	y	y	tree
Moraceae	Ficus eustephana Diels	y	n	y	shrub
Moraceae	Ficus fiskei Elmer	n	y	n	shrub, tree
Moraceae	Ficus fistulosa Reinw. ex Blume	n	y	y	tree
Moraceae	Ficus flagellaris Diels	y	n	y	tree
Moraceae	Ficus floccifera Diels	y	y	y	root climber
Moraceae	Ficus funiculicaulis C.C.Berg	y	n	y	climber, tree
Moraceae	Ficus funiculosa Corner	n	y	y	tree
Moraceae	Ficus fuscata Summerh.	y	n	y	root climber
Moraceae	Ficus glaberrima Blume	n	y	y	tree
Moraceae	Ficus glandifera Summerh.	n	y	y	tree
Moraceae	Ficus glandulifera (Wall. ex Miq.) King	n	y	y	tree
Moraceae	Ficus gracilima Diels	n	y	y	shrub, tree
Moraceae	Ficus gul Lauterb. & K.Schum.	n	y	y	tree
Moraceae	Ficus gymnorygma Summerh.	y	y	y	climber
Moraceae	Ficus gynomorpha Summerh.	y	y	y	tree
Moraceae	Ficus hadroneura Diels	y	y	y	tree
Moraceae	Ficus hahliana Diels	y	y	y	tree
Moraceae	Ficus hesperidiiformis King	n	y	y	tree
Moraceae	Ficus hispida L.f.	n	y	y	tree, shrub
Moraceae	Ficus hombroniana Blume	n	y	y	tree
Moraceae	Ficus hypobrunnea Corner	y	y	n	root climber
Moraceae	Ficus hypophaea Schltr.	y	n	y	root climber
Moraceae	Ficus hystricicarpa Warb.	n	y	y	tree
Moraceae	Ficus ihuensis Summerh.	y	n	y	tree
Moraceae	Ficus indigofera Rech.	n	n	y	tree
Moraceae	Ficus insculpta Summerh.	y	y	y	root climber
Moraceae	Ficus iodotricha Diels	y	y	y	tree
Moraceae	Ficus itoana Diels	y	y	y	tree
Moraceae	Ficus jacobsii C.C.Berg	y	n	y	root climber

Moraceae	Ficus jimiensis C.C.Berg	y	n	y	root climber
Moraceae	Ficus lancibracteata Corner	n	n	y	???
Moraceae	Ficus lawesii King	n	y	y	tree
Moraceae	Ficus lepicarpa Blume	n	y	n	shrub, tree
Moraceae	Ficus leptoclada Benth.	n	n	y	tree
Moraceae	Ficus leptodictya Diels	y	y	y	tree
Moraceae	Ficus macrorrhyncha Lauterb. & K.Schum.	y	y	y	tree
Moraceae	Ficus macrothyrsa Corner	n	n	y	tree
Moraceae	Ficus megalophylla Diels	y	y	y	tree
Moraceae	Ficus melinocarpa Blume	n	y	y	tree
Moraceae	Ficus microcarpa L.f.	n	y	y	tree
Moraceae	Ficus microdictya Diels	y	y	y	tree
Moraceae	Ficus mollior F.Muell. ex Benth.	n	y	y	tree
Moraceae	Ficus montana Burm.f.	n	n	y	shrub
Moraceae	Ficus morobensis C.C.Berg	y	n	y	tree
Moraceae	Ficus myiopotamica C.C.Berg	y	n	y	tree
Moraceae	Ficus nana Corner	y	n	y	tree
Moraceae	Ficus nasuta Summerh.	n	n	y	root climber
Moraceae	Ficus nervosa B.Heyne ex Roth	n	y	n	tree
Moraceae	Ficus nodosa Teijsm. & Binn.	n	y	y	tree
Moraceae	Ficus novae-georgiae Corner	n	n	y	tree
Moraceae	Ficus novahibernica Corner	y	n	y	tree
Moraceae	Ficus obliqua G.Forst.	n	y	y	tree
Moraceae	Ficus obscura Blume	n	n	y	shrub, tree
Moraceae	Ficus odoardi King	y	y	y	climber
Moraceae	Ficus odoardii King	n	y	y	root climber
Moraceae	Ficus opposita Miq.	n	y	y	shrub, tree
Moraceae	Ficus ovatacuta Corner	y	y	y	root climber
Moraceae	Ficus oxymitroides Corner	y	y	y	root climber
Moraceae	Ficus pachyrrhachis Lauterb. & K.Schum.	y	y	y	tree
Moraceae	Ficus pachysycia Diels ex Corner	y	n	y	tree
Moraceae	Ficus pantoniana King	n	y	y	root climber
Moraceae	Ficus paoana C.C.Berg	y	n	y	tree
Moraceae	Ficus papuana Corner	n	y	y	tree
Moraceae	Ficus parietalis Blume	n	y	y	shrub, tree
Moraceae	Ficus patellata Corner	y	y	y	tree
Moraceae	Ficus pedunculosa Miq.	n	y	n	shrub, tree
Moraceae	Ficus phaeobullata Corner	y	n	y	root climber
Moraceae	Ficus phaeosyce Lauterb. & K.Schum.	y	n	y	shrub, tree
Moraceae	Ficus phatnophylla Diels	y	y	y	root climber

Moraceae	Ficus pilulifera Corner	y	y	y	tree
Moraceae	Ficus pleiadenia Diels	y	y	y	root climber
Moraceae	Ficus polyantha Warb.	n	y	y	tree
Moraceae	Ficus porata C.C.Berg	y	n	y	tree
Moraceae	Ficus porphyrochaete Corner	y	n	y	tree
Moraceae	Ficus porrecta (Corner) C.C.Berg	y	y	n	tree
Moraceae	Ficus praestans Corner	y	n	y	tree
Moraceae	Ficus prasinicarpa Elmer	n	y	y	tree
Moraceae	Ficus primaria Corner	y	y	y	tree
Moraceae	Ficus pseudojaca Corner	y	y	y	tree
Moraceae	Ficus pseudowassa Corner	y	n	y	tree
Moraceae	Ficus pumila L.	n	n	y	root climber
Moraceae	Ficus punctata Thunb.	n	y	n	root climber
Moraceae	Ficus pungens Reinw. ex Blume	n	y	y	tree
Moraceae	Ficus quercetorum Corner	y	y	y	tree
Moraceae	Ficus racemosa L.	n	n	y	tree
Moraceae	Ficus rhizophoriphylla King	y	y	y	tree
Moraceae	Ficus ribes Reinw. ex Blume	n	y	y	tree
Moraceae	Ficus rigo F.M.Bailey	y	n	y	tree
Moraceae	Ficus robusta Corner	y	y	y	tree
Moraceae	Ficus rubrijuvenis Weiblen & Whitfeld	y	n	y	tree
Moraceae	Ficus rubrivestimenta Weiblen & Whitfeld	y	n	y	tree
Moraceae	Ficus saccata Corner	y	n	y	tree
Moraceae	Ficus sageretina Diels	y	y	y	root climber
Moraceae	Ficus sangumae Weiblen & Whitfeld	y	y	y	shrub
Moraceae	Ficus saruensis C.C.Berg	y	n	y	tree
Moraceae	Ficus saurauioides Diels	y	y	y	shrub, tree
Moraceae	Ficus saxophila Blume	n	y	y	tree
Moraceae	Ficus schumanniana Warb.	n	n	y	tree
Moraceae	Ficus sciaphila Corner	y	n	y	tree
Moraceae	Ficus sclerosycia C.C.Berg	y	n	y	tree
Moraceae	Ficus scopulifera C.C.Berg	y	n	y	tree
Moraceae	Ficus scratchleyana King	y	y	y	root climber
Moraceae	Ficus semivestita Corner	y	y	y	tree
Moraceae	Ficus septica Burm.f.	n	y	y	shrub, tree
Moraceae	Ficus sorongensis C.C.Berg	y	y	n	shrub, tree
Moraceae	Ficus stellaris C.C.Berg	y	y	y	tree
Moraceae	Ficus subcaudata C.C.Berg	y	y	n	tree
Moraceae	Ficus subcongesta Corner	n	n	y	tree
Moraceae	Ficus subcordata Blume	n	y	y	tree

Moraceae	Ficus subcuneata Miq.	n	y	y	tree
Moraceae	Ficus sublimbata Corner	y	n	y	tree
Moraceae	Ficus subnervosa Corner	y	y	y	tree
Moraceae	Ficus subtrinervia Lauterb. & K.Schum.	n	y	y	tree
Moraceae	Ficus subulata Blume	n	y	y	shrub, tree
Moraceae	Ficus suffruticosa Corner	y	y	n	shrub
Moraceae	Ficus supfiana Schltr.	y	n	y	root climber
Moraceae	Ficus ternatana (Miq.) Miq.	n	n	y	tree
Moraceae	Ficus tinctoria G.Forst.	n	y	y	shrub, tree
Moraceae	Ficus tonsa Miq.	n	y	y	tree
Moraceae	Ficus trachypison K.Schum.	n	y	y	tree
Moraceae	Ficus trichocerasa Diels	y	y	y	tree
Moraceae	Ficus umbonata Reinw. ex Blume	n	y	y	shrub, tree
Moraceae	Ficus umbrae Ezedin & Weiblen	n	y	y	tree
Moraceae	Ficus variegata Blume	n	y	y	tree
Moraceae	Ficus virens Aiton	n	y	y	tree
Moraceae	Ficus virgata Reinw. ex Blume	n	y	y	tree
Moraceae	Ficus vriesiana Miq.	n	y	y	tree
Moraceae	Ficus wamanguana Weiblen & Whitfeld	y	n	y	tree
Moraceae	Ficus wassa Roxb.	n	y	y	shrub, tree
Moraceae	Maclura cochinchinensis (Lour.) Corner	n	y	y	shrub
Moraceae	Parartocarpus venenosus (Zoll. & Moritzi) Becc.	n	y	y	tree
Moraceae	Prainea limpato subsp. papuana (Becc.) C.C.Berg	n	y	y	tree
Moraceae	Prainea scandens King ex Hook.f.	n	n	y	tree, climber
Moraceae	Streblus glaber (Merr.) Corner	n	y	y	tree
Moraceae	Streblus ilicifolius (Vidal) Corner	n	y	y	shrub, tree
Moraceae	Streblus pendulinus (Endl.) F.Muell.	n	y	y	shrub, tree
Moraceae	Trophis philippinensis (Bureau) Corner	n	y	y	tree
Moraceae	Trophis scandens (Lour.) Hook. & Arn.	n	y	y	climber
Myrtaceae	Syzygium cravenii B.J.Conn & Damas	y	n	y	tree
Myrtaceae	Syzygium kokomo Craven	y	n	y	tree
Myrtaceae	Syzygium kuiense B.J.Conn & Damas	y	n	y	tree
Myrtaceae	Syzygium lababiense B.J.Conn & Damas	y	n	y	tree
Myrtaceae	Syzygium pterotum B.J.Conn & Damas	y	n	y	tree
Myrtaceae	Syzygium saundersii Craven	y	n	y	tree
Myrtaceae	Syzygium sleumeri Craven	y	y	n	shrub
Myrtaceae	Syzygium suberosum Craven	y	y	n	tree, shrub, treelet
Myrtaceae	Xanthomyrtus wendae Danet	y	y	n	shrub
Nepenthaceae	Nepenthes biak Jebb & Cheek	y	y	n	climber

Orchidaceae	Dendrobium annulatum Juswara & Schuit. & J.Champ.	y	y	n	epiphytic herb
Orchidaceae	Dendrobium nagataksaka Metusala	y	y	n	epiphytic herb
Orchidaceae	Hymenorchis papuana Kolan. & S. Nowak	y	n	y	epiphytic herb
Phyllanthaceae	Glochidion daviesii W.N.Takeuchi	y	y	n	tree
Primulaceae	Myrsine augustae (Mez) Pipoly	y	n	y	tree, shrub
Rosaceae	Argentina wanimboi Danet	y	y	n	herb
Rubiaceae	Mussaenda ovata Merr. & L.M.Perry	y	y	n	climbing shrub
Rubiaceae	Myrmephytum naumannii (Warb.) Huxley & Jebb	y	y	n	tuberous epiphyte
Rubiaceae	Psychotria golmanii W.N. Takeuchi	y	n	y	shrub
Salicaceae	Casearia brunneo-striata Gilg	y	n	y	shrub, tree?
Sapindaceae	Harpullia mabberleyana W.N.Takeuchi	y	n	y	tree
Smilacaceae	Smilax anguina K.Krause	y	n	y	woody climber
Smilacaceae	Smilax rubromarginata K.Krause	y	n	y	woody climber

Appendix 2

Updates introduced to the digital New Guinea checklist post-publication to April 2023. The following entries are updates made up to end of April 2023 to the New Guinea checklist post-publication (Cámara-Leret et al. 2020). These updates include corrected errors (from both paper and checklist), novel nomenclatural changes made to taxa, and novel taxa published for New Guinea.

It is possible that other errors in the New Guinea checklist could have been missed during quality control checks prior to and following publication of the checklist. The updates documented here are meant to build upon the published checklist and make it more robust. All updates listed here will be incorporated into the online dynamic checklist: https://bellatlas.umn.edu/checklists/checklist.php?clid=135&pid=7&dynclid=0.

This appendix is divided further into the following three parts:

1. Corrections to the main text
2. Removed taxa
3. New additions

Nomenclatural name changes and novel synonymies published after 5 August 2020 are not incorporated into the updates here, although will be adopted on the dynamic checklist.

Following the updates and corrections adopted here, the flora of New Guinea now encompasses 13834 species, 1753 genera, and 267 families. In Moraceae, the total count of accepted taxa should be 199 at time of publication, and not 201. These counts are up to date as of 30 April 2023.

Appendix 2, Part 1. Corrections to the main text. Due to an error in counting of endemic taxa, a few minor corrections should be made to the main text of the *Nature* article. These are given below.

From *Extended Data Table 3*, seven genera are missing despite being listed in the checklist as accepted endemic genera for NG, given below.

1. *Ophioglossella* Schuit. & Ormerod (Orchidaceae)
2. *Parabambusa* Widjaja (Poaceae)
3. *Pinga* Widjaja (Poaceae)
4. *Rosselia* Forman (Burseraceae)
5. *Ruhooglandia* S.Dransf. & K.M.Wong (Poaceae)
6. *Schefferomitra* Diels (Annonaceae)
7. *Widjajachloa* K.M.Wong & S.Dransf. (Poaceae)

It should be noted that shortly after publication of the New Guinea checklist, *Schefferomitra* was placed in synonymy under *Friesodielsia* following molecular study (Saunders et al. 2020).

Thus, at the time of publication, the total number of endemic genera for New Guinea was 68, not 61, as mentioned in the subsection titled "Endemism" (pg. 580). The missing genera are all monotypic, meaning the total number of species for all endemic genera is 171, not 164 as mentioned near the end of paragraph 2 of the subsection titled "Endemism" (pg. 580).

References:

Saunders, R. M., Guo, X., & Tang, C. C. (2020). *Friesodielsia subaequalis* (Annonaceae): a new nomenclatural combination following conservation of the generic name against *Schefferomitra*. *Phytotaxa* 464(2): 183-184.

Appendix 2, Part 2. Removed names. The following are taxa that have been removed from the checklist since publication. These were erroneously included in the published checklist. There is a slight chance other entries may have been erroneously included and missed during the review process.

Family	**Scientific Name**	**Reason for removal**
Moraceae	Artocarpus treculianus Elmer	Single GBIF record with incorrect ID
Moraceae	Ficus gymnorygma Summerh.	Misspelled duplicate
Moraceae	Ficus montana Burm.f.	Erroneous records in GBIF
Moraceae	Ficus odoardii King	Misspelled duplicate
Moraceae	Prainea scandens King	Not found in NG
Putranjivaceae	Drypetes australasica (Müll.Arg.) Pax & K.Hoffm.	Synonymized duplicate
Putranjivaceae	Drypetes roxburghii (Wall.) Hurus.	Synonymized duplicate

Appendix 2, Part 3. New additions. The following are taxa that have been added to the checklist since publication. Additions listed here are either taxa that were erroneously excluded from the checklist (9) or novel taxa published for New Guinea since then (112). All taxa listed are native. End. = endemic; ING = Indonesian New Guinea; PNG = Papua New Guinea.

Family	Scientific Name	End.	ING	PNG	Habit	Reason	Reference
Apocynaceae	Heterostemma carnosum Rodda	y	n	y	climber	NS	Taiwania 65(3): 326 (2020)
Apocynaceae	Hoya leucantha S.Moore	y	y	n	epiphyte, climber	NS	Blumea 67: 141 (2022)
Apocynaceae	Hoya domaensis Rodda & Simonsson	y	y	n	epiphyte, climber	NS	Blumea 67: 141 (2022)
Apocynaceae	Hoya gauttierensis Rodda & Simonsson	y	y	n	epiphyte, climber	NS	Blumea 67: 141 (2022)
Apocynaceae	Hoya krusenstierniana Rodda & Simonsson	y	n	y	epiphyte, climber	NS	Blumea 67: 145 (2022)
Apocynaceae	Hoya liddleana Simonsson & Rodda	y	n	y	epiphyte, climber	NS	Blumea 67: 145 (2022)
Apocynaceae	Hoya lucida Simonsson & Rodda	y	n	y	epiphyte, climber	NS	Blumea 67: 146 (2022)
Apocynaceae	Hoya paradisea Simonsson & Rodda	y	y	y	epiphyte, climber	NS	Blumea 67: 149 (2022)
Apocynaceae	Hoya pulleana Rodda & Simonsson	y	y	n	epiphyte, climber	NS	Blumea 67: 150 (2022)
Apocynaceae	Hoya tarikuensis Rodda & Simonsson	y	y	n	epiphyte, climber	NS	Blumea 67: 152 (2022)
Apocynaceae	Hoya unirana Rodda & Simonsson	y	y	n	epiphyte, climber	NS	Blumea 67: 152 (2022)
Apocynaceae	Papuahoya bykulleana Simonsson & Rodda	y	n	y	epiphyte, climber	NS	Willdenowia 50(1): 130 (2020)
Apocynaceae	Papuahoya neoguineensis Simonsson & Rodda	y	n	y	epiphyte, climber	NS	Willdenowia 50(1): 132 (2020)
Araceae	Cyrtosperma timikense Imran & A.Hay	y	y	n	herb	NS	Aroideana 43: 97 (2020)
Arecaceae	Calamus oresbiopsis A.J.Hend.	y	n	y	palm	NS	Phytotaxa 445(1): 327 (2020)
Arecaceae	Licuala bakeri Barfod & Heatubun	y	y	n	palm	NS	Phytotaxa 555(1): 2 (2022)
Arecaceae	Licuala bankae Barfod & Heatubun	y	n	y	palm	NS	Phytotaxa 555(1): 2 (2022)
Arecaceae	Licuala coccinisedes Barfod & Heatubun	y	y	y	palm	NS	Phytotaxa 555(1): 5 (2022)
Arecaceae	Licuala essigii Barfod & Heatubun	y	n	y	palm	NS	Phytotaxa 555(1): 8 (2022)
Arecaceae	Licuala multibracteata Barfod & Heatubun	y	n	y	palm	NS	Phytotaxa 555(1): 10 (2022)
Arecaceae	Licuala sandsiana Barfod & Heatubun	y	n	y	palm	NS	Phytotaxa 555(1): 10 (2022)
Arecaceae	Licuala suprafolia Barfod & Heatubun	y	n	y	palm	NS	Phytotaxa 555(1): 13 (2022)

Asparagaceae	Dracaena angustifolia (Medik.) Roxb.	n	y	y	tree	ERX	Z.E. pers. obs., WFDP, POWO
Aspleniaceae	Asplenium alleniae Parris ex Parris & Perrie	n	n	y	herb	NS	Blumea 65: 221 (2021)
Aspleniaceae	Deparia stellata Wardani	y	n	y	herb	NS	Reinwardtia 20(2): 61 (2021)
Asteraceae	Lagenophora sporadica Jian Wang ter & A.R.Bean	y	n	y	herb	NS	Austrobaileya 10(4): 578 (2020)
Begoniaceae	Begonia aikrono H.P.Wilson & Jimbo	y	n	y	herb	NS	Gard Bull Sing 72(2): 275–284 (2020)
Begoniaceae	Begonia fractalifolia H.P.Wilson & Jimbo	y	n	y	herb	NS	Gard Bull Sing 72(2): 275–284 (2020)
Begoniaceae	Begonia sandaunensis H.P.Wilson & Jimbo	y	n	y	herb	NS	Gard Bull Sing 72(2): 275–284 (2020)
Cannabaceae	Trema orientale (L.) Blume	n	y	y	tree	ERX	WFDP, GBIF, POWO
Ebenaceae	Diospyros multimaculata C.Puglisi	y	y	y	tree	NS	Edinb J Bot 79, 1879: 3 (2022)
Ebenaceae	Diospyros tehno C.Puglisi, Jimbo & Hagwood	y	n	y	tree	NS	Edinb J Bot 79, 1879: 6 (2022)
Ericaceae	Gaultheria puradyatmikae (Mustaqim, Utteridge & Heatubun) Kron & P.W.Fritsch	y	y	n	shrub	NS	Phytotaxa 442(3): 53 (2020), Gard Bull Sing 72(2): 311 (2020)
Ericaceae	Vaccinium hansmeyeri Argent	y	n	y	epiphyte	NS	Edinb J Bot 77(3): 440 (2020)
Ericaceae	Vaccinium hopei Argent	y	y	n	epiphyte	NS	Edinb J Bot 77(3): 442 (2020)
Ericaceae	Vaccinium onimense Argent	y	n	y	shrub	NS	Edinb J Bot 77(3): 444 (2020)
Ericaceae	Vaccinium paddywoodsii Argent	y	n	y	tree	NS	Edinb J Bot 77(3): 446 (2020)
Ericaceae	Vaccinium sandsii Argent	y	y	n	shrub	NS	Edinb J Bot 77(3): 448 (2020)
Ericaceae	Vaccinium tanjungii Argent	y	y	n	shrub	NS	Edinb J Bot 77(3): 450 (2020)
Goodeniaceae	Leschenaultia peregrina R.W.Jobson & R.L.Barrett	n	y	y	herb	NS	Telopea 24: 277–282 (2021)
Hernandiaceae	Hernandia ovigera L.	n	y	y	tree	ERX	Z.E. pers. obs., WFDP, GBIF, POWO
Meliaceae	Aglaia monocaula C.M.Pannell	y	y	n	tree	NS	PhytoKeys 155: 36 (2020)
Moraceae	Artocarpus buyangensis E.M.Gardner, Jimbo & Zerega	y	n	y	tree	NS	Syst Bot 47(2): 452 (2022)
Moraceae	Streblus ascendens Corner	n	y	y	tree	ERX	Z.E. pers. obs., WFDP, GBIF, POWO

Myrtaceae	Syzygium aporematum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 61 (2021)
Myrtaceae	Syzygium araucariarum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 62 (2021)
Myrtaceae	Syzygium bowersiae Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 62 (2021)
Myrtaceae	Syzygium bubuuense Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 64 (2021)
Myrtaceae	Syzygium cheesmaniae Craven & Damas	y	y	n	tree	NS	Blumea 66(1): 66 (2021)
Myrtaceae	Syzygium debruijnii Craven & Damas	y	y	n	tree	NS	Blumea 66(1): 66 (2021)
Myrtaceae	Syzygium fazangii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 66 (2021)
Myrtaceae	Syzygium foremanii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 67 (2021)
Myrtaceae	Syzygium frodinii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 67 (2021)
Myrtaceae	Syzygium gillisonii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 68 (2021)
Myrtaceae	Syzygium hartleyi Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 69 (2021)
Myrtaceae	Syzygium hentyi Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 70 (2021)
Myrtaceae	Syzygium hooglandii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 70 (2021)
Myrtaceae	Syzygium idanum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 71 (2021)
Myrtaceae	Syzygium kosteri Craven & Damas	y	y	n	tree	NS	Blumea 66(1): 71 (2021)
Myrtaceae	Syzygium kui Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 71 (2021)
Myrtaceae	Syzygium kutubuense Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 72 (2021)
Myrtaceae	Syzygium lagerstmemioides Craven & Damas	y	n	y	tree	ERX	GBIF, POWO
Myrtaceae	Syzygium maneauense Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 73 (2021)
Myrtaceae	Syzygium millariae Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 74 (2021)
Myrtaceae	Syzygium montis-venetus Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 74 (2021)
Myrtaceae	Syzygium novotnyi Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 74 (2021)
Myrtaceae	Syzygium oransbariense Mustaqim, Y.W.Low & Heatubun	y	y	n	tree	NS	Telopea 23: 222 (2020)
Myrtaceae	Syzygium prolatum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 75 (2021)
Myrtaceae	Syzygium radiciflorum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 76 (2021)

Myrtaceae	Syzygium rhysgardneri Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 76 (2021)
Myrtaceae	Syzygium royenii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 77 (2021)
Myrtaceae	Syzygium rubroalabastrum Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 78 (2021)
Myrtaceae	Syzygium takeuchii Craven & Damas	y	n	y	tree	NS	Blumea 66(1): 79 (2021)
Oleaceae	Ligustrum parvifolium Kiew	y	n	y	shrub	NS	Reinwardtia 19(1): 19 (2020)
Orchidaceae	Bulbophyllum cerastes J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 301 (2020)
Orchidaceae	Bulbophyllum dologlossum J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 304 (2020)
Orchidaceae	Bulbophyllum farciminiferum J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 319 (2020)
Orchidaceae	Bulbophyllum gymnothema J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 319 (2020)
Orchidaceae	Bulbophyllum ischyron J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 304 (2020)
Orchidaceae	Bulbophyllum lipochilum J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 322 (2020)
Orchidaceae	Bulbophyllum nannae J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 307 (2020)
Orchidaceae	Bulbophyllum nudicaule J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 324 (2020)
Orchidaceae	Bulbophyllum orthoraphe J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 309 (2020)
Orchidaceae	Bulbophyllum schistopogon J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 309 (2020)
Orchidaceae	Bulbophyllum stagmatoglossum J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 312 (2020)
Orchidaceae	Bulbophyllum radula J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 324 (2020)
Orchidaceae	Bulbophyllum squamiplectum J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 327 (2020)
Orchidaceae	Bulbophyllum subium J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Lanksteriana 20(3): 315 (2020)

Orchidaceae	Bulbophyllum teinodragma J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 315 (2020)
Orchidaceae	Bulbophyllum trivenosum J.J.Verm., Schuit. & de Vogel	y	n	y	epiphyte	NS	Lanksteriana 20(3): 317 (2020)
Orchidaceae	Bulbophyllum wiratnoi J.J.Verm., Schuit. & de Vogel	y	y	n	epiphyte	NS	Phytotaxa 589 (3): 283 (2023)
Orchidaceae	Dendrobium aurifex Thoerle, Schuit. & Turkel	y	n	y	epiphyte	NS	Orchideen J 27(1): 43 (2020)
Orchidaceae	Dendrobium moiorum Saputra, Schuit., Wanma & Naive	y	y	n	epiphyte	NS	Phytotaxa 430(2): 143 (2020)
Orchidaceae	Dendrobium niveolabium Handoyo, Naive, Ormerod & J.Champ.	y	y	n	epiphyte	NS	Phytotaxa 490(3): 272 (2021)
Orchidaceae	Dendrobium sagin Saputra & Schuit.	y	y	n	epiphyte	NS	Phytotaxa 459(2): 193 (2020)
Orchidaceae	Habenaria devogeliana Kolan., Szlach., Kras & S.Nowak	y	n	y	herb	NS	PeerJ 9:e12011: 60 (2021)
Orchidaceae	Platanthera valkenburgii S.Nowak, Efimov, Szlach. & Kolan.*	y			herb	NS	New Zealand J Bot 58(3): 239 (2020)
Orchidaceae	Pseudoliparis malinowskiana Margońska	y	n	y	herb	NS	Phytotaxa 435(3): 243 (2020)
Pandanaceae	Freycinetia pseudopetiolata A.P.Keim, K.Kartawinata & W.Sujarwo	y	y	n	climber	NS	Blumea 67: 157 (2022)
Paracryphiaceae	Quintinia macrophylla Hatus. ex O.K.Paul	y	y	y	tree	NS	Swainsonia 36: 110 (2022)
Polypodiaceae	Didymochlaena solomonensis Li Bing Zhang & H.Shang	n	n	y	herb	NS	Phytotaxa 479(1): 79 (2021)
Primulaceae	Maesa angustibracteolata Sumanon & Utteridge	y	n	y	climber	NS	Phytotaxa 505(3): 246 (2021)
Primulaceae	Maesa aurulenta Sumanon & Utteridge	y	n	y	tree	NS	Phytotaxa 505(3): 248 (2021)
Primulaceae	Maesa brassii Sumanon & Utteridge	y	n	y	climber	NS	Phytotaxa 505(3): 250 (2021)
Primulaceae	Maesa brevipedicellata Sumanon & Utteridge	y	n	y	tree	NS	Blumea 65(1): 84 (2020)
Primulaceae	Maesa oblanceolatifolia Sumanon & Utteridge	y	n	y	tree	NS	Phytotaxa 505(3): 252 (2021)
Primulaceae	Maesa prolatifructa Sumanon & Utteridge	y	n	y	tree, shrub	NS	Phytotaxa 505(3): 250 (2021)
Primulaceae	Maesa pusilliflora Sumanon & Utteridge	y	n	y	tree	NS	Phytotaxa 505(3): 255 (2021)
Primulaceae	Myrsine exquisitorum Utteridge & Lepschi	y	n	y	shrub, tree	NS	Phytotaxa 442(3): 134 (2020)

Ranunculaceae	Thalictrum umbraticola Borosova	y	y	n	herb	NS	Kew Bull 76: 814 (2021)
Rhamnaceae	Smythea papuana Utteridge & Cahen	y	n	y	climber	NS	Phytotaxa 498(3): 153 (2021)
Rubiaceae	Ixora timorensis Decne.	n	y	y	tree	ERX	GBIF, POWO
Rubiaceae	Morinda bracteata Roxb.	n	y	y	shrub, tree	ERX	Z.E. pers. obs., GBIF
Santalaceae	Scleropyrum brevistachyum Stauffer ex J.M.Macklin	y	n	y	shrub	NS	Kew Bull 75: 45 (2020)
Solanaceae	Lycianthes lucens S.Knapp	y	n	y	shrub	NS	PhytoKeys 209: 65 (2022)
Solanaceae	Solanum labyrinthinum D.McClelland	y	n	y	shrub	NS	Phytokeys 145: 3 (2020)
Urticaceae	Elatostema macrophyllum Brongn.	n	y	y	herb	ERX	Z.E. pers. obs. (cf.), GBIF
Urticaceae	Oreocnide rubescens (Blume) Miq.	n	y	y	shrub, tree	ERX	Z.E. pers. obs., GBIF
Vitaceae	Cissus montana (Lauterb.) Jackes & Trias-Blasi	y	y	y	climber	NS	Austrobaileya 13: 17 (2023)
Zingiberaceae	Pleuranthodium corniculatum Lofthus &A.D.Poulsen	y	n	y	herb	NS	Blumea 65(2): 96 (2020)
Zingiberaceae	Pleuranthodium sagittatum Lofthus &A.D.Poulsen	y	n	y	herb	NS	Blumea 65(2): 101 (2020)

Reason: ERX = erroneously excluded; NS = new species
* Locality data not known

Appendix 3

Partially complete species accounts for the *Tree Flora of Wanang FDP*. This represents a partially completed draft of the individual species accounts that will be published as part of the forthcoming *Tree Flora of Wanang FDP* book.

Each species will be accompanied by the following text information:

- Scientific name
- Species code
- Family
- Indigenous name
- Global distribution
- New Guinea provincial distribution
- New Guinea altitudinal range
- Vegetative field description*
- Corresponding herbarium specimens
- Notes on easily confused species within the plot (if relevant)*
- Notes on habitat and ecology (if available)
- Phenological observations (if available)*
- Indigenous uses at Wanang (if available)
- Miscellaneous taxonomic notes on the species (if relevant)

**Note: These sections remain incomplete for several taxa.*

It should be noted that due to time constraints resulting from the delayed start of fieldwork brought about in part by the 2020–21 pandemic and other unforeseeable events, the work presented here represents an incomplete account of the *Tree Flora of Wanang FDP* as it is known at the end of April 2023. All of the information listed above is available for all species with exception of the sections noted above.

This appendix is divided further into the following three parts:

1. Components of the species accounts
2. Summary table of orders and families
3. Partial species accounts of the *Tree Flora of Wanang FDP*

References:

Utteridge, T.M.A. & Jennings, L.V.S. (eds) (2021). *Trees of New Guinea*. 656 pp. United Kingdom: Kew Publishing, Royal Botanic Gardens, Kew.

Appendix 3, Part 1. Components of the species accounts. Brief descriptions are provided for all text components of the species pages.

Page Headings
A two-line header appears at the top of each species page. On the right margin are the names associated with the taxon; the top right the scientific name + author or morphospecies name and at bottom right is the corresponding Magi indigenous name (in bold). On the top left margin is given the six-letter species code and at bottom left is the botanical family of the taxon (in bold).

Global Distribution
The global distribution of the taxon is indicated in writing as a range displayed using names of countries, territories, or islands. Individual provinces may be indicated for larger countries (in parenthesis) when a species only is found in a single province. Cardinal directions – north (N), east (E), west (W), and south (S) – may precede a country name if the species is restricted to occurring only in a certain part of a country; these indications are generalized based on specimen data and do not correspond to any formal regional delimitations.

New Guinea Distribution
The distribution of the species within the New Guinea region, indicated by provinces for Indonesia (ING) and Papua New Guinea (PNG). Species distribution data is largely sourced from specimen data taken from GBIF along with POWO, more rarely from literature sources. If a species is found occurring in nearly all provinces, then only the province(s) it does not occur in are listed. Provinces given in brackets are assumptions made based on specimen data where the taxon is believed be likely present. Note that the Aru Islands, New Britain, and New Ireland are treated here as separate regions, differing from their official provincial limits. The islands of Biak and Yapen are treated under Papua province.

Elevational Range
The altitudinal distribution of the species in New Guinea, sourced from examined specimen data of the species. Parentheses are used to indicate uncertainty in range limit(s). It should be noted that due to the paucity of collections for several species, these ranges may be subject to change upon further field study.

Vegetative Description
A paragraph description of the species is given following the general format:

> ***Habit*** to max height and max dbh. ***Twigs*** [when young] color, smoothness; [when old] maturing color, smoothness. ***Exudate*** characteristics [if present]. ***Odor*** characteristics [if notable]. ***Leaves*** [if simple] simple, arrangement, phyllotaxy, dimensions (in cm), thickness/feel, adaxial color/shine, abaxial color/shine; laminar surface; base; apex; margins state, undulation [if notable]; petioles length (in cm), color, shape, misc. characteristics. ***Leaves*** [if compound] compound, pinnation type, leaf arrangement, phyllotaxy; rachis length, color, characteristics; petioles length, (in cm), color, shape, misc. characteristics; leaflets count, arrangement, thickness/feel, dimensions (in cm),

color/shine, lamina surface; leaflet base; leaflet apex; margins state, undulation [if notable]; petiolules length (in cm), color, shape, misc. characteristics. ***Stipules*** present/absent, description, max length. ***Indument*** present/absent, characteristics; hair type, length, color. ***Venation*** primary type (pinnate/palmate), secondary type (ending in -omous), ultimate marginal tertiary anastomosis; costa adaxial state, abaxial state, misc.; secondary veins number, adaxial state, abaxial state, misc. characteristics; tertiary veins course, angle in relation to the costa from secondaries measured facing the base, course, curviness, misc. characteristics; quaternary veins description.

Specimens
All relevant Z.E. voucher(s) collected from the field survey (given as *Ezedin #*) and a list of select herbarium specimens (given as *[Collector] #*) which match or otherwise best approach the Wanang material of the species indicated. Corresponding specimens determined under a different name than the species listed are mentioned in parenthesis.

Similar Species
Other taxa found at the WFDP that look similar or otherwise superficially resemble the species, with notes on key characters that may be used to separate them.

Habitat & Ecology
Notes on the species preferred habitat or ecology. Given only if available.

Phenology
Months in which the species may be found flowering and fruiting in the Wanang area. Given only if available.

Magɨ Uses
Indigenous uses, applications, and/or significance of the species to the Wanang community.

Notes
Miscellaneous or otherwise relevant notes on the morphology, taxonomy, classification, recognition, geographic distribution, and/or outstanding issues related to or regarding the species. If additional notes on the species not needed, section left blank.

Appendix 3, Part 2. Summary table of orders and families. A list of all 29 orders and 68 families found in the WFDP, in order of appearance. The families are arranged in phylogenetic order at the family level following the order given in the *Trees of New Guinea* book (Utteridge & Jennings 2021). Genera and species are arranged in alphabetical order under each family.

Gnetales
- Gnetaceae

Araucariales
- Podocarpaceae

Magnoliales
- Myristicaceae
- Annonaceae

Laurales
- Hernandiaceae
- Lauraceae
- Monimiaceae

Pandanales
- Pandanaceae

Asparagales
- Asparagaceae

Arecales
- Arecaceae

Poales
- Poaceae

Sabiales
- Sabiaceae

Proteales
- Proteaceae

Dilleniales
- Dilleniaceae

Vitales
- Vitaceae

Fabales
- Fabaceae
- Polygalaceae

Rosales
- Rosaceae
- Rhamnaceae
- Cannabaceae
- Moraceae
- Urticaceae

Cucurbitales
- Tetramelaceae

Celastrales
- Celastraceae

Oxalidales
- Elaeocarpaceae

Malpighiales
- Pandaceae
- Rhizophoraceae
- Euphorbiaceae
- Phyllanthaceae
- Chrysobalanaceae
- Putranjivaceae
- Salicaceae
- Violaceae
- Achariaceae
- Calophyllaceae
- Clusiaceae

Myrtales
- Lythraceae
- Myrtaceae
- Melastomataceae

Sapindales
- Burseraceae
- Anacardiaceae
- Sapindaceae
- Rutaceae
- Simaroubaceae
- Meliaceae

Malvales
- Malvaceae
- Thymelaeaceae
- Dipterocarpaceae

Caryophyllales
- Nyctaginaceae

Ericales
- Lecythidaceae
- Pentaphylacaceae
- Sapotaceae
- Ebenaceae
- Primulaceae
- Actinidiaceae

Icacinales
- Icacinaceae

Gentianales
- Rubiaceae
- Loganiaceae
- Apocynaceae

Solanales
- Solanaceae

Lamiales
- Oleaceae
- Gesneriaceae
- Lamiaceae
- Acanthaceae

Cardiopteridales
- Stemonuraceae
- Cardiopteridaceae

Apiales
- Pittosporaceae
- Araliaceae

Appendix 3, Part 3. Partial species accounts of the *Tree Flora of Wanang FDP*. The following pages are an incomplete account of the 428 species currently known at the WFDP. Incomplete portions are indicated with "not yet available" in brackets. The order of appearance for species follows the listing order given in Table 3-1.

Gnetum costatum K.Schum. GNETCO
Sir kunu **Gnetaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, Oro, Papua, Sandaun, West Papua
Elevational Range: 0–200 m

Shrub or Tree to 5 m tall and 12 cm dbh. ***Twigs*** light brown to reddish brown, smooth, with nodes thickened and articulated. ***Leaves*** simple, opposite, 2-ranked, 13–20.5 × 7.3–10 cm, (flimsy) coriaceous, glossy dark green above, dull(–semi-glossy) light green below; lamina surface weakly to strongly raised between secondaries; bases acute to obtuse; apex caudate, with long drip tip; margins entire, often weakly undulate; petioles 0.8–1.4 cm, dark crimson red, round. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries broadly looping once or sometimes twice with the latter arches being faint or abruptly cut off by the margin; costa dark pinkish-red below, adaxially flat to raised slightly, adaxially raised; secondary veins 6–8, excurrent, adaxially impressed, abaxially raised; tertiary veins irregular, straight percurrent to admedially ramified with derivatives sometimes anastomosing and appearing forked percurrent, oblique at sharp angles(–perpendicular) to the costa; quaternary veins penultimate, faint, reticulating towards the costa.

Specimens
Represented by the voucher *Ezedin 866* which corresponds to *Katik NGF 46836*, *Forster 11080*, and *Hoogland 4872*.

Similar species
Gnetum gnemon, but this is a large tree with usually less rounded leaves and the abaxial costa green. *Gnetum latifolium*, but this is a liana.

Habitat & Ecology
Locally rare at Wanang but reported to be somewhat common in other parts of its range.

Phenology
Does not bear flowers or fruits. Cones observed in August, but likely year round.

Magi Uses
Fibrous inner bark used to make strings for traditional string bags known as bilums.

Notes
Unlike its close relative *Gnetum gnemon*, the foliage of this species is not edible.

Gnetum gnemon L. GNETGN
Kunu **Gnetaceae**

Global Distribution
Myanmar to Fiji

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Jiwaka & Western Highlands
Elevational Range: 0–1100 m

Tree to 30 m tall and 50 cm dbh. ***Twigs*** dark green to light brown, nodes thickened and articulated, smooth. ***Leaves*** simple, opposite, 2-ranked, 14–22 × 5.5–10 cm, thin coriaceous, dark green above, light green below, lamina surface slightly raised between secondaries; base acuminate; apex acuminate; margins entire, undulate; petioles 0.9–1.5 cm, dark green, slightly to deeply grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in 1–2 series; costa adaxially impressed, abaxially raised; secondary veins 7–10(–11), adaxially impressed, abaxially slightly raised; tertiary veins strongly linear, reticulating into a dense, angular net-like pattern at 45° towards the costa; quaternary veins same as tertiaries but smaller, angled 45° to the costa, arising from the tertiaries and branching towards the costa.

Specimens
Represented by the vouchers *Ezedin 429* and *473*, corresponding to *Foreman et al. NGF 45960* and *Saunders 292*.

Similar species
Gnetum costatum, but this is a shrub or Tree with more rounded leaves and the abaxial costa tinged reddish. *Gnetum latifolium*, but this is a liana.

Habitat & Ecology
This is a generalist that is very common throughout the plot and the greater Wanang area.

Phenology
Does not bear flowers or fruits. Cones observed in all months of the year.

Magi Uses
Young fresh leaves consumed as a vegetable. Fibrous inner bark used to make strings for traditional string bags known as bilums. Exudate used on sores.

Notes
The species is noticeably variable throughout its range. According to data from the second census, this is the third most abundant species inside the Wanang plot, behind only *Ficus hahliana* and *Celtis latifolia*. This is eaten as a vegetable and is one of the primary staples prepared everyday by the cooks at Swire Station to all visiting researchers and students.

Podocarpus neriifolius D.Don PODONE
Yim tigi **Podocarpaceae**

Global Distribution
S China to Fiji

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–250(–700) m

Tree to 40 m tall and 70 cm dbh. ***Twigs*** dark green, smooth, weakly ridged from decurrent petiole bases, the ridges either fading out or being interrupted by the following node below. ***Leaves*** simple, irregularly spaced with no discernable pattern in leaf arrangement or ptyxis, 20–25 × 2–2.5 cm, thick coriaceous, mid high glossy green above, light semi-glossy green below; base acuminate, tapering; apex acuminate, long tapering; margins entire; petioles subsessile to sessile, the bases weakly decurrent along the stem. ***Stipules*** absent. ***Indument*** absent. ***Venation*** parallel, numerous, very faint to inconspicuous; costa yellowish green, prominently raised above and below; secondary veins absent.

Specimens
Represented by the vouchers *Ezedin 446* and *521*, corresponding to *Takeuchi et al. 15086* and *Womersley NGF 3919*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Does not bear flowers or fruits. Cones not observed.

Magi Uses
Timber used for house construction.

Notes
This species is common throughout lowland Malesia. May be difficult to vegetatively differentiate from some other New Guinea lowland *Podocarpus* species such as *P. ledermannii* and *P. grayae*.

Endocomia macrocoma (Miq.) W.J.de Wilde subsp. *prainii* (King) W.J.de Wilde

ENDOMA

Kápuv gib'té

Myristicaceae

Global Distribution
S China (Yunnan) to Java, Philippines & New Guinea

New Guinea Distribution
ING & PNG: All provinces except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka & Western Highlands
Elevational Range: 0–270(–550) m

Tree to 50 m tall and 44 cm dbh. ***Twigs*** greyish brown, smooth. ***Odor*** of all vegetative parts warm spicy. ***Leaves*** simple, alternate, 2-ranked, 15–35 × 5–12 cm, (flimsy) coriaceous, high glossy dark green above, semi-glossy mid green below, new leaves flushing light greenish copper, lamina surface usually noticeably raised between secondaries; base acute, sometimes asymmetric; apex acuminate; margins entire; petioles 0.9–2.5 cm, light green, adaxially flattened. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping once or fading out before margin; costa yellowish green below, adaxially weakly sunken, abaxially raised; secondary veins (11–)16–22(–25), excurrent, adaxially impressed, abaxially slightly raised(–flat); tertiary veins straight to forked percurrent, oblique at 45° to the costa, course straight, weakly recurved; quaternary veins faint to inconspicuous, irregular, usually perpendicular against the tertiaries, rarely forked percurrent.

Specimens
Represented by the vouchers *Ezedin 1082* and *1092*, corresponding to *Pullen 916* and *Hoogland & Craven 10506*.

Similar species
Horsfieldia pilifera, but this has leaves that are dull to weakly glossy on the abaxial side, the laminar surface flat, the bases tapering acute, and tertiaries that are faint, poorly developed, and appearing closer to the margins.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed June and August.

Magi Uses
Timber used for construction of beds and as posts for house framing.

Notes

Gymnacranthera farquhariana var. *zippeliana* (Miq.) R.T.A.Schouten GYMNFA
Kápuv maki **Myristicaceae**

Global Distribution
Malesia except Java and the Lesser Sunda Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Eastern Highlands, Enga, Hela & Jiwaka
Elevational Range: 0–700 m

Tree to 30 m tall and 65 cm dbh. ***Twigs*** light bronze or yellowish brown, glabrous; maturing orange to reddish brown, smooth. ***Odor*** of inner bark soft, spicy floral, dissipating slowly; of leaves soft, like nutmeg or mace spice. ***Leaves*** simple, alternate, 2-ranked, (5.4–)10–18 × 2.6–6 cm, thin subcoriaceous; glossy dark green above, dull glaucous bluish white below, lamina surface flat; base acute; apex acuminate, tapering; margins entire, flat to weakly undulate; petioles 0.8–1.2 cm, light green to blackish, strongly grooved, often weakly contorted. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries broadly and faintly looping once(–twice); costa adaxially (slightly) impressed, abaxially raised; secondary veins (6–)10–14(–18), inconspicuous above, adaxially flat to very weakly impressed, abaxially raised slightly; tertiary veins faint, somewhat irregular, straight percurrent to weakly reticulate, oblique at 35–70° to the costa, course mostly convex, strongly recurved; quaternary veins absent or too faint.

Specimens
Represented by the vouchers *Ezedin 275*, *298*, and *852*, corresponding to *Saunders 451* and *Hoogland 4896*.

Similar species
Myristica buchneriana, but this has larger leaves, usually an orangish brown indument on young twigs and leaves, and composite intersecondaries. *Maasia glauca* but this has white fibrous bark, and the venation is not as clearly visible.

Habitat & Ecology
A generalist species commonly encountered throughout the plot, regardless of habitat or topography; however, it seems to avoid the steeper hill sides.

Phenology
Flowering likely year round. Fruiting observed year round.

Magi Uses
Timber used in the construction of small huts, balconies, and fencing.

Notes
Formerly known as *Gymnacranthera paniculata* but now considered a variety of the more widespread species *G. farquhariana*, although further study is needed to assess this species. According to data from the second census, this is the fourth most abundant species inside the Wanang plot.

Horsfieldia basifissa W.J.de Wilde HORSBA
Kápuv sisi tūbh **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang & Sandaun
Elevational Range: 0–150(–700) m

Tree to 25 m tall and 45 cm dbh. ***Twigs*** dark reddish brown, with vertical ridges, lenticellate. ***Odor*** of all parts warm spicy. ***Leaves*** simple, alternate, 2-ranked, 10–16(–22) × 3–7(–9) cm, coriaceous, mid to dark green above, light green below, lamina surface slightly raised between secondaries; base acute; apex acuminate; margins entire; petioles 0.5–1.2 cm, dark green, with central groove. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping back; costa adaxially flat, abaxially raised; secondary veins 8–15, adaxially impressed slightly, abaxially raised slightly; tertiary veins absent or too faint.

Specimens
Represented by the vouchers *Ezedin 299*, *978*, *1079*, and *1255*, corresponding to *Frodin NGF 26953* and *White NGF 10242* (typus: *Horsfieldia basifissa*).

Similar species
Horsfieldia subtilis, but this has conspicuously bullate leaves that are more elliptic in shape with the apex acuminate.

Habitat & Ecology
This species is restricted to the northern coast of the New Guinea mainland, a distribution pattern found in several species.

Phenology
Flowering likely year round. Fruiting observed year round.

Magi Uses
Preferred timber for the construction of houses and fences.

Notes

Horsfieldia hellwigii (Warb.) Warb. HORSHE
Kápuv gabidigidi **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Jiwaka, Southern Highlands & West Papua
Elevational Range: 0–360(–1200) m

Tree to 30 m tall and 54 cm dbh. ***Twigs*** green with dark splotches, densely rusty tomentose; maturing dark brown. ***Leaves*** simple, alternate, 2-ranked, 17–40 × 5–14 cm, thick membranaceous to coriaceous; lamina surface prominently raised between secondaries, weakly so between tertiaries; glossy dark green above, semi-glossy light green below; base rounded to cuneate; apex acuminate to strongly caudate, the tip often elongated; margins entire, flat; petioles 0.2 – 0.8 cm, green, weakly grooved. ***Stipules*** absent. ***Indument*** present on all vegetative parts, late glabrescent; hairs simple, short, woolly, rusty reddish orange. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries faintly looping once; costa adaxially (sharply) raised, abaxially raised; secondary veins 12–26(–33), adaxially impressed, abaxially raised; tertiary veins weakly percurrent, often fading out terminally, oblique at 45° to the costa, course variable; quaternary veins absent or too faint.

Specimens
Represented by the vouchers *Ezedin 1084*, *1095*, and *1098* for *H. hellwigii* and *Ezedin 1095* for *H. pulverulenta*, corresponding to *Saunders 483* for *H. hellwigii* and *Molino et al. 3125*, *Saunders 358*, *Katik W 2877*, and *Leach NGF 34339* for *H. pulverulenta*.

Similar species
Horsfieldia sylvestris, but the leaves are thicker (fleshy) coriaceous with venation more strongly impressed and laminas less hairy.

Habitat & Ecology
Quite common throughout lowland forests in eastern PNG. Likely a critical food source for wildlife.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction of small huts and fences.

Notes
There appears to be no clear morphological difference between this species and *H. pulverulenta*, making distinguishing the two very difficult as they both appear to seamlessly grade into one another. Due to this, they are here both considered the same entity and treated under this name, assuming both forms are indeed present at Wanang; the description also applies to both. It is likely these two "species", along with the other look-alikes *H. leptantha* and *H. ralunensis* (both not found at Wanang but endemic to New Guinea), form a large species grade and should be subject to molecular and morphological scrutiny.

Horsfieldia cf. *pilifera* Markgr. HORSPI
Kápuv kiki **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Eastern Highlands, East Sepik, Madang, Morobe & [Sandaun]
Elevational Range: 0–500(–1650) m

Tree to 20 m tall and 20 cm dbh. ***Twigs*** dark green, with a single faint ridge running lengthwise; maturing orangish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 10–23(–27) × 3–9 cm, thick membranaceous or flimsy coriaceous, semi-glossy to dull mid green above, dull light green below, lamina surface flat to weakly raised between secondaries; base cuneate; apex acuminate, (long) tapering; margins entire, flat; petioles 0.6–1.2 cm, yellowish green to orangish, grooved. ***Stipules*** absent. ***Indument*** absent or present, when present restricted to the abaxial side on and surrounding the costa and veins, in varying density; hairs simple, short, rusty brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries faintly looping back; costa adaxially raised, abaxially raised; secondary veins (7–)13–16(–21), adaxially flat, abaxially weakly raised, tertiary veins faint, (weakly) percurrent, often fading, oblique at 45–55° to the costa, course variable; quaternary veins absent or too faint.

Specimens
Represented by the vouchers *Ezedin 1086*, *1093*, *1096*, *1097*, and *1101*, corresponding to *Takeuchi et al. 17143*.

Similar species
Endocomia macrocoma, but this has leaves that are thicker and highly glossy with secondaries impressed.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Not recorded.

Notes
This species is similar to *H. pachycarpa* and further work may be needed to assess the relation between them. The vegetative morphology appears variable in abaxial indument only, with there being two distinct forms: glabrous and rusty-tomentose, the latter form further varying in the degree of indument cover.

Horsfieldia sinclairii W.J.de Wilde HORSSI

Kápuv kungir niŋi **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG endemic: Central, East Sepik, Enga, Gulf, Jiwaka, Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–300(–920) m

Tree to 25 m tall and ca. 20 cm dbh. ***Twigs*** light green, smooth; maturing dark reddish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 6–14 × 2–4 cm, thin coriaceous or almost membranaceous, semi-glossy above dark green above, dull mid green below, new leaves flushing light greenish bronze, lamina surface flat; base cuneate to weakly attenuate; apex acute to acuminate; margins entire, weakly undulate; petioles 0.6–1.5 cm, (light) green, adaxially flattened to weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, faintly brochidodromous, with ultimate marginal tertiaries faintly looping once; costa adaxially flat, abaxially raised, dark yellow green; secondary veins 6–16, adaxially flat, abaxially weakly raised; tertiary veins very faint to absent, irregular.

Specimens
Represented by the voucher *Ezedin 1214*, corresponding to *Saunders 528*.

Similar species
Myristica cf. *lanceolata*, but this has clearly visible tertiaries, the costa and secondary veins raised above, and bases that are more conspicuously attenuate. *Horsfieldia subtilis*, but this has leaves with a conspicuously bullate upper surface and visible tertiaries. *Horsfieldia* cf. *pilifera* (glabrous version), but this has larger, thicker leaves with a costa that is raised above.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Despite the type specimen being described from 600 m, this species is more commonly collected at elevations below that.

Horsfieldia subtilis Warb. HORSSU
Aŋkápuv niŋi **Myristicaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Manus Is., New Britain & New Ireland
Elevational Range: 0–400(–600) m

Tree to 15 m tall and 40 cm dbh. ***Twigs*** dark yellowish green, smooth; maturing reddish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 6–28 × 2–9.5 cm, thick coriaceous, glossy dark green above, dull mid green below; lamina surface bullate, strongly raised between secondaries and tertiaries; base cuneate; apex acuminate, tapering; margins entire, flat to sometimes weakly undulate; petioles 0.5–1.3 cm, dark yellowish green, weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries faintly looping once(–twice); costa adaxially raised, abaxially raised; secondary veins 7–17, adaxially strongly impressed, abaxially strongly raised; tertiary veins sometimes faint, irregular, weakly to forked percurrent, forming conspicuous compound intersecondaries that are adaxially impressed and strongly recurved; quaternary veins absent or too faint.

Specimens
Represented by the voucher *Ezedin 1214*, corresponding to *Hoogland & Craven 10475*, *Pullen 1074*, and *Takeuchi et al. 13445*.

Similar species
Horsfieldia sinclairii, but this lacks tertiaries and has a flat lamina surface. *Myristica* cf. *lanceolata*, but this has a flat lamina surface.

Habitat & Ecology
This species is found commonly near water sources, such as along riverbanks.

Phenology
Flowering not observed. Fruiting observed September–October.

Magɨ Uses
Not recorded.

Notes

Horsfieldia sylvestris Warb. HORSSY
Kápuv sisi galaŋ **Myristicaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., New Ireland, Oro & Western Highlands
Elevational Range: 0–200(–600) m

Tree to 40 m tall and 57 cm dbh. ***Twigs*** dark olive green, lightly rusty tomentose; maturing greyish brown. ***Leaves*** simple, alternate, 2-ranked, 20–45 × 3–7 cm, thick membranaceous or flimsy coriaceous, glossy dark green above, dull mid green below; lamina surface bullate, strongly raised between secondaries, weakly raised between tertiaries; base rounded to obtuse, apex acuminate; margins entire, flat; petioles 0.2–0.7 cm, dark olive green, weakly grooved. ***Stipules*** absent. ***Indument*** present on all vegetative parts, late glabrescent; hairs simple, rusty reddish brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once or twice; costa adaxially strongly raised, abaxially raised; secondary veins 30–42, abaxially strongly impressed, abaxially raised; tertiary veins straight percurrent, weakly recurved, often with short non-composite intersecondaries; quaternaries faint, somewhat irregular, weakly to forked percurrent.

Specimens
Represented by the voucher *Ezedin 1076*, corresponding to *Saunders 920*.

Similar species
Horsfieldia hellwigii (incl. *H. pulverulenta*), but the leaves are wider, not as thick, the sides ± parallel, the indument usually thicker, and the younger leaves are noticeably a darker shade green.

Habitat & Ecology
This has been described as an emergent forest tree. Likely an important food source for wildlife given its ubiquity.

Phenology
Flowering observed September. Fruiting observed August.

Magɨ Uses
Timber used in bed construction and as posts in house frames.

Notes
The species is widespread throughout New Guinea lowlands and is thus likely present in the other provinces it has yet to be recorded from. Morphologically, this species approaches the *H. hellwigii–pulverulenta* group as the leaves are quite similar, although there is a noticeable degree of difference particularly regarding the size of the inflorescence, which in this species is more than double the size and density of those in the *H. hellwigii* complex.

Myristica globosa Warb. MYRIGL
Kápuv **Myristicaceae**

Global Distribution
New Guinea, Solomon Islands & Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Eastern Highlands], Enga, Hela, Jiwaka, Manus Is., New Ireland & Western Highlands
Elevational Range: 0–500(–1400?) m

Tree to 30 m tall and 40 cm dbh. ***Twigs*** dark yellowish green, smooth; maturing reddish brown, finely vertically striate. ***Leaves*** simple, alternate, 2-ranked, 7–16 × 2–7 cm, (thick) chartaceous to thin coriaceous, glossy dark green above, dull light bluish grey glaucous below; lamina surface flat; base cuneate; apex (long) acuminate; margins entire, flat; petioles 8–15 cm, dark yellowish green, shallowly grooved. ***Stipules*** absent. ***Indument*** absent. Venation pinnate, (weakly) brochidodromous, with ultimate marginal tertiaries densely looping once or twice; costa adaxially flat, abaxially raised; secondary veins 8–15, adaxially flat, abaxially weakly raised; tertiary veins usually conspicuous, weakly (to forked) percurrent, sometimes forming short compound intersecondaries, oblique at varying angles, strongly recurved; quaternaries irregular, straight to forked percurrent.

Specimens
Represented by the voucher *Ezedin 1094* and *1211*, corresponding to *Pullen 1173* and *Katik NGF 46929*.

Similar species
Myristica subalulata and *Myristica* cf. *lancifolia*, but these both lack glaucous undersides.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed September. Fruiting not observed.

Magɨ Uses
None recorded.

Notes

Myristica hollrungii Warb. MYRIHO
Kápuv mabal **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Enga, Hela, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–300(–900) m

Tree to 35 m tall and 32 cm dbh. ***Twigs*** dark green, smooth but with vertical wrinkles; maturing orangish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 15–40 × 4–15 cm, thick stiff coriaceous, glossy dark green above, (semi-)glossy mid green below, new leaves flushing abaxially dark purplish pink; lamina surface strongly raised between secondaries; base weakly rounded to obtuse; apex blunt acute; margins entire, flat; petioles 1.5–2.5 cm, dark yellowish to blackish green, weakly grooved and prominently ridged. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries very faint and looping once; costa adaxially strongly raised, abaxially strongly raised; secondary veins 15–25, adaxially impressed and weakly raised, abaxially weakly raised; tertiary veins inconspicuous or very faint and thin, irregular, doubly forked percurrent to weakly reticulate, often forming multiple intersecondaries, not recurved; quaternaries very faint, reticulate.

Specimens
Represented by the voucher *Ezedin 1104*, corresponding to *Katik NGF 46630*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species, although it appears to be semi-clumping.

Phenology
Flowering and fruiting not observed.

Magi Uses
Stems used as gardening tools.

Notes

Myristica inutilis subsp. *papuana* (Markgr.) W.J.de Wilde MYRIIN

Kápuv iburra **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, Madang, Milne Bay, [Morobe], New Britain, New Ireland & Western
Elevational Range: 0–1500 m

Tree to 40 m tall and 52 cm dbh. ***Twigs*** orangish green to light brown, smooth; maturing dark reddish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 12–30 × 3.5–7.5 cm, (thick) coriaceous, glossy dark green above, dull to weakly shiny orangish bronze to golden brown below; lamina surface flat to sometimes (prominently) raised between secondaries; base obtuse; apex acute; margins entire, flat; petioles 0.9–2 cm, orangish green to golden brown, weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping back and fading out; costa adaxially raised, abaxially raised; secondary veins 18–25, adaxially weakly raised, abaxially weakly raised; tertiary veins faint and often fading out, straight to forked percurrent, closely spaced, sometimes forming non-composite intersecondaries, course mostly convex, weakly recurved; quaternary veins faint and fading, usually forked percurrent.

Specimens
No voucher collected, but Wanang material corresponds to *Foreman LAE 52230* (typus: *Myristica inutilis* var. *foremaniana*) and *Takeuchi 11865*.

Similar species
Myristica sp. 01, but this is rusty tomentose on all vegetative parts.

Habitat & Ecology
This species is common throughout Wanang and is a generalist with high levels of recruitment throughout the plot.

Phenology
Flowering not observed but likely year round. Fruiting observed March–November, likely year round.

Magi Uses
Timber used in house construction. Exudate used for writing.

Notes
This likely forms a species complex with several other of de Wilde's *Myristica* species, all of which would benefit from further study. It is likely more widespread across New Guinea than current collection records would imply.

Myristica cf. *markgraviana* A.C.Smith MYRIMA
Kápuv kuív tuví **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–300(–900) m

Tree to ca. 30 m tall and 45 cm dbh. ***Twigs*** golden yellow to dark orangish brown, somewhat rough; maturing light brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 8–23 × 4–10 cm, thick chartaceous, glossy dark green above, dull bluish glaucous below; lamina surface flat; base obtuse to weakly rounded, sometimes briefly tapering into petiole; apex acute; margins entire, flat; petioles 0.9–1.8 cm, dark orangish brown, adaxially flattened to weakly grooved. ***Stipules*** absent. ***Indument*** (absent to) present on twigs and abaxial laminas with varying density, early to late glabrescent, usually concentrated along the costa; hairs tomentose, rusty orangish red. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once or twice; costa adaxially weakly raised, abaxially raised; secondary veins (6–)10–14(–17), adaxially flat, abaxially raised; tertiary veins irregular, weakly to forked percurrent, oblique at >45° to the costa, often forming short composite intersecondaries, course variable, weakly to not recurved; quaternary veins faint, irregular, weakly to forked percurrent.

Specimens
Represented by the voucher *Ezedin 1098* and *1210*, generally corresponding to *Katik NGF 46566*, *Saunders 415*, *Saunders 426*, *Takeuchi & Ama 15474*, and *Clemens & Clemens 1142* (typus: *Myristica markgraviana*).

Similar species
Gymnacranthera farquhariana, but this has young twigs that are dark green and smooth, smaller leaves, and lacks an indument. *Myristica globosa*, but the young twigs are green and tertiaries (nearly) perpendicular to the costa.

Habitat & Ecology
This species prefers hills and gentle ridges, avoiding low areas and valleys. According to Wanang tradition, this species is among those favored by the Lesser Bird of Paradise (*Paradisea minor*), which it may be found dancing and playing on.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in construction of small huts, balconies, and fencing.

Notes
This species corresponds roughly with the former *Myristica crassipes* from prior censuses, the name of which was incorrectly applied. While *M. crassipes* may look similar, this is usually found at higher elevations. The exact identity of this species following current treatments of the group is tentative here as there is equal likelihood of this also being *M. buchneriana* – a species that occurs in sympatry and is vegetatively identical, only differing in floral morphology. It is also plausible that both *M. markgraviana* and *M. buchneriana* (as defined in *Fl. Males. 14*) are found co-occurring within the plot, in which case sterile discrimination between these two would be difficult. Here, this name is used broadly to encompass anything which may fall under either species concepts.

Myristica sp. 01 MYRI01
Kápuv tikibla **Myristicaceae**

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to ca. 40 m tall and ca. 50 cm dbh. ***Twigs*** dark rusty red, densely tomentose; maturing light brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, 15–27(–36) × 7–9(–11) cm, thick chartaceous to coriaceous, glossy dark green above, dull orangish bronze to golden brown below; lamina surface flat to sometimes weakly raised between secondaries; base obtuse; apex acute to acuminate; margins entire, flat; petioles 1.5–2.5 cm, dark rusty red to brown, adaxially flat. ***Stipules*** absent. ***Indument*** present on twigs and abaxial laminas, dense, late glabrescent, concentrated along the veins; hairs tomentose, dark brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries faintly looping once or twice; costa adaxially flat to weakly raised, abaxially raised; secondary veins 14–17, adaxially flat, abaxially raised; tertiary veins irregularly straight (to forked) percurrent, sometimes forming compound intersecondaries, course convex to retroflex, weakly recurved; quaternary veins faint and usually fading, irregular, often forked percurrent.

Specimens
Represented by the voucher *Ezedin 1089* and *1090*. No matching specimens found.

Similar species
Myristica inutilis subsp. *papuana*, but this lacks an indument.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This morphospecies is split out of *M. inutilis* subsp. *papuna* due to the consistent and non-overlapping presence of a dense indument on the abaxial lamina. Due to close proximity to the latter, both max heigh and max dbh are estimated here. Although the identity of this morphospecies is not yet known, it is likely to be a named species.

Myristica subalulata Miq. MYRISU
Kápuv kuív nimali **Myristicaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, [Enga] & Manus Is.
Elevational Range: 0–1100(–1850) m

Tree to 20 m tall and ca. 30 cm dbh. ***Twigs*** dark green, smooth, with a single ridge running lengthwise; maturing dark brown, vertically striate, sometimes hollow. ***Leaves*** simple, alternate, 2-ranked, 15–40 × 5–16, (thick) stiff coriaceous, glossy dark green above, dull to semi-shiny light green to weakly glaucous undersides; lamina surface weakly raised between secondaries; base obtuse, sometimes weakly decurrent; apex acuminate to cuspidate; margins entire, flat; petioles 1.5–2.5 cm, yellow green, adaxially flat to weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous (to weakly eucamptodromous), with ultimate marginal tertiaries tightly looping once or twice; costa adaxially raised, abaxially raised, yellowish green to golden yellow; secondary veins 17–25, adaxially slightly raised but impressed, abaxially raised; tertiary veins straight percurrent, sometimes with non-composite intersecondaries, oblique at ca. 60° to the costa, course mostly convex, strongly recurved; quaternary veins weakly to forked percurrent.

Specimens
Represented by the voucher *Ezedin 1083*, corresponding to *Takeuchi 12679*.

Similar species
Myristica globosa, but this has glaucous undersides.

Habitat & Ecology
The stems, when hollow, are home to ants.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is commonly known for its hollow branches due to close associations with ants, however most of the specimens seen at Wanang did not have hollow stems and this is not always the case for the species.

Myristica sulcata Warb. MYRISL
Aŋkápuv sisi barra **Myristicaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, [East Sepik], Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–500(–1550?) m

Tree to 40 m tall and ca. 40 cm dbh. ***Twigs*** dark green, smooth and with a single ridge; maturing dark brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, (10–)23–30(–35) × (4–)6–9(–12) cm, semi-glossy dark green above, dull light bronze to light green glaucous below; lamina surface flat to weakly raised between secondaries; base rounded to weakly obtuse; apex acuminate, tapering; margins entire, flat to broadly undulate; petioles 1–2.5 cm, dark greenish brown, shallowly grooved. Stipules absent. Indument absent. Venation pinnate, brochidodromous, with ultimate marginal tertiaries continuously looping twice; costa adaxially raised, abaxially (prominently) raised, olive(–yellow) green; secondary veins 12–22, adaxially flat to weakly raised, abaxially raised; tertiary veins weakly to (doubly) forked percurrent, forming (non-)composite intersecondaries, oblique at 20–45° to the costa, course mostly convex, sharply recurving near the costa; quaternaries absent or too faint.

Specimens
Represented by the voucher *Ezedin 1085* and *1088*, corresponding to *Hoogland 3772*, *Koster 10886*, and *Foreman & Streimann LAE 52028*.

Similar species
Myristica hollrungii, but this lacks glaucous undersides, the tertiary veins are inconspicuous, and the leaves are much stiffer.

Habitat & Ecology
This species is restricted to waterways and wet valleys.

Phenology
Flowering not observed. Fruiting observed August–October.

Magi Uses
None recorded.

Notes
This species appears to be restricted to the northern coast of New Guinea. It somewhat resembles *Paramyristica sepicana* in both leaf morphology and habit. Other individuals of this species are likely misidentified as other *Myristica* species. The arils of the fruit are light orange. The upper limits of this species range is put into question by the specimen of *Brass 23293*, collected from 1550 m in montane oak forest but this slightly differs from the rest due to much larger fruits.

Myristica cf. *tristis* Warb. MYRITR

Kápuv kuŋir **Myristicaceae**

Global Distribution
Moluccas, New Guinea & N Australia (Northern Territory)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Enga, Jiwaka, Manus Is., Milne Bay, New Ireland & Western Highlands
Elevational Range: 0–100(–600) m

Tree to 30 m tall and ca. 20 cm dbh. ***Twigs*** dark yellow green, with a single shallow groove running lengthwise; maturing greyish brown, with prominent vertical striations. ***Leaves*** simple, alternate, 2-ranked, 7–18 × 2–4 cm, thin coriaceous, semi-glossy mid green above, semi-glossy light green below; lamina surface flat; base cuneate to attenuate; apex acuminate, tapering; margins entire, broadly undulate; petioles 1.2–2 cm, yellow green, rounded to weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries continuously looping from the primary branch and secondarily looping once or twice before margin; costa adaxially raised, abaxially raised, yellowish green; secondary veins 10–16, adaxially flat to weakly raised, abaxially weakly raised; tertiary veins irregular, (doubly) forked percurrent, often with one or more composite intersecondaries recurving into the secondaries, oblique at various angles, course variable, not recurved; quaternary veins irregular, straight percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 1087* and *1099*, corresponding to *Takeuchi et al. 13770* (det. *M. tristis*).

Similar species
Horsfieldia sinclairii, but this has inconspicuous tertiaries, the costa and secondary veins flat, and bases that are not attenuate. *Myristica globosa*, but this has glaucous undersides.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Without fertile material, this species may be easily confused for *Myristica lanceolata*, *M. clemensii*, and *M. warburgii*, and thus cannot be confirmed here with any certainty. The Wanang material is most likely either *M. tristis* or *M. lancifolia* based on GBIF occurrence records for Madang Province. Here, the ID of *M. tristis* is tentatively accepted due to the comparatively longer petioles. Subspecific designation is not specified here due to uncertainty.

Cananga odorata (Lam.) Hook.f. & Thomson CANAOD
Silpunu **Annonaceae**

Global Distribution
Indochina to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Western]
Elevational Range: 0–600(–1000) m

Tree to 30 m tall and 50 cm dbh. ***Twigs*** dark green, fuzzy; maturing dark (reddish) brown, smooth. ***Odor*** of inner bark spicy floral. ***Leaves*** simple, alternate, 2-ranked, flimsy membranaceous, (9–)15–27(–30) × 6–10 cm, glossy dark green above, high glossy mid green below; lamina surface flat to (weakly) bullate, raised between secondaries and tertiaries; base rounded to oblique, often asymmetric; apex short acuminate; margins entire, flat to broadly undulate; petioles 1–2.5 cm, green, with slight central groove. ***Stipules*** absent. ***Indument*** present on all vegetative parts, fuzzy; hairs simple, short, white. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping once; costa adaxially flat, abaxially raised; secondary veins 9–15(–17), adaxially weakly raised but sunken, abaxially raised; tertiary veins straight percurrent, oblique at 45° to the costa, course straight to convex, weakly recurved; quaternary veins straight to forked percurrent.

Specimens
Represented by the voucher *Ezedin 269* and *1132*, corresponding to *Hoogland & Craven 10322*.

Similar species
Vatica rassak, but this has caducous stipules, leaves that are never bullate, bases not oblique, and the petioles brown, thickened and often contorted. *Inocarpus fagifer*, but the leaves are never bullate, the tertiaries forked percurrent, and the laminas thick coriaceous.

Habitat & Ecology
This is a secondary forest species which is known to have a high turnover rate.

Phenology
Flowering not observed. Fruiting observed February–April.

Magi Uses
None recorded.

Notes
Commonly cultivated throughout the tropics for the fragrant flowers, which are used in perfumery.

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., Milne Bay, [Western] & Western Highlands
Elevational Range: 0–800(–1500?) m

Tree to ca. 20 m tall and ca. 15 cm dbh. ***Twigs*** dark green, smooth; maturing light (yellowish) brown, smooth to weakly striate. ***Leaves*** simple, alternate, 2-ranked, thick membranaceous to almost weakly coriaceous, 13–30 × 5–12 cm, glossy dark green above, glossy mid green below; lamina surface (weakly) bullate, weakly to prominently raised between secondaries and less so between tertiaries; base weakly rounded to obtuse; apex blunt acute; margins entire, flat; petioles 0.9–1.3 cm, dark (yellowish) green, shallowly grooved. ***Stipules*** absent. ***Indument*** present on young twigs, sparse, early glabrescent; hairs simple, short, white. ***Venation*** pinnate, eucamptodromous (to weakly brochidodromous), with ultimate marginal tertiaries continuously looping once or twice; costa adaxially impressed, abaxially raised; secondary veins 8–11(–16), adaxially impressed, abaxially raised; tertiary veins somewhat irregular, straight to forked percurrent, oblique at 45° to the costa, course variable, weakly recurved or not; quaternary veins (straight to) forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 1110*, *1115*, and *1212*, corresponding to *Hoogland & Craven 10643*, *Kalkman 6488*, *Henty NGF 27469*, *Whitmore's collectors BSIP 5309*, and *Kajewski 2110*.

Similar species
Drepananthus sp. 01 and *Drepananthus sp. 02*, but the leaves are narrower and linear-lanceolate.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed October. Fruiting not observed.

Magi Uses
None recorded.

Notes
This species was treated under multiple species codes in prior censuses. The Wanang material matches closest to *Drepananthus petiolatus* (esp. *Hoogland & Craven 10643*). The species *D. obtusifolius* is morphologically close but differs in the rounded-blunt apex and flowers with petals that are narrowly thin and long. The species *D. novoguineensis*, recently described as new, is very similar with seemingly little vegetative difference; here it is considered part of this species complex. Floral morphology and tertiary venation may be variable to some degree within the species complex; at Wanang, the flower sizes appear smaller than most specimens. In general, a thorough revision of the genus is needed for New Guinea.

Drepananthus sp. 01 DREP01

Annonaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to unknown height and dbh. ***Twigs*** dark green to greenish brown, smooth; maturing (light reddish) brown. ***Leaves*** simple, alternate, 2-ranked, thick flimsy membranaceous to almost weakly coriaceous, 23–29 × 4–6 cm, (semi-)glossy dark green above, semi-glossy mid green below; lamina surface flat; base weakly rounded to cuneate, often asymmetric; apex acuminate, tapering; margins entire, flat; petioles 0.8–1.2 cm, dark greenish brown, (shallowly) grooved. ***Stipules*** absent. ***Indument*** present on young twigs, sparse; hairs simple, short, white. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping once; costa adaxially impressed, abaxially raised; secondary veins 9–17, adaxially flat, abaxially flat (to weakly raised); tertiary veins irregular, straight to forked percurrent, often forming composite or sometimes non-composite intersecondaries, angles variable but usually oblique at 45° to the costa, course variable; quaternary veins irregular, often fading, forked percurrent to reticulate.

Specimens
Represented by the vouchers *Ezedin 336*, *347* and *1213*. No matching specimens found.

Similar species
Drepananthus petiolatus, but the leaves are broadly elliptic. *Goniothalamus sp. 01*, but the secondaries are brochidodromous and leaves narrower.

Habitat & Ecology
Not much is known about the ecology of this species. Appears to be rare.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Due to having been previously treated under multiple species codes in prior censuses, care should be taken when identifying this species in future censuses. Given its close resemblance to *Drepenanthus petiolatus*, it may be temporarily referred to as *D.* cf. *petiolatus*.

Goniothalamus aruensis Scheff. GONIAR
Nagité suku **Annonaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Aru Is.], Papua, West Papua
PNG: Bougainville, Central, [Eastern Highlands], East Sepik, [Jiwaka], Madang, Milne Bay, Morobe, New Britain, [New Ireland], [Oro] & Sandaun
Elevational Range: 0–180(–1200) m

Tree to 12 m tall and 10 cm dbh. ***Twigs*** dark yellow green, smooth; maturing dark brown to blackish, shallowly striate. ***Leaves*** simple, alternate, 2-ranked, thick membranaceous to flimsy coriaceous, 18–21(–25) × 6–9 cm, semi-glossy dark green above, dull mid green below; lamina surface (weakly) raised between secondaries; base obtuse to weakly acute; apex (blunt) cuspidate; margins entire, regularly undulate; petioles 0.9–1.5 cm, dark green to greenish bronze, prominently grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in (2–)3(–4) series, each smaller than the previous; costa adaxially weakly sunken and impressed, abaxially raised; secondary veins 9–13, adaxially impressed, abaxially weakly raised; tertiary veins straight (to weakly forked) percurrent, rarely forming composite intersecondaries, oblique at 45 ° to the costa, course mostly straight, weakly recurved; quaternary veins faint, irregular, weakly percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 172*, *1172*, and *1387*, corresponding to *Kuria et al. LAE 87101* and *Frodin NGF 26798*, and *Hollrung 347* (typus: *Goniothalamus cauliflorous*).

Similar species
Goniothalamus imbricatus, but the leaves are thick coriaceous, the upper and lower surfaces highly glossy, and the veins strongly impressed giving a bullate appearance.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed January–February & May–November, possibly year round. Fruiting observed January & May, possibly year round.

Magɨ Uses
None recorded.

Notes
This appears to form a species complex with *Goniothalamus cauliflorus*, which is either considered a distinct species or a synonym of the latter. The *G. aruensis–cauliflorus* complex likely involves some intermediaries and any distinction between subsidiary taxa within the complex is not yet clear. A formal revision of this genus in New Guinea is urgently required. Flowers of the Wanang specimens are cauliflorous on ± large neoplasmic masses near the base of the tree, with the calyx dark crimson and the petals dark olive green to dark salmon pink and fragrant. Fruits are large, initially bright crimson red then ripening blackish purple or dark brown.

Goniothalamus imbricatus Scheff. GONIIM
Nagité niŋi **Annonaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang
Elevational Range: 0–160(–200) m

Tree or ***shrub*** to ca. 5 m tall and 5 cm dbh. ***Twigs*** dark green, smooth with vertical wrinkles; maturing dark brown to black, vertically striate. ***Leaves*** simple, alternate, 2-ranked, (thick) stiff coriaceous, 24–31 × 5–7(–9) cm, high glossy dark green above, high glossy lime green below; lamina surface (strongly) bullate, raised between secondaries and tertiaries; base acute to weakly cuneate; apex acuminate; margins entire, flat; petioles 0.7–1.2 cm, dark (to brown or blackish) green, grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in 1–2 series; costa adaxially impressed, abaxially raised; secondary veins 15–22, adaxially impressed, abaxially ± prominently raised; tertiary veins prominent, straight to forked percurrent, nearly parallel to oblique at up to 35° to the costa, course variable but mostly straight, weakly recurved or not; quaternary veins straight to weakly forked percurrent (to weakly reticulate).

Specimens
Represented by the voucher *Ezedin 186*, *378*, and *481*, corresponding to *Whitfeld et al. 2079*, *Becarri s.n.* (typus: *Goniothalamus imbricatus*), and *Lauterbach 2674* (typus: *Goniothalamus viridifolia*).

Similar species
Drepananthus petiolatus, but the leaves are not thick coriaceous, and the venation not prominently raised on the undersides.

Habitat & Ecology
Not much is known about the ecology of this species. This species is found primarily below 200 m.

Phenology
Flowering observed May & October–November, likely year round. Fruiting observed January & May–September, likely year round.

Magɨ Uses
None recorded.

Notes
Based on current collection data, this species appears to be endemic to the Ramu basin.

Goniothalamus sp. 01 GONI01

Annonaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to unknown height and dbh. ***Twigs*** dark green, smooth; maturing brown. ***Leaves*** simple, alternate, 2-ranked, thick membranaceous to weakly coriaceous, 25–30(–35) × (3.8–)4.5–5 cm, glossy dark green above, semi-glossy to dull mid green below; lamina surface flat (to weakly raised); base acute to cuneate; apex acuminate, (long) tapering; margins entire, flat; petioles 0.3–0.5 cm, dark greenish brown, shallowly grooved. ***Stipules*** absent. ***Indument*** present on young twigs, sparse; hairs simple, short, white. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping twice; costa adaxially sharply impressed, abaxially raised; secondary veins 21–28, adaxially flat to weakly impressed, abaxially raised; tertiary veins (doubly) forked percurrent to appearing broadly reticulate, forming compound intersecondaries, nearly parallel to oblique at 35° to the costa, course variable, not recurved; quaternary veins (weakly) reticulate, fading out.

Specimens
Represented by the vouchers *Ezedin 1118*. No matching specimens found, yet seemingly approaches *Wiakabu et al. LAE 73424* and *Wiakabu & A.M.C. LAE 73958* (det. *Goniothalamus aruensis*).

Similar species
Drepananthus sp. 01, but the secondaries are eucamptodromous and leaves broader.

Habitat & Ecology
Not much is known about the ecology of this species. Appears to be rare.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Due to having been previously treated under multiple species codes in prior censuses, care should be taken when identifying this species in future censuses. Temporarily placed in the genus *Goniothalamus* on account of the brochidodromous venation, but this is not verified. Although no exact specimen match could be found, the specimens *Wiakabu et al. LAE 73424* (from Western Highlands at 1120 m) and *Wiakabu & A.M.C. LAE 73958* (from East Sepik at 120 m) seem approach this species with long linear-lanceolate leaves; both are currently determined as *G. aruensis*, which may be incorrect.

Maasia glauca (Hassk.) Mols, Kessler & Rogstad MAASGL
Giauŋ suku **Annonaceae**

Global Distribution
Andaman and Nicobar Islands & Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, Chimbu, [East Sepik], Madang, Manus Is., [Milne Bay], Morobe, Oro, Sandaun & Western
Elevational Range: 0–200(–550?) m

Canopy tree to ca. 40 m tall and 65 cm dbh. ***Twigs*** dark green, smooth; maturing light greyish brown to whitish, smooth. ***Odor*** of inner bark faint, reminiscent of chlorinated water found in swimming pools, somewhat unpleasant. ***Leaves*** simple, alternate, 2-ranked, thin subcoriaceous, 9–14(–19.5) × 4–6.5 cm, glossy dark green above, dull bluish white below, lamina surface flat; base acute; apex acuminate; margins entire, flat; petioles 1–1.6 cm, green to blackish, round. ***Stipules*** absent. ***Indument*** appears absent, but faintly present on young vegetation, very early glabrescent; hairs simple, short, white. ***Venation*** pinnate, brochidodromous, the secondaries nearly indistinguishable from the tertiaries and quaternaries, with ultimate marginal tertiaries looping once then reticulating and abruptly ending at margin, the venation pattern fading out in older leaves; costa adaxially impressed, abaxially raised; secondary veins 14–21, inconspicuous, adaxially flat, abaxially flat; tertiary veins reticulate, irregular (to random), (weakly to doubly) forked percurrent, oblique at 45° to the costa, course variable, weakly recurved or not; quaternary veins reticulate, indistinct from the tertiaries, fading out into the intercostal matrix.

Specimens
Represented by the voucher *Ezedin 729*, *1111* and *1216*, corresponding to *Hartley 9840*.

Similar species
Gymnacranthera farquhariana, but the secondaries and tertiaries are clearly visible.

Habitat & Ecology
This is a large canopy tree with a weakly clumped distribution pattern.

Phenology
Flowering not observed. Fruiting observed May–November.

Magi Uses
None recorded.

Notes
The upper limit of its altitudinal range is not yet clear. Fruits (monocarps) are globose and dark crimson to purple.

Mitrephora diversifolia (Span.) Miq. MITRDI
Pan pan sisi mumuŋ **Annonaceae**

Global Distribution
Sulawesi to N Australia (Queensland)

New Guinea Distribution
ING: [Papua] & [West Papua]
PNG: Central & Madang
Elevational Range: 0–130(–200?) m

Tree to ca. 20 m tall and ca. 20 cm dbh. ***Twigs*** light green, densely orange rusty hairy; maturing dark (greyish) brown to black, ±densely lenticellate. Leaves simple, alternate, 2-ranked, ± thick (stiff) chartaceous, 10–20 × 5–9 cm, glossy mid green above, dull mid green below, lamina surface flat; base weakly rounded to obtuse, often asymmetric; apex acuminate, long tapering; margins entire, weakly to prominently undulate; petioles 0.7–1.1 cm, light green, shallowly undulate. ***Stipules*** absent. ***Indument*** present on young twigs and abaxial laminas, somewhat dense; hairs simple, medium, copper. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries continuously looping in a single series; costa adaxially weakly impressed, abaxially raised; secondary veins 9–15, adaxially flat to weakly impressed, abaxially raised; tertiary veins straight (to weakly forked) percurrent, oblique at 45–60° to the costa, course mostly straight, not recurved (to weakly recurved); quaternary veins straight to forked percurrent.

Specimens
Represented by the voucher *Ezedin 1126*, *1128* and *1133*, corresponding to *Elbert 3408* and *Atjeh 319*.

Similar species
Not easily confused. Quite distinct among the other Annonaceae.

Habitat & Ecology
This species shows a weakly clumping distribution pattern, often straddling ridgelines and low valleys. This species is dry season deciduous, with flowers appearing following the new flush of leaves.

Phenology
Flowering observed September–November. Fruiting observed October–December.

Magɨ Uses
None recorded.

Notes
This species was treated under three or more species codes during the prior censuses. Although there are currently only a few digitized specimen records of this species in New Guinea it is likely more widespread across the lowlands than currently known, particularly given its rather common presence at Wanang. The upper limit of its altitudinal range in New Guinea is not yet clear, as are the max height and dbh sizes. The color of the outer petals appears to vary from greenish white to dark yellow.

Monoon oblongifolium (C.B.Rob.) B.Xue & R.M.K.Saunders MONOOB
Pan pan niŋi **Annonaceae**

Global Distribution
Philippines & Moluccas to New Guinea

New Guinea Distribution
ING: Papua & [West Papua]
PNG: Central, Chimbu, [Eastern Highlands], [East Sepik], Gulf, Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–1000? m

Tree to ca. 20 m tall and 45 cm dbh. ***Twigs*** dark purplish brown, lenticellate; maturing (dark) brown, vertically striate to fissured. ***Leaves*** simple, alternate, 2-ranked, (thin to) thick chartaceous, 13–26 × 5–14 cm, (high) glossy dark green above, high glossy (to dull) lime green below; lamina surface flat to weakly raised between secondaries, base rounded to obtuse, usually asymmetric; margins entire, flat to undulate; petioles 0.8–1 cm, dark olive green to ± blackish, grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous (sometimes appearing brochidodromous), with ultimate marginal tertiaries continuously looping in 1(–2) series; costa adaxially sunken, abaxially raised, widening towards the base, golden yellow; secondary veins 9–15, adaxially weakly impressed, abaxially raised; tertiary veins straight percurrent, oblique at 20–35° to the costa, course mostly straight, weakly recurved or not; quaternary veins irregular, straight percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 1124* and *1129*, corresponding to *Branderhorst 39*, *Wiakabu & Mamalai LAE 70481*, and *Takeuchi 4318*.

Similar species
Phaeanthus ophthalmicus, but the leaves are widest closer to the apex, thin chartaceous, not as glossy, the costa is sunken (vs. impressed), and the petioles dark brown.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed June. Fruiting not observed.

Magi Uses
None recorded.

Notes
Individuals formerly identified as *Popowia pisocarpa* in prior censuses are merged under here due to gross similarity. This species is mostly known from New Guinea with few records from the Philippines and Moluccas. It appears there is some variation within this species, even from among the Wanang population. The most prominent variation at Wanang primarily is the degree of shininess of the leaves and thickness. The species *Popowia pachypetala*, also known from northeast PNG, appears to look vegetatively similar but differs in tertiary venation. Further investigation may be needed to assess whether part or all of this group is a member of *Popowia*.

Monoon sp. 01 MONO01
Katam pílaŋké **Annonaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Gulf, Madang, Morobe, New Britain
Elevational Range: 0–450? m

Tree to ca. 38 m tall and ca. 40 cm dbh. ***Twigs*** light greenish orange, mostly smooth; maturing orangish brown, vertically fissured. ***Leaves*** simple, alternate, 2-ranked, thick membranaceous to thin chartaceous, 17–33 × 12–15.5 cm, glossy dark green above, glossy mid green below; lamina surface flat to raised between secondaries; base rounded to truncate, often asymmetric; margins entire, flat to weakly undulate; petioles 0.8–1 cm, olive to blackish green, shallowly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous (sometimes appearing brochidodromous), with ultimate marginal tertiaries continuously looping in 1(–2) series; costa adaxially sunken, abaxially raised; secondary veins 15–24, adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at 35–45° to the costa, course mostly straight, weakly recurved or not; quaternary veins forked percurrent.

Specimens
Represented by the voucher *Ezedin 1112*, corresponding to *Womersley NGF 24641*, *Croft & Katik NGF 14982*, *Lundquist 32887*, *Streimann & Martin LAE 52931*, and *Schodde & Craven 4433*. Specimens determined as either *Monoon polycarpum* or *Monoon oblongifolium*.

Similar species
Monoon oblongifolium, but this has less than double the secondary veins and the costa is golden yellow.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in house construction.

Notes
Although many herbarium specimens matching the Wanang material are determined as *Monoon polycarpum*, this morphospecies does not quite match the type of that species (*Branderhorst 135*), differing primarily in larger monocarps and a higher number of secondary veins. The fruits are rather large and red or crimson when ripe, according to specimens.

Phaeanthus ophthalmicus (Roxb. ex G.Don) J.Sinclair PHAEOP
Pan pan maki **Annonaceae**

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: [East Sepik], Madang, Morobe & Sandaun
Elevational Range: 0–400? m

Tree to ca. 15 m tall and ca. 10 cm dbh. ***Odor*** of inner bark strong, warm spicy. ***Twigs*** dark rusty red, short hairy; maturing light greyish brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, thin (flimsy) chartaceous 8–24 × 3–7 cm, glossy dark green above, dull mid green below; lamina surface mostly flat; base weakly oblique to a cute; apex acuminate; margins entire, flat; petioles 0.7–1 cm, dark green to reddish brown, shallowly grooved. ***Stipules*** absent. ***Indument*** present on young twigs; hairs simple, very short, rusty orangish red. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in 1(–2) series; costa adaxially impressed, abaxially raised; secondary veins 9–13, adaxially flat, abaxially slightly raised; tertiary veins straight percurrent, oblique at 20–70° to the costa, course variable, recurved; quaternary veins forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 1113*, corresponding to *Utteridge & Baker 17*, *Takeuchi 8692*, and *White NGF 10198*.

Similar species
Monoon oblongifolium, but the leaves are widest in the middle, thicker, with a glossier surface, costa that is sunken (vs. impressed), and petioles that are dark green.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was treated under multiple species codes in prior censuses. The upper limit of the elevational range, height, and dbh sizes are not yet clear. The specimen *Henty NGF 28010* describes this as a “straggling shrub”.

Polyalthia longirostris (Scheff.) B.Xue & R.M.K.Saunders POLYLO
Ibutei **Annonaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Hela, Jiwaka, Manus Is., [New Ireland], Southern Highlands
Elevational Range: 0–1300(–2000?) m

Tree to ca. 7 m tall and ca. 10 cm dbh. ***Twigs*** green, smooth; maturing dark brown, vertically striate. ***Odor*** of all parts long lasting, harsh, strongly fruity tropical and reminiscent of sweetsop/soursop or possibly unripe guava, some may interpret the odor as chicken feces. ***Leaves*** simple, alternate, 2-ranked, thick (stiff) chartaceous, 15–33 × 7–13 cm, dark semi-glossy green above, mid dull green below, new leaves flush salmon pink; lamina surface warped and prominently bullate between secondaries and tertiaries; base oblique, uneven; apex acuminate; margins entire; petioles 0.2–0.5 cm, dark yellowish green, shallowly grooved. ***Stipules*** absent. ***Indument*** present on apical buds, petioles, and abaxial veins, sparse; hairs simple, light brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in 2–3 series; costa adaxially slightly impressed, abaxially prominently raised; secondary veins 9–13, adaxially impressed, abaxially raised; tertiary veins irregular, straight to (doubly) forked percurrent, often forming multiple short composite intersecondaries, oblique at 45–90° to the costa, course variable but usually straight, weakly recurved or not; quaternary veins faint, broadly reticulate.

Specimens
Represented by the voucher *Ezedin 440* and *511*, corresponding to *Brass 24039* and *Rodatz & Klink 26* (typus: *Papualthia grandifolia*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun.

Magi Uses
Planted with yams in gardens. Timber used in house construction, burned as mosquito repellant, and used in preparing medicine for dogs.

Notes
Formerly known as *Haplostichanthus longirostris*. Specimens determined as this species collected from above 1300 m asl have smaller and narrower leaves.

Pseuduvaria coriacea Y.C.F.Su & R.M.K.Saunders PSEUCO
Nagité sisi galaŋ **Annonaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang & Morobe
Elevational Range: 20–150(–250?) m

Tree to 5 m tall and ca. 5 cm dbh. ***Twigs*** light green, hairy; maturing light to dark brown, hairy to smooth. ***Leaves*** simple, alternate, 2-ranked, thick chartaceous, 40–80 × 7–16 cm, glossy dark green above, dull dark greyish to dark green below, lamina surface flat to very slightly raised between secondaries; base lobate; apex acuminate, long tapering; margins entire; petioles 0.2–0.3 cm, dark olive green, round to adaxially flat. ***Stipules*** absent. ***Indument*** present on all vegetative parts, late glabrescent on stems, tomentose; hairs simple, short, yellowish to light brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping continuously in 2 series; costa adaxially impressed, abaxially raised; secondary veins 12–22 cm, adaxially flat to slightly impressed, abaxially raised; tertiary veins straight to forked percurrent, oblique at 45–90° to the costa, course mostly straight, weakly to strongly recurved; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 842*, *843*, *1063*, and *1120*, corresponding to *Katik NGF 46883*, *Katik & Larivita LAE 62054*, and *Womersley NGF 37475* (typus: *Pseuduvaria coriacea*).

Similar species
Not easily confused.

Habitat & Ecology
A commonly encountered understory tree on ridgelines.

Phenology
Flowering not observed. Fruiting observed September–November.

Magɨ Uses
None recorded.

Notes
Formerly known as *Goniothalamus sp. 01*. Despite being one of the most commonly encountered Annonaceae trees at Wanang, this species was only recently described. The type specimen notes the habit as a "scandent shrub" although this could be in error. A collection from Morobe at 890 m asl (*Streimann & Kairo NGF 47504*) differs slightly from the other lowland material in its prominently raised lower order veins on the underside.

Pseuduvaria macrocarpa (Burck) Y.C.F.Su & R.M.K.Saunders PSEUMA
Pan pan suku **Annonaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.], Bougainville, Chimbu, Eastern Highlands, [East Sepik], Enga, Jiwaka, Manus Is., New Ireland & Western Highlands
Elevational Range: 0–500(–800?) m

Tree to ca. 15 m tall and ca. 25 cm dbh. ***Twigs*** light green, hairy; maturing light brown, vertically striate. ***Leaves*** simple, alternate, 2-ranked, ±stiff chartaceous, 11–28 × 6–12 cm, semi-glossy dark green above, dull mid green below; lamina surface flat to slightly raised between secondaries; base acute; apex acuminate; margins entire, flat; petioles 1.4–2.3 cm, olive to brownish green, shallowly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in 1 series; costa adaxially flat to weakly sunken, abaxially (prominently) raised; secondary veins 8–16, adaxially flat to slightly impressed, abaxially raised; tertiary veins straight to weakly forked percurrent, oblique at 45–55° to the costa, course mostly straight, (strongly) recurved; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 1130*, corresponding to *Takeuchi et al. 13856*, *Schodde & Craven 4374*, and *Womersley 17618*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly known as *Pseuduvaria versteegii*, now synonymized under this name. The upper limit estimates of elevation, height and dbh sizes are not yet clear.

Xylopia sp. 01 XYLO01

Giauŋ sisi mumuŋ **Annonaceae**

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to ca. 30 m tall and ca. 30 cm dbh. ***Twigs*** yellow to orangish brown, smooth; maturing yellowish brown, smooth. ***Odor*** of vegetative parts faint, warm spicy. ***Leaves*** simple, alternate, 2-ranked, thick coriaceous, 6.5–14 × 3.8–5.5 cm, dark green glossy above, dull silvery mid green below; lamina surface flat; base rounded to obtuse; apex acuminate, (long) tapering; margins entire, flat to weakly undulate; petioles 0.5–0.7 cm, dark green to blackish, slightly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries densely looping in 2–3 series; costa adaxially flat to weakly impressed, abaxially raised; secondary veins, 11–16, inconspicuous, adaxially flat, abaxially flat (to very slightly raised); tertiary veins faint, weakly reticulate; quaternary veins faint, reticulate.

Specimens
Represented by the voucher *Ezedin 261*, *344*, and *352*, seemingly approaching *Takeuchi & Ama 16674* (det. *Xylopia sp.*).

Similar species
Maasia glauca, but the undersides are bluish white, and the costa prominently raised abaxially. *Gymnacranthera farquhariana*, but the secondaries are visible and the undersides bluish white.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This species has historically been identified as *Xylopia papuana*, however a recent inquiry has placed its identity into question as that species is restricted to occurring below 100 m and has hairy young twigs. A revision of this genus in New Guinea is currently ongoing. Flowers and fruits of the Wanang material has not yet been recorded. The height and dbh sizes are rough approximations here.

Hernandia cf. *ovigera* L. HERNOV
Paki **Hernandiaceae**

Global Distribution
Indochina to the Pacific Is.

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–100(–200) m

Tree to 30 m tall and ca. 40 cm dbh. ***Twigs*** dark green with black splotches, strongly grooved; maturing light brown, terete, smooth. ***Leaves*** simple to (2–)3-lobed or not, alternate, spiral, thick chartaceous to subcoriaceous, 15–35(–50) × 13–23 cm, glossy dark green above, glossy mid green below; lamina surface usually flat, often irregularly warped; base truncate to (strongly) cordate; apex acuminate, tapering; margins entire; petioles 9–35 cm, differential lengths, dark green to dark red, with both ends tinged yellowish brown, round, ±thickened on both ends. ***Stipules*** absent. ***Indument*** absent. ***Venation*** palmate, with 5 primary veins, the primaries eucamptodromous and secondaries eucamptodromous to weakly brochidodromous, with the ultimate marginal tertiaries looping twice before the margin; costa adaxially raised, abaxially raised; secondary veins [off the primary costa] (5–)6(–8), strongly decurrent, adaxially weakly raised, abaxially raised; secondary veins [off the lateral costa] 9–11, weakly decurrent or not, adaxially flat, abaxially raised; tertiary veins [off the primaries] straight percurrent, perpendicular to the adjacent costa, exmedially bent and forming concentric rings away from the petiole insertion, (strongly) concave; tertiary veins straight (to forked) percurrent, oblique at 45° to the costa, course irregular and often retroflexed; quaternary veins (straight) percurrent to broadly reticulate, giving rise to densely reticulating quintenaries.

Specimens
Represented by the voucher *Ezedin 1002* and *1003*, corresponding to *Takeuchi & Wiakabu 10037* and *Conn et al. 102*.

Similar species
Pangium edule, but the older stems are covered in old leaf scars and the lamina surface is not usually flat. *Taliparitiellipticifolium*, but the leaves are smaller, petioles twice as short, and the twigs are rough and covered in old leaf scars.

Habitat & Ecology
This species is more common towards the coast and the seeds may easily disperse over water as fruits are buoyant.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This appears to be *H. ovigera*, but further confirmation is needed. According to locals, the fruits remain white which is unlike other individuals of *H. ovigera* which tend to have fruits ripening pinkish. The leaves of this species may sometimes be variously lobed, a condition that is perhaps related to the age of the tree, with older individuals not seen bearing lobed leaves.

Actinodaphne sp. 01 ACTI01

Lauraceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: 0–200? m

Tree to unknown height and dbh. ***Twigs*** golden to dark brown, tomentose, velvety smooth; maturing dark brown to blackish, somewhat rough. ***Leaves*** simple, alternate, spial, clustered at branch tips, thick chartaceous, 13–33 × 4–8 cm, glossy dark green above, glaucous bluish green below, lamina surface flat, base acute to weakly rounded; apex pointed acute; margins entire; petioles 2.5–3.5 cm, golden brown to dark brown, round. ***Stipules*** absent. ***Indument*** present on all vegetative parts, densely velvety; hairs simple, short, golden brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping once and fading out; costa adaxially prominently raised, abaxially prominently raised; secondary veins 12–16, adaxially raised, abaxially raised; tertiary veins straight percurrent, sometimes with false intersecondaries, oblique at 45° to the costa, course admedially convex to straight, strongly recurved; quaternary veins subscalariform to weakly reticulate, perpendicular to the tertiaries.

Specimens
Represented by the voucher *Ezedin 653*.

Similar species
Actinodaphne nitida but this is glabrous. *Cryptocarya* spp. but these do not have leaves clustered at branch tips.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
An insufficiently known species which appears to be rare; both max tree height and max dbh size are unknown.

Actinodaphne nitida Teschn. ACTINI
Malang malang maku **Lauraceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
PNG: Bougainville, East Sepik, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland
Elevational Range: 0–300(–900) m

Tree to 15 m tall and 40 cm dbh. ***Twigs*** dark green to greyish white, smooth, glabrous to orange-rusty hairy; maturing brown, smooth. ***Leaves*** simple, alternate, clustered in terminal whorls, thick chartaceous, 20–30 × 6–9 cm, dark green above, pale glaucous white below, lamina surface mostly flat; base acute; apex acuminate, long tapering; margins entire, undulate; petiole 2–3 cm, dark green to yellowish, grooved, thickened at base. ***Stipules*** absent. ***Indument*** absent or present on young vegetation, wooly; hairs simple, short to long, light orangish-reddish brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries widely looping; costa adaxially raised, abaxially raised; secondary veins 8–12, strongly ascending, adaxially raised slightly, abaxially raised; tertiary veins straight percurrent, perpendicular to the costa or nearly so, course straight, weakly recurved; quaternary veins straight to forked percurrent.

Specimens
Represented by the voucher *Ezedin 725*, corresponding to *Saunders 470*, *Takeuchi & Ama 16546*, *Katik NGF 16777*, and *Ledermann 9388* (typus: *Actinodaphne nitida*).

Similar species
Actinodaphne sp. 01, but this has a dense tomentum on stems and laminas that are more broad than narrow.

Habitat & Ecology
Not much is known on the ecology of this species.

Phenology
Flowering not observed. Fruiting observed September–October.

Magi Uses
None recorded.

Notes
There appears to be significant variability in morphology of this species, particularly in leaf shape, size, indument density and even hair length. Fruits ripen from green to yellow, orange, then crimson red.

Alseodaphne cf. *archboldiana* (C.K.Allen) Kosterm. ALSEAR

Lauraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Gulf, Madang, Morobe & Western
Elevational Range: 0–100 m

Tree to ca. 35 m tall and 45 cm dbh. ***Twigs*** dark green, smooth with few lenticels; maturing light to dark brown, rough with old leaf scars and lenticels. ***Odor*** of leaves is strong, musky cinnamon-like spice. ***Leaves*** simple, alternate, spiral, clustered at branch tips, thick chartaceous, 21.5–34 × 3–9 cm, glossy mid to dark green above, dull light green below; base acuminate, tapering; apex acuminate; margins entire, undulate; petioles dark green to nearly black, round, 0.5–1 cm. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in a single series; costa adaxially raised, abaxially raised; secondary veins 11–18, adaxially impressed, abaxially raised; tertiary veins straight percurrent, sometimes with false intersecondaries, oblique at 45° to the costa, recurved; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 292* and *312*, corresponding to *Katik W 2775*, *Koster 7098* and *Koster 1017*.

Similar species
Terminalia sp., but these all lack odor and none of the species at Wanang have long linear lanceolate leaves.
Elaeocarpus sp., but these have thickened petioles and serrated margins.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This morphospecies seems to approach *Alseodaphne archboldiana*, although the Wanang material typically has narrower and longer leaves, with stouter petioles.

Cinnamomum grandiflorum Kosterm. CINNGR
Giviŋ **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Morobe, Sandaun & Western
Elevational Range: 0–200(–800) m

Tree to 45 m tall and 80 cm dbh. ***Twigs*** yellowish to dark green, smooth; maturing light yellowish brown, smooth. ***Odor*** of all parts spicy-earthy, reminiscent of cinnamon and turmeric. ***Leaves*** simple, opposite, 2-ranked, thick chartaceous, 18–25 × 4–8 cm, dark green above, slightly light glaucous bluish green below; lamina surface flat, often warped and slightly curled upwards or downwards; base acute; apex blunt acute; margins entire; petioles 1.2–2.2 cm, dark green to blackish, slightly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, perfect suprabasal acrodromous, with the ultimate marginal tertiaries looping once, the abaxial veins light green and smooth; costa adaxially slightly raised, abaxially raised; secondary veins 5–6, the basalmost one prominent and parallel to the costa, the upper ones brochidodromous, adaxially raised slightly, abaxially raised; tertiary veins scalariform, perpendicular to the costa, curved apically; quaternary veins straight to forked percurrent, parallel to the costa.

Specimens
Represented by the voucher *Ezedin 561* and *850*, corresponding to *Hoogland 8948* (typus: *Cinnamomum grandiflorum*), *Lauterbach 1155*, *Kiapranis et al. LAE 87148*.

Similar species
Cryptocarya laevigata, but this has much smaller leaves that are alternate and a very different, unusual odor.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February–April.

Magi Uses
Bark chewed and spit on the body to cure illnesses resulting from sorcery.

Notes

Cryptocarya apamifolia Gamble CRYPAP
Magi Niŋi **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Eastern Highlands, Madang & Morobe
Elevational Range: 0–200 m

Tree to unknown height and dbh. ***Twigs*** dark green, smooth; maturing reddish brown, smooth. ***Odor*** of all parts sharp but quickly dissipating in seconds, spicy lauraceous with an aqueous undertone. ***Leaves*** simple, alternate, 2-ranked, thin chartaceous, 5–15 × 3.5–5.5 cm, glossy dark green above, dull glaucous bright blue-grey powdery below; lamina surface flat to slightly raised between secondaries, warped at the apex; base obtuse to acute, often asymmetric; apex acuminate, often conspicuously curved and pointing downwards; margins entire; petioles 1.2–2 cm, light green to dark yellow, round. ***Domatia*** present in the abaxial axils of the secondary veins, golden yellow tufted hairy. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries faint and broadly looping; costa adaxially flat, abaxially raised; secondary veins 4–6, strongly arcuous, adaxially raised slightly, abaxially raised; tertiary veins faint, straight percurrent, perpendicular to the costa or nearly so; quaternary veins very faint, irregularly forked percurrent to reticulate, fading out into the intercostal matrix.

Specimens
Represented by the voucher *Ezedin 761*, *762*, and *763*, corresponding to *Forbes 401* (typus: *Cryptocarya apamifolia*), *Hartley 11854* (det. *Cryptocarya novoguineensis*), *Wright NGF 11131* (det. *C. novoguineensis*), and *Brass 29190*.

Similar species
Cryptocarya depressa, but this has weakly glaucous leaf undersides, leaves that are more than twice as large, dark brown petioles, the tertiaries and quaternaries more conspicuous, and (usually) lacks domatia. *Cryptocarya sp. 01*, but this lacks domatia, the glaucous undersides are bluish-green powdery, and the petioles are noticeably shorter and sparsely hairy. *Cryptocarya weinlandii*, but this has acrodromous venation, hairy twigs, and leaves that are noticeably thicker and stiffer.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
None recorded.

Notes
Alternatively spelled *C. apamaefolia*. The closest specimen to this is *Forbes 401*, which is the type and only properly identified specimen of *C. apamifolia*. Other specimens which approach the Wanang specimens are *Hartley 11854* and *Wright NGF 11131*, both identified as *C. novoguineensis* (often synonymized under *C. massoy*), but the Wanang material still differs from these in the domatia appearing as coppery hairy axillary tufts (vs. glabrous cave-like domatia).

Cryptocarya caloneura (Scheff.) Kosterm. CRYPCA

Lauraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, East Sepik, Gulf, Hela, Madang, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–200(–1400) m

Tree to ca. 10 m tall and ca. 20 cm dbh. ***Twigs*** hollow, dark green to blackish, prominently ridged and grooved, smooth; maturing dark brown, smooth. ***Odor*** of inner bark strong, cinnamon-like spice, gradually dissipating. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 18–32 × 8–15 cm, high glossy dark green above, shiny silvery light coppery green below, lamina surface flat to slightly raised between secondaries; base rounded, often (slightly) asymmetric; apex short acute; margins entire; petioles 1.3–1.8 cm, dark brown, adaxially flattened. ***Stipules*** absent. ***Indument*** present on abaxial leaves, petioles, and young stems, lightly velvety; hairs simple, very short, white on the abaxial intercostal area, dark brown elsewhere. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping once followed by dense network of quaternary arches to the margins, abaxial veins dark yellow to light brown and velvety; costa adaxially flat to slightly raised, abaxially raised; secondary veins 8–13, adaxially raised slightly, abaxially raised; tertiary veins faint, straight percurrent, oblique at 45° to the costa, weakly recurved; quaternary veins very faint, forked percurrent to weakly reticulate, often forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 756*, corresponding to *Darbyshire & Hoogland 7919* and *Takeuchi et al. 19450*.

Similar species
Cryptocarya depressa, but this has conspicuous tertiary and quaternary venation and lacks a greenish coppery underside in the younger leaves.

Habitat & Ecology
Twigs are hollow and inhabited by ants.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used for house construction, fencing, and firewood. Young leaves are sometimes chewed with betelnut.

Notes
This group is identified as *Cryptocarya caloneura*, but there is some lingering uncertainty to this ID given its close resemblance to *C. depressa*; flowering specimens may be needed to verify. This species appears to be more common in the lowlands, yet a couple collections are known from lower montane.

Cryptocarya depressa Warb. CRYPDP
Magi Maki **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Bougainville, Central, Chimbu, East Sepik, Madang, Milne Bay, Morobe, New Britain & Southern Highlands
Elevational Range: 0–300(–600?) m

Tree to 15 m tall and ca. 20 cm dbh. ***Twigs*** dark green to brown, smooth; maturing brown, smooth. ***Odor*** of all parts strong, herbal-medicinal, much like *Sassafras*, gradually dissipating. ***Leaves*** simple, alternate, 2-ranked, (thin) chartaceous, 14–23 × 5.5–12 cm, glossy mid to dark green above, semi-glossy mid green below, lamina surface flat to subbullate and raised between secondaries; base acute to obtuse, sometimes slightly asymmetric; apex acuminate; margins entire; petioles 1–2 cm, dark green to brownish, round. ***Domatia*** sometimes present in the abaxial axils of the secondary veins, brown tufted hairy. ***Stipules*** absent. ***Indument*** present on all vegetative parts, pubescent, early to late glabrescent on stems; hairs simple, short, light brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries faintly looping once with quaternaries densely looping towards margin; costa adaxially flat, abaxially raised; secondary veins 6–9, adaxially flat to raised slightly, abaxially raised; tertiary veins subscalariform, somewhat irregular; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 755*, *757*, and *758*, corresponding to *Takeuchi & Kulang 11529*, *Hartley 11376*, and *Kajewski 2700*.

Similar species
Cryptocarya caloneura, but the hairs are short with a velvety feel and the undersides of juvenile leaves are greenish coppery and shiny.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magi Uses
Timber used in the construction of small huts.

Notes
There appears to be two forms of this species at Wanang. One has slightly larger leaves, early glabrescent stems, weakly pubescent leaves, and has domatia in the secondary vein axils; this form is represented by the voucher *Ezedin 755*. The other has slightly smaller leaves, pubescent twigs and leaves, and lacks domatia in the secondary vein axils; this form is represented by *Ezedin 757* & *758*.

Cryptocarya cf. *endiandrifolia* Kosterm. CRYPEN
Tanglé umbaŋ maki **Lauraceae**

Global Distribution
New Guinea & Australia (Queensland)

New Guinea Distribution
PNG: Central & Madang
Elevational Range: 0–750? m

Tree to ca. 10 m tall and ca. 15 cm dbh. ***Twigs*** dark yellowish green, slightly rough; maturing dark orangish brown, rough. ***Odor*** of all parts strong, long lasting, spicy-fruity, ranalean. ***Leaves*** simple, alternate, 2-ranked, (thick) chartaceous, 7–22 × 3.5–8 cm, (semi-)glossy dark green above, dull mid green below, lamina surface flat to weakly raised between secondaries and tertiaries; base acute to weakly obtuse, often slightly asymmetric; apex acute to acuminate; margins entire; petioles 1–1.5 cm, yellow green to dark brown, grooved. ***Domatia*** often present in the axils of the secondary veins, tufted hairy. ***Stipules*** absent. ***Indument*** present on abaxial leaves and young stems; hairs simple, very short, light brown or white. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries faint and looping in 1–2 series before the margin; costa adaxially impressed, abaxially raised; secondary veins 4–9 cm, adaxially flat to weakly impressed, abaxially raised; tertiary veins straight percurrent, perpendicular to oblique at 75° to the costa, course convex to retroflexed, weakly recurved or not; quaternary veins forked percurrent, forming intertertiaries.

Specimens
Represented by the vouchers *Ezedin 754* and *783*, corresponding to *Floyd NGF 8042* (typus: *Cryptocarya rhizophoretum*).

Similar species
Cryptocarya depressa, but this has wider, rounder leaves, hairier twigs with hairs that are lighter in color.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There are two slightly differing morphological forms at Wanang: one with hairs in small tufts at the axils of secondary veins and the other without. The degree of prominence in the venation appears to be slightly variable as well. Better vegetative distinction is needed between this species and *C. depressa*, which has several specimens that look similar. The Wanang material closely matches *Floyd NGF 8042*, the type of *C. rhizophoretum*, which is considered a synonym of *C. endiandrifolia*, but the type of the latter species (*Hoogland 5131*) appears somewhat different.

Cryptocarya iridescens Kosterm. CRYPIR

Lauraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–250 m

Tree to 30 m tall and 40 cm dbh. ***Twigs*** dark green to blackish, smooth, prominently ridged; maturing brown, terete. ***Odor*** of all parts strong, slowly dissipating, citrusy herbal, very much similar to korarima spice. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 8–23 × 5–8 cm, glossy dark green above, dull subglaucous (to powdery glaucescent) shiny seafoam green below, lamina surface raised between secondaries; base obtuse to slightly rounded (to nearly truncate), often asymmetric; apex acuminate; margins entire; petioles 1.2–1.5 cm, dark brown to purplish black, round to slightly flattened adaxially. ***Stipules*** absent. ***Indument*** present on young stems and petioles, early glabrescent; hairs simple, short, dark coppery brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping once or twice but the secondary arch series being much fainter and fading out at margin; costa adaxially flat to slightly raised, abaxially raised; secondary veins 5–8, adaxially flat to impressed slightly, abaxially raised; tertiary veins straight percurrent, oblique at 55–70° to the costa, somewhat irregular; quaternary veins forked percurrent to admedially reticulate.

Specimens
Represented by the voucher *Ezedin 759* and *760*, corresponding to *Hartley 11361* and *Womersley NGF 24851*.

Similar species
C. depressa, *C. endiandrifolia*, and *C. massoy*, but these all lack weakly glaucous undersides. *Cryptocarya apamifolia*, but this has more strongly glaucous leaf undersides, light green petioles, hairs in small tufts of the secondary axils, and tertiaries and quaternaries noticeably fainter.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be defined by its unusual subglaucous shiny seafoam or mint green colored undersides and is thus far only known from the northern coast east of Morobe. The Wanang material appears to match other specimens and extends this species' range into the Ramu basin.

Cryptocarya laevigata Blume CRYPLA

Lauraceae

Global Distribution
Malesia to Australia (New South Wales)

New Guinea Distribution
ING: [Papua]
PNG: Central, [East Sepik], Madang, Manus Is., Milne Bay, Morobe, New Britain, Oro, Sundaun & Western
Elevational Range: 0–800(–1800) m

Tree to ca. 15 m tall and ca. 10 cm dbh. ***Twigs*** dark green, smooth; maturing light brown to greyish, smooth to slightly rough. ***Odor*** of all parts very strong, complex, the initially aqueous and synthetic overtone quickly dissipating and giving way to a long lasting spicy anise-like undertone. ***Leaves*** simple, alternate, 2-ranked, subcoriaceous, 6–16 × 2.5–6 cm, glossy dark green above, glossy light green below, lamina surface raised between secondaries and less so between tertiaries; base acute; apex acuminate, long drip tip; margins entire; petioles 0.6–1 cm, light green to yellowish green, shallowly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, suprabasal acrodromous, with ultimate marginal tertiaries faint and broadly looping once; costa adaxially impressed, abaxially raised; secondary veins 3–4, adaxially impressed, abaxially raised; tertiary veins straight percurrent, perpendicular to the costa, straight to weakly convex towards the apex; quaternary veins absent or extremely faint and broadly reticulate, quickly fading out into the intercostal matrix.

Specimens
Represented by the voucher *Ezedin 775*, *776*, *777*, and *778*, corresponding to *Takeuchi et al. 14953* and *Takeuchi et al. 13753*.

Similar species
Cinnamomum grandiflorum, but this has larger leaves that are opposite and a spicy cinnamon-like odor.

Habitat & Ecology
The brightly colored fruits are likely an important source of food for wildlife. Although no direct observations of animal consumption have been made, partially chewed up fruits can be seen in the field.

Phenology
Flowering not observed. Fruiting observed July–August.

Magi Uses
None recorded.

Notes
This is the only species of *Cryptocarya* at Wanang that lacks an indument. The fruits are large, bright red drupes which have an oddly striking resemblance to those of *Corynocarpus cribbianus*, another lowland Papuan species not known to occur in the Wanang area but nonetheless can be easily differentiated by the pinnately veined leaves and paniculate inflorescences.

Cryptocarya multinervis Teschner CRYPMN

Lauraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Western
Elevational Range: 0–500 m

Tree to ca. 20 m tall and 20 cm dbh. ***Twigs*** light orangish green to greenish brown, with shallow linear vertical depressions running lengthwise, weakly sandpapery; maturing orangish-reddish brown, lenticellate. ***Odor*** of the petioles sharp, spicy lauraceous, dissipating rather quickly; all other parts fainter. ***Leaves*** simple, alternate, 2-ranked, thick chartaceous, (14–)22–30(–35) × (6–)8–12.5 cm, glossy mid to dark green above, dull glaucous yellow-greenish white, lamina surface raised between secondaries and less so between tertiaries; base acute; apex acuminate; margins entire; petioles 1.2–1.8 cm, brownish green to light brown, prominently grooved. ***Stipules*** absent. ***Indument*** present on stems and abaxial leaves, faintly wooly; hairs simple, very small, brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping twice, abaxial veins dark yellowish to light brown and faintly hairy; costa adaxially impressed, abaxially raised; secondary veins (11–)13–15(–17), adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at 45° to the costa, course mostly straight, weakly recurved; quaternary veins ±uniformly forked percurrent, forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 639*, *752*, and *753*, corresponding to *Damas et al. SAJ1123*, *Womersley NGF 37102*, and *Conn & Katik 29842*.

Similar species
May be easily confused with *Cryptocarya sp. 01*, but this has generally smaller leaves, fewer secondaries, petioles not grooved, and lacks quinary veins. *Cryptocarya murrayi*, but this has an orangish-reddish tomentum with tertiaries and quaternaries prominently raised below.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly referred to as *Cryptocarya sp. 01* in prior census data, with other stems erroneously identified as *Cryptocarya medicinalis*. The type specimen of *Cryptocarya multinervis* (*Ledermann 10286*) differs slightly in having smaller leaves and undersides that are not as strongly glaucous. The species approaches the Solomon Island endemic *C. medicinalis*, however the New Guinea material differs in the broader laminas and double the number of secondaries. Some large-leaved specimens of *C. kamahar* (e.g., *Schodde & Craven 4459*) may look rather similar but these always lack glaucous undersides and have less than half the number of secondaries.

Cryptocarya multipaniculata Teschner CRYPMU
Kubíŋ gubíŋ tikibla **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, [East Sepik], Madang, [Milne Bay], Morobe, [Oro], New Britain, New Ireland & [Sundaun]
Elevational Range: 0–500(–1100) m

Tree to 45 m tall and 55 cm dbh. ***Twigs*** dark brown, soft hairy. ***Odor*** of inner bark initially sharp but dissipating quickly, herbal-medicinal with an aqueous undertone. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 18–32 × 8–13 cm, semi-glossy dark green above, dull subglaucous light green below; lamina surface flat to slightly raised between tertiaries; bases weakly obtuse to strongly cordate, often asymmetric; apex acute; margins entire; petioles 0.5–0.8 cm, dark brown, round. ***Stipules*** absent. ***Indument*** present on all vegetative parts, densely wooly; hairs simple, long, dark rusty brown. ***Venation*** pinnate, simple craspedodromous, with ultimate marginal tertiaries terminating at a fimbrial vein, abaxial veins dark yellow to light brown; costa adaxially prominently raised, abaxially raised; secondary veins 14–17(–20), adaxially raised slightly, abaxially raised; tertiary veins straight percurrent, oblique at 45–55° to the costa, weakly convex; quaternary veins faint, forked percurrent, forming composite intertertiaries.

Specimens
Represented by the vouchers *Ezedin 765*, *766*, and *767*, corresponding to *Saunders 954*, *Kiapranis et al. LAE 87149*, and *Schlechter 17878* (typus: *Cryptocarya multipaniculata*), *Merrill 324* (type: *Cryptocarya cordata*).

Similar species
Cryptocarya sp. 02, but the venation is eucamptodromous, abaxial laminas are glabrous and strongly bluish glaucous, and the leaves thick stiff chartaceous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in fencing and construction of small huts, houses, tables, and shelves.

Notes
This is the only member of Lauraceae at Wanang with craspedodromous venation.

Cryptocarya murrayi F.Muell. CRYPMR
Símam niŋi **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, [East Sepik], Madang, [Milne Bay], Morobe, [Oro], New Britain, New Ireland & [Sundaun]
Elevational Range: 0–500(–1100) m

Tree to ca. 30 m tall and 65 cm dbh. ***Twigs*** golden brown to dark brown, strongly ridged, tomentose, soft to rough hairy; maturing greyish brown, smooth to slightly rough. ***Odor*** of all parts strong, aqueous, gradually dissipating. ***Leaves*** simple, alternate, spiral, thick chartaceous, (7–)13–26 × 4–9 cm, semi-glossy dark green above, dull glaucous (dark) bluish white to purplish white below; lamina surface flat to slightly raised between tertiaries; base acute to rounded, sometimes weakly asymmetric; apex obtuse to acute; margins entire, flat; petioles 0.5–0.7 cm, golden brown to dark rusty brown, adaxially flattened to weakly grooved. ***Stipules*** absent. ***Indument*** present on all vegetative parts, dense soft to raspy tomentose; hairs simple, short, golden to dark brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping once; costa adaxially flat to weakly impressed, abaxially raised; secondary veins 9–14, adaxially weakly raised, abaxially raised; tertiary veins straight percurrent, oblique at 45° to the costa, course straight to weakly convex to retroflexed; quaternary veins (straight to) forked percurrent to weakly reticulate, often forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 771*, *772*, *773*, and *774*, corresponding to *Takeuchi et al. 17345*, *Brass 32294*, and *Floyd NGF 7418*.

Similar species
Cryptocarya multinervis, but this has double the number of secondaries, tertiaries not raised and faint, the abaxial lamina surface glabrous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magɨ Uses
Timber used in house construction.

Notes
This appears form a species complex with the predominantly Australian *Cryptocarya mackinnoniana* which has yet to be verified for New Guinea, although there are a few specimens attributed to this species from the island. Further molecular work is needed to clarify species limits between the two; for now, the name *C. murrayi* is accepted for the Wanang material. There appears to be slight variability in indument density and feel, and sometimes color.

Cryptocarya sp. 01 CRYP01
Magɨ Niŋi **Lauraceae**

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: 0–[200?] m

Tree to ca. 30 m tall and 50 cm dbh. ***Twigs*** terete, dark green to blackish, smooth. ***Odor*** of all parts strong, long lasting, leathery medicinal or synthetic-like with an aqueous undertone, oddly reminiscent of the odor encountered inside some office supply stores. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 7.5–22 × 3.5–10, glossy dark green above, dull glaucous bluish white below; lamina surface raised between secondaries and less so between tertiaries, sometimes warped at the margins; base rounded to acute, sometimes weakly asymmetric; apex acuminate; margins entire; petioles 1–1.5 cm, dark green to brownish, adaxially flattened and weakly ridged. ***Stipules*** absent. ***Indument*** present on stems, petioles and abaxial leaves, (early) glabrescent, sparse; hairs simple, short, often appressed, dark brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping twice with the secondary arches much fainter and fading out towards the margin, abaxial veins light green and smooth; costa adaxially flat, abaxially raised; secondary veins 4–7, adaxially flat to slightly raised, abaxially raised; tertiary veins straight percurrent, ±perpendicular to the costa; quaternary veins faint, forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 631* and *633*. No matching specimens found, although several specimens of *Cryptocarya massoy* approach the Wanang material.

Similar species
Cryptocarya apamifolia, but this has domatia and the undersides are bright glaucous whitish blue.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in house and balcony construction.

Notes
Formerly identified as *Cryptocarya massoy* in prior censuses, which it does resemble, however the type (*Beccari s.n.*) and most other specimens of that species lack glaucous undersides, have leaves that are narrower/smaller, and secondaries more sharply ascending. The max height given is a rough estimate based on *C. massoy*.

Cryptocarya sp. 02 CRYP02
Kubíŋ gubíŋ suku **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: East Sepik, Madang & [Sandaun]
Elevational Range: 0–200 m

Shrub or Tree to ca. 5 m tall and ca. 10 cm dbh. ***Twigs*** orangish brown hairy, ridged; maturing light brown to reddish brown, terete, lenticellate, the lenticels ±elongated. ***Odor*** of all parts strong, gradually dissipating, aqueous. ***Leaves*** simple, alternate, 2-ranked, thick stiff chartaceous, 28–65 × 9–23 cm, semi-glossy dark green above, dull glaucous bluish white below; lamina surface flat to prominently raised between secondaries, often irregularly warped along the costa and in 1–3 planes; base rounded to weakly cordate; apex variously emarginate, rounded to obtuse, or acute; margins entire; petioles 1.8–3 cm, dark yellowish to olive green, shallowly grooved. ***Stipules*** absent. ***Indument*** present on young twigs, early glabrescent, densely wooly; hairs simple, medium, rusty orangish brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries somewhat irregular, broadly looping once and quaternaries terminating at margin or the tertiaries themselves terminating at margin, abaxial veins dark olive green; costa adaxially prominently impressed, abaxially raised; secondary veins 9–18, adaxially flat to slightly impressed, abaxially raised; tertiary veins straight percurrent, oblique at 45° to the costa; quaternary veins faint, weakly to forked percurrent, forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 768*, *769*, and *770*, corresponding to *Takeuchi & Ama 22405* and *Takeuchi et al. 21831* (both det. *Cryptocarya magnifolia*).

Similar species
Not easily confused.

Habitat & Ecology
A specific type of insect gall may be encountered on the leaf undersides.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes
Formerly identified as *C. medicinalis*, but this is completely unlike this species. The vegetative morphology matches some Takeuchi specimens determined as *C. magnifolia*, however the type of this species (*Ledermann 9751*) differs from these in having laminas that are very broad and round-elliptic in shape, bases acute, average lower number of secondaries, and tertiaries that are prominent on the adaxial surface. The Wanang material, along with other matching specimens, are treated separately here out of caution. The specimen *Takeuchi et al. 17370* is likely conspecific to this, only differing in the presence of a persistent indument. Both max height and max dbh values given here are estimations.

Cryptocarya cf. *weinlandii* K.Schum. CRYPWE
Gabid Niŋi **Lauraceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Papua]
PNG: Bougainville, Central, Madang, Morobe, [Oro] & New Britain
Elevational Range: 0–150(–750) m

Tree to ca. 30 m tall and ca. 40 cm dbh. ***Inner bark*** white, oxidizing orangish brown. ***Twigs*** dark green with a light brown sheen, smooth soft silky hairy; maturing dark brown, smooth. ***Odor*** of all parts strong, slowly dissipating, herbal medicinal, reminiscent of *Eucalyptus*. ***Leaves*** simple, alternate, 2-ranked but petioles often warped into multiple planes, thick chartaceous, 5–20 × 5.5–9 cm, glossy dark green above, dull glaucous silvery seafoam green powdery below; lamina surface flat, heavily warped along the costa and at the apex; base obtuse to rounded, often asymmetric; apex acuminate, conspicuously curved and curled downwards; margins entire; petioles 1.3–2 cm, yellow green to light brown, shallowly grooved. ***Domatia*** present in the axils of secondary veins, dark copper brown tufted hairy. ***Stipules*** absent. ***Indument*** present on twigs and abaxial veins, soft silky; hairs simple, short, appressed, light bronze. ***Venation*** pinnate, suprabasal acrodromous with three primary veins, with ultimate marginal tertiaries faint and broadly looping in 1–2 series; costa adaxially raised slightly, abaxially raised; secondary veins [off the primary costa] 1–3, [off the secondary costa] 6–11, adaxially raised slightly, abaxially raised; tertiary veins irregular, [off the primary costa] straight percurrent, ±perpendicular to the costa, apically convex, [off the secondary costa] straight to broadly forked percurrent, ±perpendicular to the costa, apically convex; quaternary veins faint, irregular, (straight to) weakly forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 764*, corresponding to *Weinland 220* (typus: *Cryptocarya weinlandii*), *White NGF 10306*, and *Havel & Kairo NGF 11190*.

Similar species
May be confused with *Cryptocarya apamifolia*, but this has eucamptodromous venation, glabrous twigs, and leaves that are thinner and flimsier.

Habitat & Ecology
The flowering period is rather lengthy, lasting a couple months. The corolla appears to never fully open, and fruits were observed developing from wilted unopened (to barely opened) flowers, perhaps indicating the species is cleistogamous. Despite this, various insects were observed on the flowers. Ants actively swarm the trees during the flowering period.

Phenology
Flowering observed August–October. Fruiting not observed.

Notes
Formerly identified as *Cryptocarya densiflora*, which is very similar (esp. *Hartley 10690*) but differentiated by its (usually) narrower leaves that are widest at the upper middle (vs. widest at base), smaller and denser inflorescences (vs. larger and broader). The Wanang material still differs slightly from other specimens of *C. weinlandii* due to the presence of domatia and bluish-grey glaucous undersides. Some specimens determined as this species appear to be quite different. All Wanang material have leaves that are widest at the base, although some specimens determined as this species have leaves that are widest in the middle and narrowly acute at the base (e.g., *Pullen 7291*).

Endiandra brassii C.K.Allen ENDIBR

Lauraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: [East Sepik], Gulf, Madang, Morobe, Oro & [Sandaun]
Elevational Range: 0–600(–1500) m

Tree to ca. 30 m tall and 30 cm dbh. ***Twigs*** green, smooth; maturing light greyish brown, smooth. ***Leaves*** simple, alternate (to subopposite), spiral, chartaceous, (7.5–)11–17.5(–19) × 3–7 cm, semi-glossy dark green above, semi-glossy mid green below, new leaves flushing lime green, lamina surface flat to weakly raised between secondaries; base attenuate to acute; apex cuspidate; margins entire, flat to sometimes weakly undulate; petioles 1.5–2 cm, yellow green to golden, adaxially flattened to shallowly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in 1–2 series, costa adaxially (weakly) impressed, abaxially raised; secondaries 7–14, adaxially flat, abaxially weakly raised; tertiaries prominent on both sides, irregular, straight percurrent to broadly reticulate, often forming composite intersecondaries, oblique at 45° to the costa, course mostly straight; quaternary veins densely reticulate, ultimately forming organized square-shaped geometric chambers.

Specimens
Represented by the voucher *Ezedin 1398*, corresponding to *Havel & Kairo NGF 17236* and *Hartley 11912*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed March and July–November.

Magi Uses
None recorded.

Notes
This species appears to be restricted to the northern coast of New Guinea. Many collections note this species as being a "Tree" however *Takeuchi & Ama 16368* notes "large canopy tree" without giving a height estimation.

Endiandra euadenia Kosterm. ENDIEU
Taŋlé umbáŋ **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Madang
Elevational Range: 0–250 m

Tree to ca. 20 m tall and 26 cm dbh. ***Inner bark*** white, hard. ***Twigs*** chalk white and light grey, often irregularly splotchy, the white portions covered in powdery white dust that can be rubbed off, smooth; maturing light brown to greyish brown, smooth. ***Odor*** of all parts strongly aqueous, initially sharp but quickly dissipating in seconds. ***Leaves*** simple, alternate to subopposite, spiral, thick ±stiff chartaceous, 10–28 × 6–13 cm, glossy dark green above, semi-glossy mid green below, new leaves flushing white; lamina surface subbullate, (weakly to) strongly raised between secondaries, often weakly raised between tertiaries, the areolar area sunken giving a refractive and glistening bifacial surface; base acute to attenuate; apex irregular, varies from obtuse to cuspidate or acuminate; margins entire, flat; petioles (1.5–)2.4–3 cm, dark green, shallowly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in 2–3 series, costa adaxially sunken, abaxially raised, secondary veins 6–12, adaxially weakly impressed, abaxially raised; tertiary veins straight percurrent, perpendicular to the costa, course convex to retroflexed; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 337*, *408* and *420*, corresponding to *Saunders 466* and *White NGF 10252* (typus: *Endiandra euadenia*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed March and July–November.

Magi Uses
None recorded.

Notes
This species appears to be oddly disjunct along the northern coast of New Guinea, only being known from Bird's Head/Yapen Is. and the Ramu basin. It remains to be seen if this species is present in either the Sepik and Mamberamo basins. Interestingly, the West Papuan specimens seem to have young twigs that are brown while specimens from Madang are chalk white – perhaps a slight regional difference.

Litsea collina S.Moore LITSCO
Gabid **Lauraceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
PNG: Central, Madang, Milne Bay, Morobe & [Oro]
Elevational Range: 0–1200 m

Tree to ca. 30 m tall and 60 cm dbh. ***Twigs*** dark green, smooth; maturing greyish to light brown, smooth. ***Odor*** of inner bark sour, somewhat reminiscent of guava leaves. ***Leaves*** simple, alternate, spiral, thick chartaceous, 15–30 × 9–14 cm, glossy mid green above, dull light green to weakly glaucous blue green below, lamina surface prominently raised between secondaries and sometimes weakly so between tertiaries; base acute and symmetric to oblique and asymmetric; apex acute; margins entire; petioles 3–4.5 cm, green, weakly grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, weakly brochidodromous, with ultimate marginal tertiaries faintly looping and fading out; costa adaxially raised, abaxially raised; secondary veins 7–9(–12), adaxially raised, abaxially raised; tertiary veins faint, irregular, broadly reticulate to weakly scalariform near the margins; quaternary veins very faint, nearly parallel to the tertiaries or zigzagging in between them.

Specimens
Represented by the voucher *Ezedin 552* and *666*, corresponding to *Takeuchi & Ama 16366*.

Similar species
Litsea guppyi, but this always has more secondaries, more tertiaries that are conspicuous, prominent quaternaries, and generally larger, more obovate laminas.

Habitat & Ecology
Fruits are likely an important source of food for wildlife, given how prevalent the species is.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
In New Guinea, thus far known from a few provinces in PNG, but reported to be widespread locally at several sites. Likely found at higher elevations and in other provinces in PNG as well as in ING. According to herbarium specimens, the fruits ripen red before finally turning purplish black.

Litsea globosa Kosterm. LITSGL

Gabid maki **Lauraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Madang & Morobe
Elevational Range: 0–1000 m

Tree to ca. 20 m tall and 30 cm dbh. ***Twigs*** dark green, smooth; maturing dark brown, smooth but bumpy with small warts. ***Odor*** of all vegetative parts faint and quickly dissipating, medicinal, lauraceous. ***Leaves*** simple, alternate, spiral, thick chartaceous, 20–47 × 7.5–16 cm, dark glossy green above, mid glossy green below; lamina surface slightly raised between secondaries; base acute; apex acuminate, strongly tapering and forming prominent drip tip; margins entire, weakly undulate; petioles 2–2.5 cm, ***Stipules*** absent. ***Indument*** present; hairs simple, dark orange to brown. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries looping close to margin; costa adaxially flat, abaxially raised; secondary veins (7–)10–13(–20), adaxially flat to impressed slightly, abaxially raised; tertiary veins straight percurrent, mostly perpendicular to oblique at 45° to the costa, course convex, strongly recurved; quaternary veins forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 385* and *576*, corresponding to *Stevens LAE 50410* and *Havel & Kairo NGF 17181*.

Similar species
Litsea sp. 01, but the upper surface is bullate, the tertiaries are more prominent below, the petioles and leaf undersides are hairy, and the leaves and petioles are generally longer.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction.

Notes
Some stems known from other species codes were corrected to this species during the floristic resurvey, other individuals of this species may still be miscoded. Likely to be more widespread than is currently known.

Litsea sp. 01 LITS01

Lauraceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to ca. 10 m tall and ca. 5 cm dbh. ***Twigs*** dark golden brown, densely hairy; maturing greyish brown, smooth with vertical striations. ***Leaves*** simple, alternate, spiral, thick flimsy membranaceous to thin chartaceous, 8–40 × 5–12 cm, semi-glossy dark green above, semi-glossy mid green below; lamina surface flat to irregularly raised between secondaries and tertiaries, the quaternaries prominent on the upper surface; base acute to weakly attenuate, often asymmetric; apex acute to cuspidate; margins entire, flat; petioles 2–3.2 cm, dark golden brown, round to weakly adaxially flattened. ***Stipules*** absent. ***Indument*** present on young twigs and abaxial leaves, densely tomentose; hairs simple, long, yellowish brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries looping in 1–2 series before being abruptly cut off at the margin; costa adaxially (weakly) raised, abaxially raised; secondary veins 11–17, adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at 45° to the costa, course straight to convex, weakly recurved; quaternary veins prominent, forked percurrent to reticulate.

Specimens
Represented by the vouchers *Ezedin 602* and *668*. No positive matches without fertile material. Seemingly matches *Hartley 12273* (typus: *Litsea "rubrocarpa"*) and *Foreman et al. NGF 45888* (det. *Litsea "rubrocarpa"*), but also *Katik NGF 46653* (typus: *Terminalia katikii*) and *Henty NGF 49228* (det. *Terminalia katikii*).

Similar species
Litsea globosa, but this lacks hairy petioles and leaf undersides, lacks a bullate upper surface, and generally has less prominent tertiaries.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The identity of this morphospecies cannot be confirmed without fertile collections. Vegetative material matches specimens of both *Terminalia katikii* and the unpublished species *Listea "rubrocarpa"* proposed by Kostermans, but never validly published. There is likelihood that this morphospecies could indeed belong to either of these two taxa, just as there is also likelihood for both *L.* "*rubrocarpa*" and *T. katikii* to both simultaneously occur inside the plot as specimens for both taxa have been collected in nearby areas. Thus, care should be taken when identifying similar looking specimens. For the time being, this material is referred to the genus *Litsea*, in line with prior census data. Max height and dbh size values are estimations based on *L. "rubrocarpa"* specimens.

Litsea timoriana Span. LITSTI
Malaŋ malaŋ suku **Lauraceae**

Global Distribution
Borneo & Philippines to Solomon Islands

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Bougainville, Central, East Sepik, Gulf, Jiwaka, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, Sundaun & Western Highlands
Elevational Range: 0–600(–1200) m

Tree to 35 m tall and 40 cm dbh. ***Twigs*** green, smooth; maturing light orangish brown to dark reddish brown, smooth. ***Odor*** of all parts spicy lauraceous. ***Leaves*** simple, alternate, spiral, (5–)9.5–15(–24) × 3–7 cm, thick chartaceous approaching thin coriaceous, glossy mid green above, glaucous white below, lamina surface slightly raised between secondaries; base acute to acuminate; apex variously blunt acute to rounded; margins entire; petioles 1.2–1.5, dark green, slightly grooved. ***Stipules*** absent. ***Indument*** present on young twigs and petioles, very early glabrescent; hairs simple, short, dark coppery brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping and fading out; costa adaxially raised, abaxially raised; secondary veins 6–10, weakly decurrent, adaxially slightly impressed, abaxially raised; tertiary veins broad, somewhat irregular, straight to forked percurrent exmedially to weakly reticulate admedially, ±perpendicular to the costa towards the margins, course mostly straight; quaternary veins faint, reticulate, forming a dense geometrical net-like pattern nearly filling the intercostal matrix.

Specimens
Represented by the voucher *Ezedin 306* and *488*, corresponding to *Miller NGF 9911* and *Henty NGF 14380*.

Similar species
Not easily confused.

Habitat & Ecology
Fruits are known to be an important source of food for wildlife.

Phenology
Flowering observed September–October. Fruiting observed August–September.

Magi Uses
Bark used to make traditional tapa cloth. Timber used for firewood and in house construction.

Notes
A widespread species common in the plot and elsewhere in the New Guinea lowlands.

Steganthera hirsuta (Warb.) Perkins STEGHI
Gini té **Monimiaceae**

Global Distribution
Sulawesi to Australia (Queensland)

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: All provinces and islands except [Bougainville] & [New Ireland]
Elevational Range: 0–1800 m

Tree to ca. 10 m tall and ca. 30 cm dbh. ***Twigs*** dark green, smooth, hairy; maturing brown, smooth. ***Leaves*** simple, subopposite, spiral, thick chartaceous, 12–32 × 4.5–13 cm, semi-glossy dark green above, dull mid green below, lamina surface flat to very slightly raised between secondaries and tertiaries; base obtuse to rounded; apex acute to cuspidate; margins entire to toothed; petioles 1–2 cm, dark green to dark brown, weakly grooved. ***Stipules*** absent. ***Indument*** present on all vegetative parts, dense, easily rubbed off; hairs simple, light brown. ***Venation*** pinnate, eucamptodromous to (festooned) brochidodromous, with ultimate marginal tertiaries faintly looping once; costa adaxially raised, abaxially raised; secondary veins 7–10, adaxially impressed slightly, abaxially raised; tertiary veins irregular, straight percurrent to reticulate, course varies, not recurved; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 1379* and *1380*, corresponding to *Katik & Croft LAE 70725* and *Takeuchi & Regalado 10262*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Both sterile and fertile material of this species appears to be highly variable throughout its range, with multiple forms and intermediates. Also appears to be rather close to *Steganthera hospitans*. A detailed molecular study would be helpful here.

Benstonea cf. *stenocarpa* (Solms) Callm. & Buerki BENSST
Gigial **Pandanaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro, New Britain, [Sandaun], Southern Highlands & Western
Elevational Range: 0–1000? m

Tree to 8 m tall and 11 cm dbh. ***Outer*** bark greyish white, rough with tightly spaced circular leaf scars. ***Leaves*** simple, strap-like, spiral, densely clustered at branch tips, hard stiff coriaceous, angled longitudinally giving an 'M' shape in cross section, short spinescent teeth line both margins and the angular base, the teeth curved towards the apex. ***Venation*** parallel; costa adaxially sunken, abaxially raised; secondary veins numerous, small, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
No fertile material seen from Wanang; this species is not yet verified. The ID is roughly based on specimens collected in the surrounding region and should be considered preliminary.

Similar species
Other Pandanaceae, but this has very long leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Pandanaceae has not yet been revised for Wanang. This morphospecies is often given the title 'long narrow leaf' in the census data. Leaf size measurements not given.

Pandanus cf. *kaernbachii* Warb. PANDKA

Pandanaceae

Global Distribution
Moluccas to New Guinea

New Guinea Distribution
ING: [Papua] & West Papua
PNG: [Central], East Sepik, Gulf, Madang, Morobe, [Oro] & Western
Elevational Range: 0–10(–50?) m

Tree to 15 m tall and 10 cm dbh. ***Outer bark*** greyish white, rough with tightly spaced circular leaf scars. ***Leaves*** simple, strap-like, spiral, densely clustered at branch tips, hard stiff coriaceous, angled longitudinally giving an 'M' shape in cross section, short spinescent teeth line both margins and the angular base, the teeth curved towards the apex. ***Venation*** parallel; costa adaxially sunken, abaxially raised; secondary veins numerous, small, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
No fertile material seen from Wanang; this species is not yet verified. The ID is roughly based on specimens collected in the surrounding region and should be considered preliminary.

Similar species
Other Pandanaceae, but this has short leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Pandanaceae has not yet been revised for Wanang. Based on fruit photos from prior censuses, *P. kaernbachii* is a close match. This species has smaller leaves than *P.* cf. *stenocarpa*.

Cordyline fruticosa (L.) A.Chev. CORDFR
Pimbi **Asparagaceae**

Global Distribution
New Guinea & E Australia to Fiji

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: All provinces and islands
Elevational Range: 0–2700 m

Monocaul herb to 8 m tall and 4.7 cm dbh, stems secondarily woody. ***Twigs*** light yellowish brown, with old leaf scars, mostly smooth. ***Leaves*** simple, strap-like, alternate, spiral, thick chartaceous and plastic-like, 23–60(–75) × 5–10 cm, base acuminate, tapering into petiole; apex acuminate, (long) tapering; margins entire; petioles 7–12 cm, green, winged, the wings curving upwards and forming hollow tube, wing bases almost completely encircling and sheathing the stem. ***Stipules*** absent. ***Indument*** absent. ***Venation*** parallel; costa adaxially impressed, abaxially raised; secondary veins numerous, angled steeply against costa, adaxially flat, abaxially flat; tertiary veins absent; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 699*, corresponding to *Mann & Vandenberg NGF 43198* and *Takeuchi et al. 13565*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed, likely year round.

Magi Uses
Planted as boundary indicator. Used as decoration and in ceremonies, to indicate a peace pact, or memorial. Leaves used to cleanse skin and treat sores.

Notes
This is a ubiquitous lowland species that is found widely planted in gardens and also cultivated worldwide.

Dracaena angustifolia Roxb. DRACAN

Tigi **Asparagaceae**

Global Distribution
S China (Yunnan) to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela & Southern Highlands
Elevational Range: 0–1200 m

Tree to 6 m tall and 27 cm dbh, stems secondarily woody. ***Twigs*** whitish grey to light yellow, with old circular leaf scars. ***Leaves*** simple, strap-like, alternate, spiral, thick flimsy membranaceous to stiff subcoriaceous, 11–34 × 1–2.7 cm, glossy mid green above, glossy mid green below, lamina surface flat; base sheathing the stem almost completely; apex acuminate, very long tapering to a point; margins entire; petioles absent. ***Stipules*** absent. ***Indument*** absent. ***Venation*** parallel; costa adaxially impressed slightly, abaxially raised slightly; secondaries numerous, closely spaced, faint, adaxially flat, abaxially flat; tertiary veins absent; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 797* and *1044*, corresponding to *Takeuchi et al. 17635*.

Similar species
Not easily confused. May resemble *Pandanus sp*. in form, but these have leaves that are bent and toothed margins.

Habitat & Ecology
Fruits are popular with wildlife, particularly birds.

Phenology
Flowers observed during June–August. Fruits observed during August–September.

Magi Uses
None recorded.

Notes
Distribution is widespread and found across most or all provinces, with the exception of some parts of the central highlands.

Caryota rumphiana Mart. CARYRU
Saukua **Arecaceae**

Global Distribution
Philippines & Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Bougainville], Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, [New Ireland] & Western Highlands
Elevational Range: 0–400(–1500?) m

Palm to 18 m tall and 30 cm dbh; crownshaft absent. ***Leaves*** compound, bipinnate, alternate, spiral; rachis many-jugate; petioles large, base thickened, sheathing; secondary rachises imparipinnate, alternate to subopposite towards the apex, dark green, round; secondary petioles round to flattened or ridged towards the apex, slightly thickened at base; leaflets praemorse flabellate, triangular, opposite to alternate, thin flimsy chartaceous, glossy dark to mid green above, semi-glossy mid green below; lamina surface flat to variously wrinkled; base acute; apex wide, fan-shaped; margins irregularly toothed and jagged, flat to wavy or wrinkled; petiolules absent. ***Stipules*** absent. ***Indument*** absent. ***Venation*** parallel; costa adaxially impressed, abaxially raised, secondaries numerous, closely spaced, radiating out from the leaflet base; tertiary veins absent; quaternary veins absent.

Specimens
No voucher collected, but Wanang material corresponds to *Streimann 8608*.

Similar species
Not easily confused. The only fishtail palm at Wanang.

Habitat & Ecology
Apparently a monocarpic species, flowering once then dying.

Phenology
Flowering and fruiting not observed, likely year round.

Magi Uses
None recorded.

Notes
A commonly encountered lowland palm. Leaf measurements not given.

Hydriastele costata F.M.Bailey HYDRCO
Pune **Arecaceae**

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–400 m

Palm to 20 m tall and 30 cm dbh; crownshaft present, distinct, light greenish to white. ***Leaves*** compound, pinnate, alternate, spiral; petioles large, base thickened and elongated, closed sheathing; leaflets narrowly elongate, lanceolate, alternate (to subopposite), drooping, thin flimsy chartaceous, glossy dark green above, semi-glossy mid green below; lamina surface flat to variously warped and wrinkled; base tapering, often wrinkled; apex acuminate; margins entire, flat; petiolules absent. ***Stipules*** absent. ***Indument*** absent. ***Venation*** parallel; costa adaxially flat, abaxially flat; secondaries numerous, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
No voucher collected, but Wanang material corresponds to *Pullen 1597*.

Similar species
Orania lauterbachiana, but this is a more robust palm with thicker rachises and less distinct crownshaft with leaves not clustered at the top and petiole bases that are not completely encircling the crownshaft.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed, likely year round.

Magi Uses
Sheathing petiole used for washing sago. Leaves used for thatching.

Notes
Common throughout lowland forests New Guinea. Leaf measurements not given.

Licuala cf. *lauterbachii* Dammer & K.Schum. var. *lauterbachii* LICULA
Sadi **Arecaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, [Oro], Sandaun & Western
Elevational Range: 0–300(–500) m

Palm to 6 m tall and 21 cm dbh; crownshaft absent. ***Leaves*** compound, palmate, fan-shaped, alternate, spiral; petioles up to 1.5 m long, usually armed with curved spines towards the base, usually covered in brownish hairs, with fibrous bases surrounding the stem; leaflets narrowly elongate, triangular with narrowing base and widening apex, glossy (semi-glossy) dark green above, semi-glossy dark to mid green below; lamina surface (weakly to) strongly folded, accordion-like; base tapering, wrinkled to folded, often covered in brownish hairs; apex wide, ±fan shaped; margins regularly notched, the notches U-shaped (sometimes approaching V-shaped), the toothed sides often slightly curving inward; petiolules absent. ***Stipules*** absent. ***Indument*** often present on petioles and leaf bases, powdery-like; hairs light brown to reddish brown. ***Venation*** parallel; costa bent up or down; secondaries numerous, inconspicuous; tertiary veins absent; quaternary veins absent.

Specimens
No voucher collected, but Wanang fruiting material appears to match *Essig & Katik LAE 64065*.

Similar species
Not easily confused. Also known from the plot is *Licuala montana*, a small ground-level palm not recorded in census data, which may be differentiated by its smaller stature, lack of large stem, and thinner leaf segments.

Habitat & Ecology
This is a clumping species often forming dense low-story palm stands often in loosely open canopy areas, regularly encountered on hills and slopes.

Phenology
Flowering not observed, likely year round. Fruiting observed May & September–October, likely year round.

Magi Uses
None recorded.

Notes
Formerly identified as *Licuala beccariana*, which is known from the area and may be identified by its deeply engraved seed, a unique feature for the genus. The species ID is not yet certain, however the Wanang material appears to approach *L. lauterbachii*, a species which is known to be common in the region with brown powdery indument covering the petioles and leaf bases. The other variety of this species, var. *bougainvillensis*, is restricted to Bougainville and Solomon Islands. Fruits ripen bright orangish red.

Orania lauterbachiana Becc. ORANLA
Gimaŋ gimaŋ **Arecaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, [East Sepik], Gulf, Madang, Milne Bay, Morobe, Oro, Sandaun, Western
Elevational Range: 0–1000 m

Palm to 20 m tall and 27 cm dbh; crownshaft present, indistinct to weakly distinct, variously light(–reddish) brown to (greenish–)greyish white. ***Leaves*** compound, pinnate, alternate, spiral; petioles large, base thickened and elongated, openly sheathing, often lightly covered in greyish powder towards the base; leaflets narrowly elongate, lanceolate, alternate to subopposite, (weakly) drooping, chartaceous, glossy dark green above, semi-glossy mid green below; lamina surface flat to (weakly) wrinkled; base tapering, often wrinkled; apex acuminate; margins entire, flat; petiolules absent. ***Stipules*** absent. ***Indument*** absent, but petioles and rachises sometimes covered in powdery substance. ***Venation*** parallel; costa inconspicuous; secondary veins numerous, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
No voucher collected, but Wanang material correspond to *Pullen 1192*.

Similar species
Hydriastele costata, but this is a daintier palm with thinner rachises and a distinct crownshaft with leaves clustered at the top and petiole bases that are more completely encircling the crownshaft.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magɨ Uses
Leaves used for thatching.

Notes
Common throughout the New Guinea lowlands, but not yet known from the outlying islands.

Neololeba atra (Lindl.) Widjaja NEOLAT
Pápaŋ **Poaceae**

Global Distribution
Philippines & Sulawesi to Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Eastern Highland, Enga, Hela, Milne Bay, New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–1500 m

Bamboo to 8 m tall and 7 cm dbh. ***Leaves*** simple, alternate, 2-ranked, thin chartaceous, 9–60 × (1.5–)3–9 cm, dull dark to mid green above, dull mid green below; lamina surface flat to slightly wrinkled between veins; base truncate to cordate; apex acuminate; margins entire; petioles sheathing, the sheaths without hairs. ***Stipules*** absent. ***Indument*** present on young leaves; hairs small, thin, giving a rough sandpapery feel. ***Venation*** parallel; costa adaxially flat and inconspicuous, abaxially raised and conspicuous; secondary veins numerous, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 1403*, corresponding to *Veldkamp 6170*.

Similar species
Neololeba hirsuta, but this has hairs on the young sheaths.

Habitat & Ecology
This is a weakly clumping bamboo only known from a few scattered clumps in the plot.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
Stems used in house construction and to hold water for cooking.

Notes
Formerly known as *Bambusa forbesii*, now synonymized under this name.

Neololeba cf. *hirsuta* (Holttum) Widjaja NEOLHI
Ayu simbam **Poaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Madang, Manus Is., Morobe, New Britain
Elevational Range: 0–800 m

Bamboo to 5 m tall and 4.7 cm dbh. ***Leaves*** simple, alternate, 2-ranked, thin chartaceous, 25–43 × 2–7 cm, dull dark to mid green above, dull mid green below; lamina surface flat to slightly wrinkled between veins; base truncate to cordate; apex acuminate; margins entire; petioles sheathing, the sheaths with hairs along the back. Stipules absent. ***Indument*** present on sheaths; hairs thin, yellow to light brown. ***Venation*** parallel; costa adaxially flat and inconspicuous, abaxially raised and conspicuous; secondary veins numerous, closely spaced; tertiary veins absent; quaternary veins absent.

Specimens
No voucher collected, but Wanang material correspond to *Millar & Holltum 15795* and *Ridsdale NGF 33986A*.

Similar species
Neololeba hirsuta, but this lacks hairs on the young sheaths.

Habitat & Ecology
This is a weakly clumping bamboo only known from a few scattered clumps in the plot.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
Stems used in house construction and to hold water for cooking.

Notes
Formerly identified as *Bambusa sp. 01*. Collections from some individuals marked in the plot were attempted, however were unsuccessful due to mortality of those stems. According to locals, there are two types of bamboo occurring within the plot. The more common species is here designated as *Neololeba atra*, which is said to be the larger of the two. The second species is reported to be shorter and have smaller culms, which seemingly matches the description of *N. hirsuta* which is known from collections in the area, thus the name applied here. However, the presence of this species requires further confirmation. Indument may also be lightly present on the leaves.

Meliosma pinnata subsp. *macrophylla* (Merr.) van Beusekom MELIPI
Mururuŋ kikɨ **Sabiaceae**

Global Distribution
Philippines & Borneo to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, [Eastern Highlands], [Jiwaka], Manus Is., New Ireland & [Western Highlands]
Elevational Range: 0–500(–2800) m

Tree to ca. 25 m tall and 100 cm dbh. ***Twigs*** dark green with light brown lenticels, covered in ferruginous hairs; maturing reddish brown. ***Leaves*** compound, imparipinnate, alternate, spiral; rachis 10–40 cm, green, covered in rusty hairs, round to adaxially grooved towards the base; petioles 9–16 cm, thickened at base, round to adaxially grooved; leaflets 7–20, opposite to subopposite (to alternate), thick flimsy membranaceous to thin chartaceous, 4–17 × 3.5–7 cm, semi-glossy to dull dark green above, dull mid to light green below; lamina surface variable, weakly raised between secondaries to bullate; base obtuse to rounded; apex acuminate to cuspidate or caudate; margins entire to strongly toothed, sometimes toothed only near the apex; petiolules 0.4–0.7 cm, dark green, hairy, grooved. ***Stipules*** absent. ***Indument*** present on all vegetative parts; hairs simple, rusty reddish brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries finely looping once; costa adaxially sunken, abaxially raised; secondary veins 8–14, [when margins toothed] terminating at every other tooth, adaxially impressed, abaxially raised; tertiary veins weakly to forked percurrent, oblique at >45° to perpendicular to the costa, course jagged to sharply zigzagging, strongly recurved; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 1252*, corresponding to *Henty NGF 27456*, *Streimann & Katik NGF 34048*, and *Takeuchi 11190*.

Similar species
Haplolobus lanceolatus, but the margins are always entire, leaflets lanceolate, and rachis longer. *Euroschinus papuanus*, but all parts are glabrous, the margins are always entire, and the leaflets are thick coriaceous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
The maximum bole dbh value generally appears to max out at ca. 60 cm as many specimens cite this value, however some longer lived individuals may become massive, such as that of *Streimann & Katik NGF 34048* which notes the dbh to be 100 cm.

Helicia cf. *amplifolia* Sleumer HELIAM
Waŋiŋ suku **Proteaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Eastern Highlands, [East Sepik], Hela, Madang, Morobe, New Britain, Oro, Sandaun & [Southern Highlands]
Elevational Range: 70–1200 m

Tree to 15 m tall and 19 cm dbh. ***Twigs*** dark green to reddish brown, smooth; maturing reddish to greyish brown, rough with old leaf scars. ***Leaves*** simple, alternate, spiral, thick chartaceous, 23–32.5 x 7.5–10 cm, dull mid green above, dull light green below; lamina surface flat to slightly raised between secondaries; base acuminate, tapering towards petiole; apex acuminate, tapering; margins (entire to) toothed from midpoint to apex of lamina, the teeth widely and irregularly spaced; petioles 0.5–0.7 cm, reddish brown, thickened at base. ***Stipules*** absent. ***Indument*** present on young twigs on the current year's growth and both sides of leaves; hairs short, simple, dark (reddish) brown to black. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in 2–3 series; costa adaxially raised, abaxially raised; secondary veins 14–17, adaxially weakly impressed, abaxially raised; tertiary veins forked percurrent to weakly reticulate, oblique at >65° to nearly perpendicular to the costa, course jagged to sharply zigzagging, often recurved; quaternary veins (forked percurrent to) reticulate.

Specimens
Represented by the voucher *Ezedin 263* and *565*, corresponding to *Pullen 967*, *Streimann NGF 47910*, *Takeuchi & Ama 15283*, and *Womersley NGF 19313*.

Similar species
Helicia cf. *obtusata*, but this lacks an indument.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Fruits used to extract a bluish-purple colored dye for dyeing traditional string bags and hair.

Notes
Formerly identified as *Helicia latifolia* which is similar but differs in generally smaller leaves, fewer secondaries, entire margins (always?), and fruits that are smaller and brownish. The Wanang material differs from the usual *H. amplifolia* in the following: lowland (vs. mostly highland), margins are more commonly found toothed (vs. usually entire), undersides are green (vs. brown). Fruits have whitish-grey skin and purplish-blue flesh. It is likely that *H. amplifolia* is a variable species. Due to difficulties in the identification of sterile *Helicia* specimens, further work is needed to verify the species.

Helicia cf. *obtusata* Sleumer — HELIOB
Sil té — **Proteaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: [Gulf], Jiwaka, [Madang], Morobe, Southern Highlands
Elevational Range: 0–2200? m

Tree to 15 m tall and ca. 24 cm dbh. ***Twigs*** light green, lenticellate, with a smooth silky feel; maturing yellowish to light brown, sparsely lenticellate, rough with old leaf scars. ***Leaves*** simple, alternate, spiral, thick membranaceous to flimsy chartaceous, (6–)10.5–25 × (3.5–)7–15 cm, glossy mid (to dark) green above, glossy (mid to) light green below; lamina surface ±flat to weakly raised between secondaries; base cuneate; apex rounded to blunt acute; margins entire, flat to weakly undulate; petioles 1.5–3 cm, light green, adaxially flattened, thickened at base. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping once; costa adaxially sunken, abaxially raised; secondary veins 9–11, adaxially (flat to) weakly impressed, abaxially raised; tertiary veins straight to weakly forked percurrent, oblique at 45 ° to the costa, course straight to convex but usually minutely jagged, ±strongly recurved; quaternary veins weakly forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 1383* and *1389*, corresponding to *Clemens & Clemens 1670* (typus: *Helicia clemensiae*) and *Streimann & Kairo NGF 27610*.

Similar species
Helicia cf. *amplifolia* but this species has an indument. *Litsea spp.*, but these all lack swollen petiole bases. *Finschia chloroxantha*, but this has brochidodromous venation with the secondaries fused into an intramarginal vein.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction.

Notes
Formerly identified as *Helicia oreadum*, but this has leaves that are noticeably narrower. The identity of this taxon is not yet certain. It closely resembles the type specimen of *H. clemensiae* in general leaf morphology, but this species is considered a synonym of *H. obtusata*, the specimens of which appear to only differ in smaller leaves. The lowland species *H. macrostachya* also appears to be close. Due to difficulties in the identification of sterile *Helicia* specimens, further work is needed to verify the species. Some individuals belonging to this group may be misidentified under *Litsea*. Most specimens of *H. obtusata*, have entire margins but the collection of *Foreman & Lelean NGF 60362* has weakly toothed margins. The Wanang material has glands along the costa in some young leaves, however this is not seen in any specimens.

Finschia chloroxantha Diels FINSCH

Proteaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, [Gulf], Manus Is. & [New Ireland]
Elevational Range: 0–1200(–1850) m

Tree to 20 m tall and ca. 25 cm dbh. ***Twigs*** rusty orange to light green, hairy; maturing older reddish brown, glabrous, sometimes covered in a whitish-grey waxy coating that does not easily rub off. ***Leaves*** simple, alternate, spiral, thick stiff chartaceous, 11–45 × 5–12 cm, (semi-)glossy dark green above, semi-glossy light green below; lamina surface raised between secondaries; base attenuate; apex rounded to blunt acute; margins entire, irregularly undulate; petioles 1.5–3 cm, light green to yellowish, lightly hairy to glabrous, adaxially flattened, base triangular, thickened at base. ***Stipules*** absent. ***Indument*** (absent to) present on young twigs and growth, early glabrescent; hairs simple, very short, rusty bright orangish-red. ***Venation*** pinnate, brochidodromous, the ultimate marginal tertiaries tightly looping twice; costa adaxially raised, abaxially raised; secondary veins 12–21, adaxially flat, abaxially raised; tertiary veins broadly spaced, (weakly–)strongly (doubly) forked percurrent, forming conspicuous composite intersecondaries that may be easily confused for real secondaries, these sometimes then flanked on either side by a smaller series of third order ramifications, oblique at >30° to nearly parallel to the costa, course straight to weakly zigzagging; quaternary veins broadly reticulate, often fading out distally.

Specimens
Represented by the voucher *Ezedin 1081*, corresponding to *Takeuchi et al. 15146*.

Similar species
Hugonia jenkinsii, but this is a liana with eucamptodromous venation and conspicuously thickened petiole bases. *Alseodaphne archboldiana*, but this has narrowly lanceolate leaves tightly clustered at branch tips and has (weakly) brochidodromous venation with loops at sharp angles less than 90°. *Planchonella thyrsoidea*, but this has white sap, eucamptodromous venation, and (much) larger spathulate leaves.

Habitat & Ecology
This species appears to be locally rare at Wanang but is commonly collected throughout New Guinea.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not recorded in prior censuses. Currently known from one individual misidentified as *Hugonia jenkinsii*. Additional individuals likely remain misidentified as other taxa. Leaf size and shape are quite variable across its range, from rounded elliptic to obovate to approaching narrowly lanceolate.

Finschia sp. 01 FINS01

Proteaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: [Eastern Highlands] & Madang
Elevational Range: 150(–1800?) m

Tree to ca. 15 m tall and ca. 20 cm dbh. ***Twigs*** whitish green, terete, smooth and often hairy; maturing orangish-reddish brown, ridged. ***Leaves*** simple, alternate, spiral, chartaceous, (42–)50–65(–70) × 4–9 cm, dull dark green above, dull mid to light green below; lamina surface (weakly) raised between secondaries, intersecondaries, and tertiaries; base attenuate, long tapering; apex acuminate, long tapering; margins entire, regularly undulate; petioles subsessile, green, adaxially flattened, base triangular, thickened at base. ***Stipules*** absent. ***Indument*** (absent to) present on young twigs and growth, early glabrescent; hairs simple, very short, whitish. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries broadly looping in 2(–3) series, the first much larger than the following; costa adaxially sunken, abaxially (strongly) raised; secondary veins 30–45, adaxially impressed, abaxially raised; tertiary veins forked percurrent, forming conspicuous composite intersecondaries that may be easily confused for real secondaries, oblique at very low angles to nearly parallel to the costa, course jagged to weakly zigzagging; quaternary veins broadly reticulate.

Specimens
Represented by the voucher *Ezedin 1373*, which approaches *Moll 12758*, *Schran 13277*, *Barrett 33*, and *Blackwood 33* (all det. *F. chloroxantha*).

Similar species
F. chloroxantha, but the leaves are not narrowly lanceolate, significantly shorter, and the apex is bluntly rounded. *Eriandra* cf. *fragrans*, but the leaves are coriaceous and lack an intramarginal vein.

Habitat & Ecology
Not much is known about the ecology of this species. Although it appears to be quite rare. Leaves may be found with heavy herbivory damage.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not recorded in prior censuses. Likely an unknown species of *Finschia* given similarities in venation. The leaves are large, lanceolate, and very long at ca. 3–4 times longer than *F. chloroxantha*. Fresh leaves at Wanang measure well over 60 cm long. The specimen *Barrett 33* collected at 1800 m in Eastern Highlands has leaves that are longer than most other *F. chloroxantha* specimens at ca. 42 cm long and may belong to this species, however the apex is rather blunt acute. The specimen *Blackwood 33* collected at 1370 m in Morobe has leaves with acuminate apex and base, matching the Wanang material, however the length falls short at ca. 38 cm. There are several specimens of *F. chloroxantha* which have lanceolate leaves, albeit much shorter than those cited here, although it is not yet clear if this forms a morphological continuum with this morphospecies. For now, the long lanceolate-leaved individuals are treated as a distinct taxon. Max height and dbh size given here are estimations.

Dillenia castaneifolia Martelli DILLCA
Kavaŋ té **Dilleniaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, Gulf, Madang, Sandaun & Western
Elevational Range: 0–150(–300) m

Tree to 15 m tall and 30 cm dbh. ***Twigs*** green, smooth; maturing light yellowish brown. ***Leaves*** simple, alternate, spiral, thick chartaceous, 8.5–23 × 8–15 cm, dull dark green above, semi-glossy mid green below, lamina surface flat to slightly raised between the secondaries; base acute; apex acuminate; margins serrate; petioles 3.5–7 cm, dark green to dark brown, longitudinally flattened and strongly ridged, conspicuously winged when young, the wings flared upwards. ***Stipules*** absent. ***Indument*** absent or sometimes present on young leaves, early glabrescent; hairs simple, long, white. ***Venation*** pinnate, simple craspedodromous, with ultimate marginal tertiaries densely looping; costa adaxially raised, abaxially raised prominently; secondary veins 7–19, terminating at each serration, adaxially raised, abaxially raised; tertiary veins densely (sub)scalariform, convex; quaternary veins densely reticulate, sometimes forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 703*, corresponding to *Munzinger et al. 7321* and *Takeuchi & Wiakabu 10079*.

Similar species
Not easily confused.

Habitat & Ecology
This species is restricted to waterways and wet areas in low valleys.

Phenology
Flowering observed August–September. Fruiting observed October.

Magɨ Uses
None recorded.

Notes
Previously identified as *Dillenia papuana*, but this has leaves that are up to twice as large, rounder in shape, and with entire margins.

Leea indica (Burm.f.) Merr. LEEAIN
Gugub **Vitaceae**

Global Distribution
Tropical Asia & Pacific Islands

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1150(–1300) m

Tree to 15 m tall and 20 cm dbh. ***Twigs*** green, smooth; maturing dark brown, rough. ***Leaves*** compound, bi(–tri)-pinnate, alternate, spiral; rachis up to 35 cm long, green, round with a single adaxial groove, swollen and reddish-purple at the nodes; petiole up to 15 cm long, green, adaxially grooved, thickened and reddish at base; secondary and tertiary rachises opposite, green, often grooved, swollen and reddish at base and nodes; secondary and tertiary petioles up to 4 cm long, green, round; leaflets 11–23, opposite, chartaceous, 3–30 × 2.5–11 cm, glossy dark green above, glossy mid green below; lamina surface (weakly) bullate, raised between secondaries and less so between tertiaries; base acute to rounded; apex cuspidate; margins crenate to sharply toothed, flat; petiolules 0.4–1.5 cm, light green, grooved. ***Stipules*** present, early caducous, rounded obovate-obtuse, up to 5 × 4 cm. ***Indument*** absent. ***Venation*** pinnate, semicraspedodromous, with ultimate marginal veins absent; costa adaxially impressed, abaxially raised; secondary veins 8–15, adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at >45° to nearly perpendicular to the costa, course mostly straight, weakly recurved; quaternary veins forked percurrent, forming conspicuous intertertiaries.

Specimens
Represented by the voucher *Ezedin & Whitfeld 1224*, corresponding to *Hoogland 4887* and *Millar & Vandenberg NGF 48543*.

Similar species
Not easily confused.

Habitat & Ecology
Found commonly in forest margins and riverbanks. Weakly clumping species.

Phenology
Flowers observed during October. Fruiting observed August–October.

Magi Uses
Dried leaves used to roll tobacco.

Notes
Measurements are either not given or estimations.

Adenanthera novoguineensis Baker f. ADENNO
K'lumbi **Fabaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and island except Aru Is., [Bougainville], Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–300(–750) m

Tree to 30 m tall and 80 cm dbh. ***Twigs*** dark green, smooth; maturing light brown, smooth. ***Odor*** of all parts strong, leguminous. ***Leaves*** compound, bipinnate, alternate, spiral; rachis 3–16 cm, 2–6-jugate, deeply grooved, angular; petiole 7.5–13.5 cm, green, deeply grooved, basally pulvinate, decurrent to stem forming three prominent ridges (one central and two side) that fade out; secondary rachises 9–17 cm, paripinnate, opposite to alternate, green, round or thinly ridged; secondary petioles 0.5–2 cm, thickened at base with pulvinulus; leaflets 49–165, opposite to alternate, thin membranaceous, 0.8–2.5 × 0.5–1.2 cm, each secondary rachis variously multi-jugate, dull dark green above, dull whitish green below, new leaflets flushing red; base rounded, asymmetric; apex rounded; margins entire; petiolules nearly sessile up to 0.1 cm long, green. ***Stipules*** absent. ***Indument*** appears absent but is sparsely present on abaxial leaves and dense on emerging young growth, very early glabrescent on the latter; hairs simple, short, white on abaxial leaves and dark coppery brown on young shoots. ***Venation*** pinnate, weakly brochidodromous, with no ultimate marginal venation, the abaxial veins green and smooth; costa adaxially flat, raised below; secondary veins 5–8, adaxially flat, abaxially flat; tertiary veins absent or too faint to see; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 512*, corresponding to *Saunders 581* and *Hoogland 4946*.

Similar species
Falcataria moluccana, but this has thin leaflets that are asymmetric and unequal, glands near the base of the petiole, and glands along the primary rachis. *Serianthes hooglandii*, but this has larger leaves with a single large oval gland on the petiole.

Habitat & Ecology
This is a high canopy tree but is rare at Wanang.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
None recorded.

Notes
A couple large individuals were identified as *A. pavonia*, however there is likely only one species of *Adenanthera* at Wanang, until further evidence comes to light.

Archidendron aruense (Warb.) de Wit ARCHAR
Kial'té suku **Fabaceae**

Global Distribution
Moluccas to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Chimbu, East Sepik, Enga, Hela, Gulf, Jiwaka, Madang, Morobe, Sandaun, [Southern Highlands], Western & Western Highlands
Elevational Range: 0–800(–1500?) m

Tree to ca. 10 m tall and 10 cm dbh. ***Twigs*** reddish green, smooth; maturing dark brown, largely hollow, lenticellate. ***Leaves*** compound, bipinnate, alternate, spiral, 1-jugate, each ultimate (secondary) rachis paripinnate and forming a 45–90° angle; rachis absent; petioles 10.5–18 cm, dark green to dark purplish red, weakly ridged, basally pulvinate, with a circular green nectary at the base and apex, the abaxial side of the apex subtended by an upwardly curving triangular protrusion with a depressed light green center serving as an additional nectary located behind the two pulvini; secondary rachises 17–35 cm, dark purplish red, weakly ridged, with 5 small slightly depressed light green circular nectaries located between each leaflet pair and the unpaired leaflet, the nectary at the unpaired leaflet usually smaller than the other four at paired leaflets, the apex subtended by a upwardly curving triangular nectary similar to the one found at the apex of the main petiole; secondary petioles 2–2.5 cm, with dark green ovoid pulvinulus at base, the pulvinulus articulated at the base; leaflets 18, opposite, both rachises 5–7-jugate with 9–13 leaflets each, the basalmost leaflet unpaired, chartaceous, 8.9–27 x 3–6.1 cm, mid green semi-glossy above, shiny silvery light green below, new leaves flushing dark crimson red, lamina surface flat to weakly raised between secondaries; base rounded to acute, sometimes weakly asymmetric; apex acuminate; margins entire; petiolules 0.4–0.6 cm, dark green with slight reddish tinge, round. ***Stipules*** present, interpetiolar, in pairs, persistent, wing-like, thick at base and tapering to point, contorted or twisted, dark green to reddish brown, up to 1.8(–2) cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries infinitely looping; costa dark purplish red at base and turning green towards the apex, adaxially raised, abaxially raised; secondary veins 5–8, adaxially raised, abaxially raised; tertiary veins broadly reticulate; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 439*, *534*, and *867*, corresponding to *Takeuchi & Saxon 13066*, *Takeuchi et al. 17674*, *Coode & Katik NGF 32769*, and *Lauterbach 321* (typus: *Archidendron incurvatum*).

Similar species
Archidendron molle, but this has hairy leaves and rachises.

Habitat & Ecology
This species has close associations with multiple species of ants. Ants live inside the hollow stems and feed on its numerous glands, and in exchange likely provide the tree with some defense against herbivores. Ants can be seen regularly crowding stems, leaves, inflorescences, and the surrounding area at the base of the trees. During the flowering period, several species of butterfly including *Papilio ambrax* and *P. ulysses* were observed regularly frequenting the tree and flowers multiple times throughout the day, particularly during morning hours. New leaves flush out near the end of the dry season from August to November.

Phenology
Flowering observed August–September. Fruiting not observed.

Magi Uses
Timber used in the construction of small huts.

Notes

Formerly identified as *Archidendron lucyi*, which is also known from the area and may possibly be present. However, since the leaves of this species looks similar to *A. aruense*, the presence of the former can only be verified with fruiting specimens. They may be differentiated in the following manner: *A. aruense* has legumes shorter, strongly contorted, with the segments thicker, ovate, more closely fused whereas *A. lucyi* has legumes longer, weakly contorted, with the segments wider, thinner, rounder, and more clearly separated. All fertile material examined from Wanang thus far matches *A. aruense* only.

Archidendron molle (K.Schum.) de Wit ARCHMO
Kial'té tíkibla **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: [East Sepik], Madang, Morobe, Sandaun & Southern Highlands
Elevational Range: 0–100(–500?) m

Tree to ca. 20 m tall and ca. 20 cm dbh. ***Twigs*** dark greenish brown, hairy; maturing brown. ***Leaves*** compound, bipinnate, alternate, spiral, 1-jugate, each ultimate (secondary) rachis paripinnate and forming a 45–90° angle; rachis absent; petioles 10–17 cm, dark greenish brown, hairy, weakly ridged, basally pulvinate, with a circular green nectary at the base and apex, the abaxial side of the apex subtended by an upwardly curving triangular protrusion with a depressed light green center serving as an additional nectary; secondary rachises 14.5–30 cm, dark greenish brown, weakly ridged, with 3 large depressed dark green circular nectaries with dark purplish margins located between each leaflet pair but not the unpaired leaflet, the apex subtended by a upwardly curving triangular nectary similar to the one found at the apex of the main petiole; secondary petioles 1.7–3 cm, thickened with pulvinulus at base, the pulvinulus articulated at the base; leaflets 14–18, opposite, both rachises 4–5-jugate with 7–9 leaflets each, the basalmost leaflet unaired, thin chartaceous, 6–19 x 8–9 cm, semi-glossy mid green above, semi-glossy mid green below; base acute; apex acuminate; margins entire; petiolules 0.4–0.6, dark brown, round. ***Stipules*** present, narrow, 1.5 cm long. ***Indument*** present on all vegetative parts, soft silky; hairs simple, medium long, golden brown. ***Venation*** pinnate, eucamptodromous to festooned brochidodromous, with ultimate marginal tertiaries the abaxial veins yellow green and hairy; costa adaxially flat, abaxially raised; secondary veins 9–10, adaxially impressed, abaxially raised; tertiary veins subscalariform to weakly reticulate, reticulating in sharp angles; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 182*, *357*, *801*, and *1069*, corresponding to *Verdcourt & Galore 5130B* and *Hollrung 1249*.

Similar species
From a distance could possibly be confused with *Archidendron aruense*, but this lacks hairs.

Habitat & Ecology
The leaves of this species are regularly damaged by insects, whereas all other *Archidendron* species often lack herbivory damage. This appears to be an uncommon species at Wanang, although some are likely misidentified.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded. Likely used in a similar manner to *A. aruense*.

Notes
This is a new species code created following the floristic resurvey to accommodate a previously unrecognized species of *Archidendron* with brown pubescence. A few stems of this species were discovered erroneously identified as *Actinodaphne sp. 01* and *Archidendron glabrum* or listed as unknown. There may be other individuals of *A. molle* in the plot that are still hidden under other species codes, particularly individuals of other *Archidendron* species. This species appears to have rather notable morphological variation across New Guinea, possibly indicating a species complex. Max height and dbh size are estimations.

Archidendron ptenopum Verdc. ARCHPT
Viníngé **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Madang & Morobe
Elevational Range: 0–180 m

Tree to 15 m tall and 25 cm dbh. ***Twigs*** dark green, smooth; maturing older dark orangish brown to light greyish brown, with old leaf scars, lightly rough. ***Leaves*** compound, bipinnate, alternate, spiral, 1-jugate, each ultimate (secondary) rachis paripinnate and forming a 90° angle; rachis absent; petioles 5.5–6 cm, green, round, basally pulvinate, winged, the wings leaf-like with venation down to the fourth order, ranging from 0.5–3.5 cm across, becoming wider towards the base and thinner towards the apex, the wings nearly encircling and clasping the stem, with a circular green nectary at the base and apex, the abaxial side of the apex subtended by an upwardly curving triangular protrusion with a depressed light green center serving as an additional nectary; secondary rachises 6–8 cm, green, round, winged, the wings leaf-like with venation down to the third order, ranging from 0.3–1.4 cm across, the wing margins weakly to strongly undulate, with 2 raised dark green to brown nectaries located between the ultimate pair of leaflets and the unpaired leaflet, the apex subtended by a upwardly curving triangular nectary similar to the one found at the apex of the main petiole; secondary petioles 2–3 cm, green, thickened at base with pulvinulus, the pulvinulus articulated at base, winged, the wings curving upwards towards the base; leaflets 6, opposite, both rachises 1-jugate with 3 leaflets each, the basal-most leaflet unpaired, thick coriaceous, 12.5–24 × 7–10.1 cm, glossy dark green above, glossy mid green below, base oblique, asymmetric, unequal, rolled upwards and forming a crescent; apex acuminate, tapering; margins entire; petiolules subsessile up to 0.3 cm long, green, round and thickened with pulvinulus. ***Stipules*** present, interpetiolar, in pairs, narrowly linear, up to 0.5 cm long. ***Indument*** present on young twigs and abaxial leaves, sparse and easily rubbed off; hairs simple, short, brown to blackish. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries infinitely looping towards the margin; costa adaxially raised, abaxially raised; secondary veins 8–11, adaxially raised, abaxially raised; tertiary veins irregular, subscalariform to reticulate; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 583*, corresponding to *Gillison NGF 25011* (typus: *Archidendron ptenopum*) and *Takeuchi & Ama 15334*.

Similar species
Not easily confused. No other bipinnately compound-leaved tree in the plot bears winged rachises.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed September. Fruiting not observed.

Magi Uses
None recorded.

Notes

Cynometra lenticellata (C.T.White) Rados. CYNOLE
K'pai sisibarra **Fabaceae**

Global Distribution
New Guinea and Australia (Queensland)

New Guinea Distribution
ING: Papua
PNG: Central, [East Sepik], [Gulf], Madang, Morobe, Oro, New Britain, Sandaun & Western
Elevational Range: 0–1100 m

Tree to 30 m tall and 50 cm dbh. ***Twigs*** greenish white to pink, smooth; maturing yellowish to orangish brown, lenticellate. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 5–25 cm, (3–)4–5(–6)-jugate, dark brown, deeply grooved, articulated at points of leaf attachment; petioles subsessile to 1–6 cm, basally pulvinus; leaflets (8–)10, opposite, thick chartaceous, 4–10.5 × 2.5–6.5 cm, semi-glossy dark green above, dull mid green below, new leaves flushing pink; lamina surface subbullate, raised between secondaries and tertiaries; base acute, asymmetric, highly unequal; apex acuminate to blunt acute, notched at the tip; margins entire, weakly to strongly undulate; petiolules 0.4–0.7 cm, dark reddish brown, slightly thickened with pulvinulus. ***Stipules*** present only during new leaf flushes, very early caducous, coppery brown, thin, wiry. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries infinitely looping; costa adaxially raised, abaxially raised; secondary veins 8–12, adaxially raised, abaxially raised; tertiary veins somewhat irregular, forked percurrent to reticulate, often forming multiple composite intersecondaries, oblique at ±45° to the costa, course varies; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 612* and *613*, corresponding to *Sayers NGF 19543* and *van Royen NGF 20066*.

Similar species
Cynometra megalocephala, but the leaves are 2–3-jugate and the leaflets much larger. *Cynometra schefferi*, but the leaves are 3–4-jugate and the leaflets larger.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be somewhat variable.

Cynometra megalocephala (Harms) Rados. CYNOME
K'pai kapɨ umbaŋ **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: East Sepik, Madang, Morobe & [Sandaun]
Elevational Range: 0–400? m

Tree to ca. 15 m tall and 25 cm dbh. ***Twigs*** whitish green to pink, terete, smooth; maturing brown, flattened and ridged, lenticellate. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 2.5–14 cm, 2–3-jugate, brown; petioles 0.5–2.5 cm, brown, basally pulvinate; leaflets 4(–6), opposite, thick chartaceous to subcoriaceous, (5–)14–25 × (3.5–)6–11 cm, glossy dark green above, glaucous white below, new leaves flushing bronze; lamina surface subbullate, raised between secondaries and tertiaries, often slightly curled up or down; base rounded, asymmetric, highly unequal; apex acuminate to cuspidate, sometimes notched at the tip; margins entire; petiolules 0.4–0.7 cm, slightly thickened with pulvinulus. ***Stipules*** present only during new leaf flushes, very early caducous, coppery brown, thin, wiry, up to 4.6 cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping twice before margins; costa adaxially raised, abaxially raised; secondary veins 5–8, adaxially slightly raised, abaxially slightly raised; tertiary veins somewhat irregular, forked percurrent to reticulate, often forming multiple composite intersecondaries, oblique at ±45° to the costa, course varies; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 606* and *607*, corresponding to *Hoogland 3883* and *Takeuchi & Ama 16164*.

Similar species
Similar to *Cynometra lenticellata*, but the leaves are 4–5-jugate and the leaflets smaller.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Jul. Fruiting not observed.

Magɨ Uses
None recorded.

Notes

Cynometra psilogyne (Harms) Rados. CYNOPS
K'pai **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 50–250 m

Tree to 25 m tall and ca. 40 cm dbh. ***Twigs*** whitish green to pinkish, smooth; maturing brown to dark yellowish to reddish brown, lenticellate. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 2.3–10 cm, (2–)3–4-jugate, dark brown, deeply grooved, articulated at leaf attachment; petiole 0.5–1.4 cm, yellowish brown, deeply grooved, thickened at base with pulvinus; leaflets 4–6, opposite, (thin) coriaceous, 1.8–8 × 1–5 cm, glossy dark green above, dull mid green below, new leaves flushing pink; lamina surface flat, often slightly curled upwards; base acute, weakly asymmetric, highly unequal; apex blunt acute, notched at the tip; margins entire; petiolules 0.1–0.5 cm, reddish brown, slightly thickened with pulvinulus, articulated at base attachment to rachis. ***Stipules*** present only during new leaf flushes, very early caducous. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries infinitely looping towards margins; costa adaxially raised, abaxially raised; secondary veins 3–5, adaxially slightly raised, abaxially slightly raised; tertiary veins somewhat irregular, forked percurrent to reticulate, often forming composite intersecondaries, oblique at ±45° to the costa, course varies; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 617* and *618*, corresponding to *Katik NGF 46846* and *Forster 10818*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February–March.

Magi Uses
Timber used in construction of furniture and small huts. Branches used as gardening tool.

Notes

Cynometra schefferi (K.Schum.) Rados. CYNOSC
K'pai sisimumuŋ **Fabaceae**

Global Distribution
Sulawesi to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, [Eastern Highlands], East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun
Elevational Range: 0–550 m

Tree to ca. 30 m tall and 30 cm dbh. ***Twigs*** greenish white to pinkish, smooth; maturing yellowish brown, flattened, ridged, with a dark 'T' visible in cross-section, lenticellate. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 5–13 cm, (2–)3–4-jugate, light brown, weakly ridged, with multiple ridges all around, articulated at points of leaf attachment; petioles 1.2–3 cm, light brown, thickened at base with pulvinus; leaflets 6(–8), opposite, thick chartaceous, 4.5–14.5 × 2–7 cm, glossy dark green above, glaucous white below, new leaves flushing pink; lamina surface subbullate, raised between secondaries and tertiaries, often slightly curled downwards; base acute, asymmetric, highly unequal; apex acuminate, often open split; margins entire; petiolules subsessile to 0.3 cm, dark brown, thickened with pulvinulus. ***Stipules*** present only during new leaf flushes, very early caducous. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once or twice; costa adaxially raised, abaxially raised; secondary veins 5–11, adaxially slightly raised, abaxially slightly raised; tertiary veins somewhat irregular, forked percurrent to reticulate, often forming composite intersecondaries, oblique at ±45° to the costa, course varies; quaternary veins densely reticulate, fading distally.

Specimens
Represented by the voucher *Ezedin 609* and *610*, corresponding to *Takeuchi & Ama 22294*, *Takeuchi et al. 13571*, and *Takeuchi et al. 14011*.

Similar species
Cynometra megalocephala, but this generally differs by its larger and usually fewer leaflets.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magi Uses
Timber used in construction of furniture and small huts. Branches used as gardening tool.

Notes

Falcataria falcata (L.) Greuter & R.Rankin FALCFA
Quánám **Fabaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.]
Elevational Range: 0–2200 m

Tree to 40 m tall and 150 cm dbh. ***Twigs*** dark green to yellowish brown, weakly ridged to smooth, lenticellate; maturing light to dark (greyish) brown, longitudinally striate, lenticellate. ***Odor*** of all parts leguminous. ***Leaves*** compound, bipinnate, alternate, spiral; rachis 12–18 cm, 4–11-jugate, grooved, angular, with nectaries between the distal 4 nodes; petiole 5–15 cm, green, weakly grooved to round towards the base, sparsely covered in lenticels, with a single large oval-shaped yellow-green nectary near the base, basally pulvinate; secondary rachis 3.5–10 cm, multi-jugate, paripinnate, opposite to subopposite, green, adaxially flattened to weakly grooved, with nectaries between the distal pairs of leaflets; secondary petiole 0.5–1.5 cm, green, round to adaxially flattened, basally pulvinate; leaflets ca. (50–)200–500(–800), opposite, thin membranaceous, 0.4–2 × 0.3–0.5 cm, dull dark green above, dull light green below; lamina surface flat; base rounded to obtuse, often asymmetric; apex acute; margins entire, flat; petiolules (sub)sessile. ***Stipules*** present, very early caducous. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries absent; costa adaxially flat, abaxially flat; secondary veins 5–9, adaxially inconspicuous, abaxially flat; tertiary veins absent or too faint; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 1077*, corresponding to *Takeuchi & Regalado 10252* and *Henty NGF 27467*.

Similar species
Adenanthera novoguineensis, but this has larger leaflets that are ±symmetric and equal and lacks glands on the petiole and rachis.

Habitat & Ecology
This tree is a canopy emergent with its characteristic white or grey bark and flat-topped crown reminiscent of the acacia trees of the African savannah.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Not recorded in prior censuses, with individuals found misidentified as *Albizia procera* and *Parkia versteeghii*.

Gigasiphon schlechteri (Harms) de Wit GIGASC
Baim **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: [Chimbu], Eastern Highlands, East Sepik, Gulf, Jiwaka, Madang, Morobe, [Sandaun] & Western Highlands
Elevational Range: 0–200(–500) m

Tree to 32 m tall and 170 cm dbh. ***Twigs*** green, smooth; maturing dark brown to blackish, lenticellate. ***Odor*** present in all vegetative parts, leguminous. ***Leaves*** simple, alternate, 2-ranked, thin chartaceous, 6–27 × 5–12.5 cm, glossy mid to dark green above, glossy mid green below with a silvery white sheen under direct light, new leaves flushing light green above and dark crimson red below; lamina surface slightly raised between secondaries, less so between tertiaries; base broadly cordate; apex strongly acuminate, with elongated drip tip; margins entire, undulate; petioles 0.9–3 cm, green, round with thin central groove, doubly pulvinate. ***Domatia*** often present in the abaxial axils of the secondary veins, brown hairy. ***Stipules*** absent. ***Indument*** present, largely restricted to abaxial veins; hairs simple, short, dark reddish brown. ***Venation*** palmate, with 5 primary veins arising from the base, the abaxial veins light green and smooth; costa adaxially impressed, abaxially raised; secondary veins [off the primary costa] 3–4, [off the secondary costas] 4–7, adaxially impressed slightly, abaxially raised; tertiary veins straight percurrent, often with false intersecondaries, oblique at 45° to nearly perpendicular to the primary costa, course convex, weakly recurved; quaternary veins highly reticulate.

Specimens
Represented by the voucher *Ezedin 287* and *355*, corresponding to *Schlechter 17550* (lectotypus: *Bauhinia schlechteri*).

Similar species
Pterygota forbesii, but this has much longer petioles, the primary veins not strongly angled towards the apex, bases more truncate than cordate, and the lamina surface is prominently raised between the tertiaries. *Streblus ascendens* (unlobed leaf), but this lacks a pulvinus and has sap.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Both the flowers and legumes are large at up to 15 cm wide and 38 cm long, respectively.

Inocarpus fagifer (Parkinson) Fosberg INOCFA
Díqua **Fabaceae**

Global Distribution
Malesia to Fiji

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, [Eastern Highlands], Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–50(–210?) m

Tree to 30 m tall and 60 cm dbh. ***Twigs*** green, smooth; maturing dark brown, with small vertical ridges. ***Leaves*** simple, alternate, 2-ranked, thick chartaceous, 7.5–40 × (2.5–)5–11 cm, lamina surface flat to very slightly raised between secondaries; base obtuse and asymmetric to strongly oblique; apex rounded to acuminate; margins entire flat; petioles subsessile to 1 cm, dark green to blackish, slightly grooved. ***Stipules*** present in pairs, thin, subtending both sides of the petiole base, early caducous, up to 0.2 cm long. ***Indument*** absent on all mature vegetative parts but present on young developing inflorescences; hairs simple, short, golden. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal veins looping in 2–3 series; costa adaxially (weakly) raised, abaxially raised; secondary veins 8–14, adaxially raised, abaxially raised; tertiary veins straight to forked percurrent, with false intersecondaries, oblique at 45° to the costa, raised on both sides; quaternary veins densely reticulate, slightly raised on both sides.

Specimens
Represented by the voucher *Ezedin 339*, corresponding to *Takeuchi et al. 13560* and *Fosberg 10006*.

Similar species
Diospyros lolin, but this has inconspicuous venation. *Vatica rassak*, but this has conspicuous, semi-persistent stipules. *Goniothalamus sp. 01* and *Drepenanthus sp. 01*, but these have an impressed costa, secondary veins that are not decurrent, and quaternaries that are sparsely reticulate.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is locally rare at Wanang, but common and widespread throughout Malesia.

Intsia bijuga (Colebr.) Kuntze INTSBI
Kulum **Fabaceae**

Global Distribution
E Tanzania to Samoa

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–200(–600?) m

Tree to 40 m tall and 90 cm dbh. ***Twigs*** dark green to blackish, smooth; maturing light grey to chalk white, rough with many small dark lenticels. ***Odor*** of vegetative parts strong, leguminous. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 4–6 cm, green, round; petioles 2.5–7 cm, green to grey, thickened at base with pulvinus; leaflets 4, opposite to subopposite, (thick) subcoriaceous, 4–15 × 4–12 cm, dark glossy green above, mid semi-glossy green below; lamina surface flat; bases obtuse to rounded (to truncate), often asymmetric; apex blunt acute; petiolules 0.4–0.8 cm, ovoid, often contorted. ***Stipules*** present, small, early caducous. ***Indument*** absent. ***Venation*** pinnate, festooned brochidodromous, with ultimate marginal tertiaries infinitely looping; costa adaxially raised, abaxially raised; secondary veins 7–9, adaxially raised slightly, abaxially raised slightly; tertiary veins forked percurrent to weakly reticulate, forming composite intersecondaries, oblique at 45° to nearly perpendicular to the costa; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 1007*, corresponding to *Takeuchi & Regalado 10249*.

Similar species
Not easily confused. *Kingiodendron* spp. leaflets are always alternate whereas *Millettia pinnata* and *Ormosia calavensis* are always imparipinnate.

Habitat & Ecology
This species is either fully deciduous, losing all its leaves, or partially deciduous and holding on to a few leaves per stem, for a brief period during the dry season months (Jul–Aug). New leaves flush out immediately after the deciduous phase has ended. During the flowering period, numerous butterflies, particularly *Papilio ambrax*, can be seen regularly circling the tree crowns.

Phenology
Flowering observed late Aug–Sept. Fruiting observed Aug–Nov & Jan–May.

Magi Uses
Liquid mixed with water or food and fed to dogs so they gain weight, seeds chewed with betel nut, liquid consumed for body aches, wood use for slit drums.

Notes
A prized commercial timber tree, known by the name “kwila” in trade. The flowers emit a powerful fragrance that fills the air and the forest understory for a couple weeks during the flowering season. The presence of large-stemmed individuals (>30 cm dbh) of this species is usually a good indicator of unlogged primary forest.

Kingiodendron novoguineense Verdc. KINGNO
Kulum kulum sisi mumuŋ **Fabaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Madang, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–150(–300?) m

Tree to 40 m tall and 80 cm dbh. ***Twigs*** green, smooth; maturing dark reddish brown, lenticellate. ***Odor*** of inner bark strong, herbal-medicinal, reminiscent of some lauraceous taxa. ***Leaves*** compound, paripinnate or imparipinnate, alternate, spiral; rachis 2–11 cm, green, round; petioles 1.5–4.5 cm, dark green to blackish, round, basally pulvinate; leaflets 3–5, alternate, thick chartaceous, 5–11(–15) × 3–7 cm, glossy dark green above, dull mid to dark green below, lamina surface flat; base rounded; apex acuminate; margins entire; petiolules 0.5–0.9 cm, dark green to blackish, round, wrinkled. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping in 2–3 series; costa adaxially flat, abaxially raised; secondary veins 9–12, adaxially raised slightly, abaxially raised slightly; tertiary veins forked percurrent to weakly reticulate, forming composite intersecondaries, course jagged to weakly zigzagging; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 736* and *810*, corresponding to *Henty NGF 28032* (typus: *Kingiodendron novoguineense*) and *Takeuchi 7192*.

Similar species
Kingiodendron sp. 01, but this has larger leaves that are twice the size and leaflets that are usually slightly curved with uneven bases. *Millettia pinnata*, but this has larger leaves with rounder leaflets and more prominently thickened pulvini.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February–March & July.

Magi Uses
None recorded.

Notes
The distinction between this species and *Kingiodendron alternifolium* is rather confusing when sterile, however the latter has leaflets that are usually slightly longer, and the apex more strongly acuminate and pointed (vs. acute rounded). A revision of this genus for the island would be helpful to clarify taxonomy.

Kingiodendron sp. 01 KING01
Kulum kulum sisi barra **Fabaceae**

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: 0–200? m

Tree to ca. 35m tall and ca. 70 cm dbh. ***Twigs*** green, smooth; maturing greyish brown, mottled, lenticellate. ***Odor*** of inner bark faint, herbal-like. ***Leaves*** compound, paripinnate or imparipinnate, alternate, spiral; rachis 4.5–10 cm; petioles 1–6 cm, basally pulvinate; leaflets 4–6, alternate, thick chartaceous, 12–30 × 5.5–7.5 cm, glossy dark green above, dull mid to dark green below, new leaves flushing pinkish green; lamina surface flat, sometimes weakly warped; base rounded, equal to slightly unequal; apex acuminate to cuspidate, often curved slightly towards the rachis; margins entire; petiolules 0.5–0.8 cm, dark green to blackish, round, wrinkled. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping twice; costa adaxially flat to slightly raised, abaxially raised; secondary veins 7–9, adaxially slightly raised, abaxially slightly raised; tertiary veins forked percurrent to weakly reticulate, forming composite intersecondaries; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 728* and *734*, corresponding to *Ctvrtecka 1957* (det. *Kingiodendron alternifolium*).

Similar species
Kingiodendron novoguineense, but this has leaves that are twice as small and leaflets with even bases. *Millettia pinnata*, but this has rounder leaflets that are opposite.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun–Sep.

Magi Uses
None recorded.

Notes
Formerly identified as *Kingiodendron alternifolium*, however the Wanang material differs from the type of this species from the Philippines (*Elmer 7356*). It also differs from *K. micranthum*, described from Bougainville (typus: *Waterhouse 22962*), now considered a synonym of *K. alternifolium*. The main difference being the size of the leaflets of the Wanang material, which can exceed 30 cm in length which is over double the ca. 10–15 cm length of the latter two taxa. The third species native to New Guinea, *K. tenuicarpum*, has the smallest leaflet length, measuring ca. 7 cm or less. A revision of this genus for the island would be helpful to clarify taxonomy and accurately place the Wanang material along with some other undetermined herbarium material. Max height and dbh size are estimations.

Millettia pinnata (L.) Panigrahi MILLPI
Aŋ té **Fabaceae**

Global Distribution
S Japan & India to Australia (Queensland) & Samoa

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–150(–800) m

Tree to 25 m tall and 80 cm dbh. ***Twigs*** green, smooth; maturing yellowish to greyish brown, smooth. ***Leaves*** compound, imparipinnate, alternate, spiral; rachis 3.5–18 cm, green, round; petioles 5–8 cm, green, round, basally pulvinate; leaflets 5–7, opposite to subopposite, (thin) chartaceous, 5–16 × 4.5–11 cm, (semi-glossy to) dull dark green above, dull mid green below; lamina surface prominently raised between secondaries; base obtuse; apex acute to acuminate; margins entire, flat to weakly undulate; petiolules 0.5 cm, green, round. ***Stipules*** present, small, early caducous. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal veins looping in 1–2 series; costa adaxially impressed, abaxially raised; secondary veins 7–9, adaxially impressed, abaxially raised; tertiary veins straight to forked percurrent, often forming composite intersecondaries, oblique at 30° to nearly perpendicular to the costa, course mostly convex; quaternary veins forked percurrent to weakly reticulate, often forming intertertiaries.

Specimens
Represented by the voucher *Ezedin 1066*, corresponding to *Demoulin 5695*, *Brass 21930*, and *Takeuchi et al. 15123*.

Similar species
Ormosia calavensis, but the leaflets are thicker and have weakly glaucous undersides.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in the construction of small huts.

Notes
Many individuals of this species were confused for *Ormosia calavensis*, which itself was erroneously being identified as *Aganope heptaphylla*. Some individuals of *O. calavensis* may be misidentified as this.

Ormosia calavensis Azaola

ORMOCA
Fabaceae

Global Distribution
Malesia

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Madang, [Milne Bay], Morobe, Oro, Southern Highlands & Western
Elevational Range: 0–600(–1300) m

Tree to 20 m tall and 60 cm dbh. ***Twigs*** light green, smooth; maturing dark brown, weakly wrinkled. ***Leaves*** compound, imparipinnate, alternate, spiral; rachis 5.5–24 cm, green, round; petioles 5.5–13 cm, green, round, basally pulvinate; leaflets 5–9, opposite to subopposite, thick (sub)coriaceous, 4.5–20 × 2.8–7 cm, glossy dark green above, shiny subglaucous greyish blue-green below; lamina surface mostly flat; base acute to rounded; apex acuminate to cuspidate; margins entire, flat; petiolules 0.4–0.6 cm, green, round, slightly thickened. ***Stipules*** present, small, early caducous. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries broadly looping once then minutely a second time; costa adaxially flat to weakly impressed, abaxially raised; secondaries 5–9, adaxially flat to weakly impressed, abaxially flat to weakly raised; tertiary veins forked percurrent to reticulate, often forming composite intersecondaries, course varies; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 1070*, corresponding to *Takeuchi et al. 14958* and *Kerenga LAE 56408*.

Similar species
Millettia pinnata, but the laminas are chartaceous thin and lack a subglaucous underside.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Previously identified as *Aganope heptaphylla*, but this is a liana or scrambling shrub. Some individuals of *Millettia pinnata* may be misidentified as this.

Pterocarpus indicus Willd. PTERIN
Giva **Fabaceae**

Global Distribution
S China to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, Manus Is. & Western Highlands
Elevational Range: 0–400(–760) m

Tree to 40 m tall and 250 cm dbh. ***Twigs*** ridged becoming terete, dark green turning brown, smooth. ***Exudate*** often present, red. ***Odor*** of all parts soft, dissipating slowly, weakly leguminous. ***Leaves*** compound, imparipinnate, alternate, 2-ranked; rachis 6–20 cm, green, round; petioles 2–6 cm, green, round, thickened at the base with pulvinus; leaflets 6–9, alternate, thin flimsy chartaceous, 2–10 × 1.3–6 cm, glossy dark green above, semi-glossy mid green below; lamina surface flat to irregularly raised between secondaries, often warped in one plane; base obtuse to truncate, sometimes weakly asymmetric; apex acuminate to cuspidate; margins entire; petiolules 0.3–0.4 cm, green to blackish, round, slightly thickened. ***Stipules*** present, interpetiolar, singular on the adaxial side only, triangular, early caducous and leaving small scar, up to 0.4 cm long. ***Indument*** present on leaves, appressed; hairs simple, short, yellowish. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once; costa adaxially impressed, abaxially raised; secondary veins 7–9, adaxially flat to impressed slightly, abaxially raised slightly; tertiary veins straight percurrent, oblique at 70° to the costa, course irregularly varies, strongly recurved; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 851*, corresponding to *Saudners 230* and *Molino et al. 3139*.

Similar species
Ormosia calavensis and *Millettia pinnata*, but the leaflets are always opposite, the laminas are much thicker, not flimsy, and the leaflets usually larger.

Habitat & Ecology
Has a semi-clumped distribution, with most of the trees being old and very few recruits. Often encountered along waterways and sometimes even growing directly in streams. Partially deciduous during the dry season in August.

Phenology
Flowering and fruiting not observed, likely year round.

Magi Uses
Exudate used as glue to attach lizard skin as the head of a kundu drum. Timber used as house posts. Wood is forbidden to use as firewood.

Notes

Serianthes hooglandii (Fosberg) Kanis SERIHO
Fabaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Papua]
PNG: Central, Eastern Highlands, East Sepik, Madang, Milne Bay, Morobe & [Oro]
Elevational Range: 0–200 m

Tree to 35 m tall and 76 cm dbh. ***Twigs*** dark green to greenish brown, grooved, with numerous small transverse cracks, lenticellate, sparsely hairy to glabrescent; maturing dark brown, densely lenticellate. ***Odor*** of all parts leguminous. ***Leaves*** compound, bipinnate, alternate, spiral; rachis 5–29 cm, 4–14-jugate, grooved with a prominently raised adaxial ridge, with raised yellow-orangish nectaries between the distal 4 nodes; petioles 4–8 cm, green to greenish brown, sparsely lenticellate, with a prominently raised adaxial ridge running from the apex to the large raised yellow-orangish nectary at the midpoint, slightly thickened at the base; secondary rachis 3.5–12 cm, multi-jugate, paripinnate, opposite (to subopposite), green, weakly grooved, with nectaries between the distal pairs of leaflets; secondary petiole (sub)sessile, basally pulvinate; leaflets ca. (200–)500–900(–1300), opposite, membranaceous, 0.7–1.2 × 0.3–0.5 cm, dull dark green above, dull light green below; lamina surface flat; base truncate; apex rounded to acute; margins entire, flat; petiolules sessile. ***Stipules*** present, very early caducous. ***Indument*** present on young vegetation, sparsely pubescent; hairs simple, short, dark reddish-purplish brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping broadly once; costa adaxially weakly impressed, abaxially prominently raised; secondary veins 5–9, adaxially flat, abaxially flat; tertiary veins forked percurrent to irregularly reticulate; quaternary veins absent.

Specimens
Represented by the voucher *Ezedin 1445*, corresponding to *Hoogland 4331* (typus: *Serianthes hooglandii*), *Hoogland 4968*, *Brass 22010* and *Streimann NGF 27998*.

Similar species
Falcataria falcata, but this lacks an indument on the young growth, the nectaries on the petiole and rachis are ±flat, and the leaflet bases are truncate.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes
Not recorded in prior censuses, with individuals found misidentified as *Adenanthera pavonia*. Other individuals may be misidentified as either *Adenanthera* or *Parkia*. Indument density and retention appears to vary.

Eriandra cf. *fragrans* Royen & Steenis ERIAFR

Polygalaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Madang, Morobe, [Oro], Sandaun & Western
Elevational Range: 0–220 m

Tree to ca. 25 m tall and 25 cm dbh. ***Inner bark*** light greenish. ***Twigs*** green, flattened, weakly ridged; maturing dark brown, terete, smooth. ***Odor*** of inner bark soft, dissipating slowly, floral. ***Leaves*** simple, alternate, spiral, flimsy chartaceous, 12.5–28.2 × 4.7–9 cm, glossy dark green above, semi-glossy mid green below; lamina surface flat, often irregularly warped or curled downwards; base decurrent; apex shallowly acute to acuminate; margins entire, sometimes widely undulate; petioles 0.5–1.2 cm, green to light brown, adaxially flattened. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, (weakly) brochidodromous, with ultimate marginal tertiaries faint and looping, the abaxial veins light green and smooth; costa adaxially raised, abaxially raised; secondary veins 23–30, difficult to tell apart from the tertiaries, adaxially finely raised, abaxially finely raised; tertiary veins weakly reticulate, forming false secondaries; quaternary veins faint, weakly percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 183* and *849*. No matching specimens found, but closest match appears to be *Wiakabu LAE 73519* (det. *Eriandra fragrans*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Eriandra fragrans* and before that, *Gordonia amboinensis*, the latter of which is incorrect. The identity of this remains uncertain due to the degree of morphological difference between the Wanang material and the majority of *Eriandra* specimens seen (incl. type) which have the following differences: much smaller leaves (up to 3× smaller), less secondary veins, secondaries clearly looping well before the margin, and midveins sunken above. Tertiary venation seems to be variable among specimens, with longer leaves displaying intersecondaries and specimens with smaller leaves without. The Wanang material seems to approach *Wiakabu LAE 73519*, from East Sepik yet still differs in leaf size and venation. It is not clear from the specimens seen thus far if *E. fragrans* has leaf morphology that varies to such a degree. Either fertile specimens or molecular data will be required to assess whether the Wanang material does indeed belong to the genus, which is monotypic.

Xanthophyllum papuanum Whitmore ex van der Meijden XANTPA
Yandi yandi **Polygalaceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, [Eastern Highlands], East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro, [Sandaun], Southern Highlands & Western
Elevational Range: 0–200(–920) m

Tree to 30 m tall and 70 cm dbh. ***Twigs*** dark green to blackish, smooth, sometimes with swollen joints between branchlets with holes. ***Odor*** of inner bark weak, slightly musty floral. ***Leaves*** simple, alternate, 2-ranked, thick chartaceous, 5–13 × 3.2–7 cm, dark glossy green above, mid glossy green below, lamina surface mostly flat; base rounded to acute; apex acute; margins entire, undulate; petioles 0.7–1.1 cm, dark green to blackish, grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** faint, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries weakly looping; costa adaxially impressed, abaxially raised; secondary veins 5–9, adaxially impressed slightly, abaxially raised slightly; tertiary veins straight to forked percurrent, nearly perpendicular to the costa, course straight to jagged; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 277*, corresponding to *Sayers NGF 21668* and *Ctvrtecka 4357*.

Similar species
Xylopia cf. *papuana*, but the nodes are not swollen, outer bark is orangish brown, venation inconspicuous, and abaxial lamina weakly glaucous.

Habitat & Ecology
Twigs often have perforations and thickened nodes which may be inhabited by ants.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round

Magi Uses
None recorded.

Notes

Prunus gazelle-peninsulae (Kaneh. & Hatus.) Kalkman PRUNGA
Aŋidibi tikibla **Rosaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, Eastern Highlands, [East Sepik], [Gulf], Jiwaka, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–2200 m

Tree to 40 m tall and 75 cm dbh. ***Twigs*** dark green to reddish, smooth; maturing (light) brown, mostly smooth. ***Odor*** of all parts strong, sweet, fruity, heavily reminiscent of plum. ***Leaves*** simple, alternate, 2-ranked, flimsy chartaceous, [when juvenile] 24–26.5 × 12–13.7 cm, [when mature] 15.2–22.2 × 9.3–11.5 cm, semi-glossy dark green above, dull mid green below; lamina surface (sub)bullate, raised between secondaries and tertiaries, weakly raised between quaternaries, with a pair of faintly dark glands at the base of the abaxial lamina; base rounded to truncate, sometimes asymmetric; apex acuminate, tapering; margins entire; petioles 0.6–2 cm, round, rusty reddish brown to dark brown, hairy. ***Stipules*** present, interpetiolar, paired, small thin, (very) early caducous, dark reddish brown, up to 0.5 cm long. ***Indument*** present on all parts, pubescent, ±dense; hairs simple, short, erect, rusty reddish brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once; costa adaxially flat to slightly raised, abaxially raised, densely hairy on both sides; secondary veins 8–14, adaxially slightly impressed, abaxially raised; tertiary veins straight percurrent, rarely individually forking exmedially, oblique at ±45° to the costa, the angles constant, course admedially (strongly) convex to exmedially straight, weakly to strongly recurved; quaternary veins straight to forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 1107*, corresponding to *Frodin NGF 26469*.

Similar species
Prunus schlechteri, but this has leaves that are smaller and more elliptic, the upper surface not bullate, and the hairs shorter and sparser. *Casearia clutiifolia*, but this has serrated margins, eucamptodromous venation, and the twigs lack reddish brown indument.

Habitat & Ecology
The juvenile trees have leaves that are significantly larger.

Phenology
Flowering not observed. Fruiting observed Jun–Aug.

Magi Uses
None recorded.

Notes

Prunus schlechteri (Koehne) Kalkman PRUNSC
Aŋidibi **Rosaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Manus Is., [New Britain] & [Western Highlands]
Elevational Range: 0–2000(–2600) m

Tree to 45 m tall and 75 cm dbh. ***Twigs*** reddish green, smooth; maturing dark brown to black, smooth. ***Odor*** of all parts strong, sweet, fruity, heavily reminiscent of plum. ***Leaves*** simple, alternate, 2-ranked, thin flimsy membranaceous, 3–18 × 1.8–8 cm, semi-glossy dark green above, dull mid green below; lamina surface very weakly(–slightly) raised between secondaries, often with pair of two yellow to dark brown glands at base of abaxial lamina; base rounded to truncate; apex acuminate, tapering; margins entire, weakly undulate; petioles 0.6–0.9 cm, dark green, deeply grooved, sparsely hairy. ***Stipules*** present, interpetiolar, small thin, early caducous, dark greenish to brown, up to 0.4 cm long. ***Indument*** present on all parts, sparse; hairs simple, short, appressed, whitish silvery to light coppery brown. ***Venation*** pinnate, weakly brochidodromous, with ultimate marginal tertiaries looping once; costa adaxially impressed, abaxially raised, densely hairy on both sides; secondary veins 11–12, adaxially flat to impressed slightly, abaxially raised slightly; tertiary veins straight percurrent, rarely individually forking, oblique at 45° to the costa, course convex to straight, recurved; quaternary veins irregular, (straight to) forked percurrent to weakly reticulate or straight percurrent, fading out distally.

Specimens
Represented by the voucher *Ezedin 382* and *1106*, corresponding to *Takeuchi & Kulang 11549* and *Henty NGF 38608*.

Similar species
Prunus gazelle-peninsulae, but this has larger rounder leaves, the upper surface prominently bullate, and the hairs are longer and denser. *Hopea iriana*, but this has narrowly elliptic leaves and the tertiaries are very closely spaced.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in house construction.

Notes
This species is commonly collected in the highlands, where it seems to be more prevalent. The indument appears variable across its altitudinal range, with hairs colored white/silver in lowland material and rusty orange colored in the highland material. Indument is often absent on older vegetation, particularly in lowland material, as is the case with the Wanang material.

Ziziphus angustifolia (Miq.) Hatus. ex Steenis ZIZIAN
Saiám **Rhanmaceae**

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Eastern Highlands], Enga, Hela, Jiwaka, [Manus Is.], [New Ireland], Southern Highlands & Western Highlands
Elevational Range: 0–300(–600) m

Tree to 25 m tall and 31 cm dbh. ***Twigs*** dark green to reddish brown, smooth; maturing dark brown, rough, lenticellate, with internodes forming zigzagging branching pattern. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 2–7 × 5–13 cm, mid glossy green above, light semi-glossy green below, new leaves flushing dark greenish bronze, lamina surface flat to very slightly raised between tertiaries; base rounded, unequal; apex acuminate; margins weakly serrate, the serrations blunt, equally spaced; petioles 0.8–1 cm, yellow-green, weakly grooved. ***Stipules*** present, small, early caducous. ***Indument*** present, sparsely covering vegetative parts; hairs simple, bronze. ***Venation*** pinnate, perfect basal acrodromous, with 3 primary veins, the outer secondaries (weakly) brochidodromous; costa adaxially impressed, abaxially raised; [outer] secondary veins ca. 20, perpendicular to the costa, adaxially flat, abaxially raised slightly; tertiary veins reticulate, parallel to primary veins; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 469*, corresponding to *Womersley NGF 17702* and *Saunders 490*.

Similar species
Celtis latifolia, but the leaves are not brittle and the tertiaries are not strongly percurrent perpendicular. *Celtis ridgescens*, but the leaves are smaller and not as flimsy. *Ziziphus djamuensis* (not treated here), but this is a liana with short, recurved spines and the leaves are hairy.

Habitat & Ecology
New leaves observed flushing out during the dry season months Aug–Sep but is not known to be deciduous.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in the construction of small balconies and fences. Branches used as gardening tool.

Notes

Aphananthe philippinensis Planch. APHAPH

Cannabaceae

Global Distribution
Philippines & New Guinea to E Australia (New South Wales)

New Guinea Distribution
PNG: Central, Madang, Milne Bay, Morobe
Elevational Range: 0–60(–200?) m

Tree to 20 m tall and 27 cm dbh. ***Twigs*** orangish brown, smooth; maturing dark greyish brown, smooth with vertical striations. ***Leaves*** simple, alternate, 2-ranked, chartaceous, 1.5–9.3 × 1.1–3.3 cm, semi-glossy dark green above, dull mid green below; base acute to obtuse; apex strongly acuminate; margins prominently toothed (to entire), flat; petioles 0.1–0.3 cm, light green, round. ***Stipules*** present, thin, early caducous. ***Indument*** present, covering all vegetative parts; hairs white, short, rough, with a sandpapery feel. ***Venation*** pinnate, craspedodromous, with ultimate marginal veins looping once; costa adaxially raised, abaxially raised; secondary veins 4–8, [when toothed] terminating at margins with a single tooth, adaxially flat, abaxially raised; tertiary veins irregular, weakly straight to forked percurrent, often forming composite intersecondaries, oblique at 45° to nearly perpendicular to the costa, course jagged, recurved; quaternary veins weakly forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 208*, *246*, and *247*, corresponding to *Whitfeld et al. 767*, *Mabberley 1785*, and *Kairo et al. 819*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Vegetative morphology of this species is rather variable throughout its range.

Celtis latifolia (Blume) Planch. CELTLA
Klaŋ **Cannabaceae**

Global Distribution
Philippines & Moluccas to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, East Sepik, Madang, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–200(–800) m

Tree to 30 m tall and 50 cm dbh. ***Twigs*** green, smooth; maturing grey, smooth. ***Leaves*** simple, alternate, 2-ranked, thick stiff chartaceous, 8–23 × 4.5–12 cm, dark glossy green above, dark semi-glossy olive green below, lamina surface curling inwards and plateauing from the base; base oblique, asymmetric and unequal; apex acuminate, often with prominent drip tip; margins entire; petioles 0.7–1.2 cm, dark green, with slight central groove. ***Stipules*** present, small, triangular, semi-circular, early caducous, up to 0.8 cm long. ***Indument*** appears absent but very sparsely present on abaxial leaves; hairs very small, white, appressed. ***Venation*** pinnate, perfect (to imperfect) basal acrodromous, the outer secondaries brochidodromous, with ultimate marginal tertiaries looping in 1–2 series; costa adaxially flat, abaxially raised; [outer] secondary veins ca. 18–25, adaxially flat, abaxially raised slightly; tertiary veins [between the primaries] weakly percurrent, ±perpendicular to costa, course mostly convex; tertiary veins [between the secondaries] forked percurrent, forming composite intersecondaries, oblique at 45° to the costa, course mostly straight; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 383* and *875*, corresponding to *Saunders 250*.

Similar species
Celtis ridgescens, but this has larger leaves that are thin flimsy membranaceous and secondaries off the central primary.

Habitat & Ecology
Has a weakly clumped distribution pattern that is strongly associated with ridgelines. This species may variously be evergreen or partially to fully deciduous during the dry season months Jun–Sep. The sulfur crested cockatoo (*Cacatua galerita*) and palm cockatoo (*Probosciger aterrimus*) were observed feeding on the fruits on multiple occasions.

Phenology
Flowering not observed, likely year round. Fruiting observed February–April & June–November.

Magi Uses
Timber used for house construction of small huts and firewood. Leaves used as decoration during ceremonies and is edible by pigs.

Notes
According to data from the second census, this is the second most abundant species inside the Wanang plot, surpassed only by *Ficus hahliana*. The collection by *Coode et al. NGF 29762* notes it as growing as a semi-epiphyte on another tree.

Celtis philippensis Blanco CELTPH
Nimuŋ **Cannabaceae**

Global Distribution
India & S China to N Australia & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, East Sepik, Madang, Milne Bay, Morobe, [New Britain], New Ireland, Oro & [Sandaun]
Elevational Range: 0–200(–730) m

Tree to 45 m tall and 60 cm dbh. ***Twigs*** dark green to blackish, smooth; maturing dark crimson-purple, smooth. ***Leaves*** simple, alternate, 2-ranked, thick membranaceous to thin flimsy subcoriaceous, 5–14.5 × 3–7 cm, dark green above, mis green below; lamina surface (sub)bullate, flat to (weakly) raised between secondaries and primaries; base rounded to weakly truncate, often asymmetric; apex acuminate; margins entire, flat to weakly undulate; petioles 0.9–1.2 cm, dark green to blackish, weakly grooved. ***Stipules*** present, triangular, semi-circular, early caducous, leaving a small scar. ***Venation*** pinnate, perfect basal acrodromous, the outer secondaries brochidodromous, with ultimate marginal tertiaries faintly looping at least once; costa adaxially slightly impressed, abaxially raised; [outer] secondary veins ca. 15–20, adaxially slightly impressed, abaxially weakly raised; tertiary veins [between the primaries] straight (to weakly) percurrent, ±perpendicular to costa, course mostly convex; tertiary veins [between the secondaries] forked percurrent, forming composite intersecondaries, oblique at 45° to the costa, course mostly straight; quaternary veins faint, reticulate.

Specimens
Represented by the voucher *Ezedin 1392*, corresponding to *Hoogland 5077*.

Similar species
Celtis latifolia, but the leaves are thick stiff chartaceous and brittle. *Celtis ridgescens*, but this has larger leaves with a more prominently bullate surface and has secondaries off the central primary.

Habitat & Ecology
When fully mature, this species becomes a large high canopy tree.

Phenology
Flowering not observed, likely year round. Fruiting observed year round.

Magɨ Uses
Timber used for the construction of small huts. Leaves are chewed with betel nut. Saplings used for roofing.

Notes
The Wanang material seen thus far does not exactly match the majority of specimens of *C. philippinensis* which tend to have thicker laminas that are not bullate. The name is retained for now as the small leaf size generally matches. Some Philippine specimens have serrated margins towards the apex.

Celtis rigescens (Miq.) Planch. CELTRI
Aŋ klaŋ **Cannabaceae**

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING: Papua
PNG: Central, Madang, Milne Bay, Morobe, New Britain & Oro
Elevational Range: 0–350 m

Tree to 45 m tall and 120 cm dbh. ***Twigs*** light brown with green splotches, covered in small lenticels. ***Leaves*** simple, alternate, spiral, thick membranaceous to thin flimsy subcoriaceous, 14–24 × 4–13 cm; dull mid green above, dull mid green below; lamina surface (sub)bullate, raised between secondaries and tertiaries, less so between quaternaries; base acute, slightly asymmetric; apex acuminate; margins entire; petioles 1–1.2 cm, dark green, with weak central groove that fades out towards the stem. ***Stipules*** present, early caducous, green, sheathing, leaving semicircular scar, up to 0.6 cm long. ***Indument*** present on young twigs, petioles, and abaxial veins, lightly velvety; hairs simple, small, white. ***Venation*** pinnate, perfect basal acrodromous, the outer secondaries eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries looping once before margin; costa adaxially impressed, abaxially raised; secondary veins [off the central primary] (2–)3–5, eucamptodromous, adaxially impressed slightly, abaxially raised; secondary veins [off the lateral primaries] 13–16, brochidodromous, adaxially impressed slightly, abaxially raised; tertiary veins [off the primaries] straight percurrent, perpendicular to the costa, course straight to convex; quaternary veins strongly forked percurrent.

Specimens
Represented by the voucher *Ezedin 240* and *802*, corresponding to *Saunders 454*, *Saunders 488*, and *Saunders 391*.

Similar species
Celtis latifolia, but leaves that are stiffer and brittle (i.e., cracking when crushed) and the central primary lacks secondaries.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Formerly known as *Celtis sp. 01* and at one point referred to as *Celtis nymanii*. Indument density on collections may vary.

Trema orientalis (L.) Blume TREMOR
Gubuŋ **Cannabaceae**

Global Distribution
Old World Subtropics & Tropics

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Chimbu], Enga, [Gulf], Hela, Jiwaka, Southern Highlands, Western Highlands
Elevational Range: 0–1750(–2500?) m

Tree to ca. 20 m tall and 60 cm dbh. ***Twigs*** whitish green, hairy, smooth; maturing yellowish to light brown, lenticellate. ***Leaves*** simple, alternate, 2-ranked, flimsy subcoriaceous, 6–15 × 3–8 cm; dull dark green above, dull whitish green below; lamina surface subbullate, weakly raised between secondaries and tertiaries; base truncate to cordate, usually strongly asymmetric; apex acuminate, often long tapering; margins minutely toothed, the teeth closely spaced, sometimes blunt and appearing crenate, flat; petioles 1–2.1 cm, whitish, (shallowly) grooved. ***Stipules*** present, small, triangular, early caducous. ***Indument*** present on all vegetative parts, dense, with a raspy feel; hairs simple, short, white. ***Venation*** pinnate, imperfect basal acrodromous, the outer secondaries brochidodromous, with ultimate marginal tertiaries densely looping in 1–2 series and a single veinlet terminating at each marginal tooth; costa adaxially (sharply) impressed, abaxially raised; secondary veins [off the central primary] 4, eucamptodromous, adaxially impressed, abaxially raised; secondary veins [off the lateral primaries] ca. 12–15, eucamptodromous to weakly brochidodromous, adaxially impressed, abaxially raised; tertiary veins straight percurrent, ±perpendicular to the costa, course convex, recurved; quaternary veins forked percurrent to reticulate.

Specimens
Represented by the voucher *Ezedin 359*, corresponding to *Essig & Lelean LAE 55034*.

Similar species
Celtis sp., but none have leaves with densely hairy undersides.

Habitat & Ecology
This is a secondary forest species and thus not frequently encountered in the plot.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is a secondary forest species and is thus rarely encountered inside the plot.

Antiaris toxicaria subsp. *macrophylla* (R.Br.) C.C.Berg ANTITO

Moraceae

Global Distribution
Timor to Vanuatu & N Australia

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, East Sepik, Jiwaka, Madang, Milne Bay, Morobe, New Britain & Sandaun
Elevational Range: 0–600 m

Tree to 40 m tall and 40 cm dbh. ***Twigs*** dark green, hairy; maturing dark reddish brown, rough. ***Exudate*** present, white, sticky, produced in minute amounts. ***Leaves*** simple, alternate, spiral, thick (stiff) chartaceous, 8–21 × 4.5–8 cm, glossy dark green above, semi-glossy mid green below; lamina surface flat, with prominent lower venation; base rounded to weakly cordate to oblique, usually asymmetric; apex acuminate to cuspidate; petioles 0.8–1.3 cm, yellowish green to dark green, round to weakly grooved. ***Stipules*** present, triangular, circular, caducous, leaving semi-circular scar, up to 1.3 cm long. ***Indument*** present on twigs and leaves, sparse, with a raspy feel; hairs simple, short, white. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries continuously looping; costa adaxially flat to slightly impressed, abaxially raised; secondary veins 9–15, adaxially flat to slightly impressed, abaxially raised; tertiary veins forked percurrent, forming compound intersecondaries, oblique at 45° to the costa, course varies, not recurved; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 953* and *965*, corresponding to *Hoogland 5086*.

Similar species
Artocarpus vrieseanus, but the twigs are densely golden hairy. *Paratrophis philippinensis*, but this lacks hairs on stems.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Most stems appear to be misidentified as other Moraceae.

Artocarpus cf. *altilis* (Parkinson) Fosberg ARTOAL
Wara **Moraceae**

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: Madang & Milne Bay
Elevational Range: 0–200? m

Tree to ca. 25 m tall and ca. 60 cm dbh. ***Twigs*** dark green, smooth; maturing orangish to light brown, smooth, with conspicuous circular stipular scars. ***Exudate*** present, white, sticky, produced in copious amounts. ***Leaves*** simple, minutely 3-lobed, alternate, spiral, thick (sub)coriaceous, 20–38 × 17–24 cm, dull mid green above, semi-glossy light green below, lamina surface flat; base acute; apex [of each lobe] short acute; margins entire; petioles 4–6 cm, dark green to light brown, adaxially flattened. ***Stipules*** present, circular and sheathing, early caducous, leaving stipular scar, light green, up to 19 cm long. ***Indument*** present only on stipules, sparse; hairs simple, white, long. ***Venation*** (compound) pinnate, the basalmost secondaries often distally bearing pseudo-secondaries of their own, brochidodromous, with ultimate marginal tertiaries absent; costa adaxially raised, abaxially prominently raised; secondary veins [off the primary costa] 12–16, adaxially raised, abaxially raised; pseudo-secondary veins [off the distal ends of the lower secondaries] 1–8, adaxially raised, abaxially raised; tertiary veins straight percurrent, fading medially, course mostly convex, strongly recurved at up to 90° angles; quaternary veins faint, forked percurrent, forming composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 949*, corresponding to *Kairo 220* (det. *Artocarpus altilis*).

Similar species
Artocarpus camansi, but this has deeply incised mature leaves that are hairy.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Sep–Nov. Fruiting observed Nov.

Magi Uses
Fruits and seeds are edible and consumed by the community.

Notes
Identity of this species is not yet clear and awaits molecular confirmation. Although noticeably different from the widely cultivated *A. altilis*, there is likelihood of it potentially being a wild relative of it (E. Gardner pers. comm., Feb 2023). The material from Wanang matches *Kairo 220* from Milne Bay and this morphospecies is likely found elsewhere scattered along the north coast.

Artocarpus camansi Blanco ARTOCA
Amuké **Moraceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1500? m

Tree to ca. 20 m tall and 100 cm dbh. ***Twigs*** light green to light brown, lenticellate. ***Exudate*** present, white, sticky, produced in copious amounts. ***Leaves*** simple, pinnately lobed, with 4–6 pairs of lobes, alternate, spiral, 40–60 × 25–45 cm, thin (sub)chartaceous, dull mid green above, semi-glossy light green below, lamina surface flat; base acute; apex [of each lobe] acuminate, tapering; margins entire; petioles 4–6 cm, light green, round. ***Stipules*** present, circular and sheathing, early caducous and leaving stipular scar, yellow green, up to 16.5 cm long. ***Indument*** present on all vegetative parts, of two types: the first type pilose and brown restricted to the adaxial primary and secondary veins, the other type short, rough (Velcro-like) and white found on stems and abaxial leaves and veins; hairs simple. ***Venation*** compound pinnate with a single primary costa and multiple secondary costa connecting each lobe, the abaxial veins light green; costa adaxially raised slightly, abaxially raised prominently; secondary veins [off the primary costa] 9, eucamptodromous to weakly brochidodromous at the base, bifurcating at the sinuses, becoming fimbriate after the 5th or 6th vein, adaxially raised slightly, abaxially raised; secondary veins [off the secondary costa] 14–22, brochidodromous, adaxially flat to raised slightly, abaxially raised slightly; tertiary veins [in the lobed sections] (sub)scalariform, oblique at 45° to the secondary costa, strongly retroflexed (to weakly convex or concave); tertiary veins [in the central section] forming between the primary and adjacent secondary costa in the lobed areas and forming between the secondary veins off the primary costa and the primary costa in the sinuses, strongly recurved at sharp obtuse angles (to 90°) to the primary costa; quaternary veins strongly forked percurrent, forming composite intertertiaries at sharp angles in the central section and shallow angles in the lobed sections.

Specimens
Represented by the voucher *Ezedin 447* and *788*, corresponding to *Zerega 44* and *Zerega 85*.

Similar species
Artocarpus cf. *altilis*, but this has smaller leaves that are very shallowly 3-lobed, thick, and glabrous. In the vegetative state, this species and *Artocarpus altilis* (cultivated at Wanang village only) are nearly indistinguishable from one another; the only clear differences being in the fruit, with those of *A. altilis* being smooth and seedless to few seeded whereas this has spiny fruits with large seeds.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed, likely year round.

Magi Uses
Seeds are edible and consumed by the community.

Notes
A variable species across its range, with variation in indument density, lobing, and laminar thickness. The description here is based on the mature leaves; the juvenile leaves generally have a different morphology, with shallower and fewer lobes and sometimes entire. *Flora Malesiana Vol. 17* considers this species synonymous with *A. altilis*, the common breadfruit, however more recent treatments of the genus have opted to keep them separate. In New Guinea, the true *A. altilis* is only known from cultivation.

Artocarpus papuanus (Becc.) Renner ARTOPA
Dipul wara wara **Moraceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Madang, Manus Is., Milne Bay, Morobe & Sandaun
Elevational Range: 0–500 m

Tree to ca. 20 m tall and ca. 40 cm dbh. ***Twigs*** light green, mostly smooth; maturing light brown, lenticellate. ***Exudate*** present, semi-translucent to opaque milky white, sticky. ***Leaves*** simple, alternate, 2-ranked, 12–28 × 4.5–13.3 cm, thin to thick chartaceous, high glossy dark green above, high glossy mid green below; lamina surface (sub)bullate, raised between the secondaries and less so between tertiaries; base obtuse to rounded, slightly asymmetric; apex acuminate, long drip tip; margins entire; petioles 0.9–1.5 cm, dark green to dark brown, shallowly grooved. ***Stipules*** present, circular and sheathing, early caducous and leaving a crescentic scar, up to 0.8 cm long. ***Indument*** appears absent but present on stems and abaxial veins, faintly velvety; hairs simple, very short, dark brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once, the abaxial veins light green to yellowish green; costa adaxially impressed slightly, abaxially raised; secondary veins 9–15, adaxially impressed, abaxially raised; tertiary veins (sub)scalariform, oblique at 45° to the costa, course straight to weakly retroflexed (to weakly convex); quaternary veins weakly percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 790* and *950*, corresponding to *Hartley 10637* and *Beccari 675* (typus: *Prainea papuana*).

Similar species
Trophis philippinensis, but this lacks a more prominently bullate surface, the leaves are narrowly elliptic, petioles are longer, and the leaves are thinner. *Artocarpus lacucha*, but the leaves are densely rough hairy. *Ficus sp.*, but these all have circular stipules.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark used for making cloth. Seeds are edible.

Notes
Formerly known as *Prainea papuana*, before the species was reduced to a subspecies of *P. limpato*. More recently, the entire genus has been subsumed under *Artocarpus* following molecular evidence, now as *A.* sect. *Prainea* while the subspecies has now been restored back to species level under *Artocarpus*. According to the indigenous taxonomy of Wanang, *Prainea* had always been treated as a part of *Artocarpus*, long before the scientists caught up. The collection of *Hoogland & Craven 10759* is an outlier as it has hairs on the twigs and leaves. Max height and dbh size are estimations based on field data.

Artocarpus sepicanus Diels ARTOSE
Wara wara sagil **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, [Eastern Highlands], East Sepik, Gulf, Madang, Morobe, Oro & Sandaun
Elevational Range: 0–800 m

Tree to 40 m tall and 80 cm dbh. ***Twigs*** dark green to reddish brown, with some vertical cracks, mostly smooth (adult) or covered in hairs (juvenile). ***Exudate*** present, creamy white to light yellowish, produced in copious amounts. ***Leaves*** simple, alternate, spiral, (thick) chartaceous, 12–42 × 8–20 cm, semi-glossy dark green above, semi-glossy mid green below, lamina surface mostly flat with tertiaries and quaternaries slightly raised; base oblique, asymmetric; apex cuspidate; margins entire, undulate; petioles 1.5–3 cm, light green to brown, round. ***Stipules*** present, circular and sheathing, early caducous, up to 3 cm long. ***Indument*** present on green twigs and abaxial leaves, sparse, abrasive and almost like Velcro; hairs simple, short, angled (to nearly appressed) in one direction, white. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries closely looping once; costa adaxially slightly raised, abaxially raised; secondary veins 10–24, adaxially slightly raised, abaxially raised; tertiary veins straight percurrent, perpendicular to the tertiaries; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 553* and *957*, corresponding to *Saunders 181* and *Pullen 5861*.

Similar species
Ficus polyantha, but this has thicker coriaceous leaves, prominent conical stipules covering the apical meristem that are twice as long and leaving circular scars. This species expresses at least three different morphologies depending on the age of the individual and thus may be confused with itself. The juvenile form (trees up to 3 cm dbh) has white smooth bark that is ringed, long lanceolate leaves with prominent, widely spaced teeth and long bright orange stipules that are semi-persistent. The mid-stage adult form (up to ca. 30 cm dbh) has greyish-white smooth bark that is ringed, large elliptic leaves with entire margins that are ±strongly undulate, and dark greenish orange stipules that are caducous soon after the new leaves flush out. The late-stage adult form (ca. >35 cm dbh) has bright orange smooth to flaky bark, small elliptic leaves with entire margins that are flat to weakly undulate, and smaller dark greenish stipules that are early caducous.

Habitat & Ecology
This species is not deciduous but produces a new flush of leaves during the dry season (Sep).

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark is boiled and the water then mixed with food and fed to mothers after birth to make the baby gain weight. Bark fibers are used to make traditional loincloth for men.

Notes
This species appears to be restricted to the northern coast of New Guinea.

Artocarpus vrieseanus Miq. ARTOVR
Wara wara akab **Moraceae**

Global Distribution
Philippines & Sulawesi to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, East Sepik, Hela, Madang, Milne Bay, Morobe, [New Britain], New Ireland, Oro, Sandaun
Elevational Range: 0–1250(–1500?) m

Tree to ca. 30 m tall and ca. 60 cm dbh. ***Twigs*** dark green to dark brown, smooth, covered in hairs. ***Exudate*** creamy off-white to light yellowish, produced in ±copious amounts. ***Leaves*** simple, alternate, spiral, chartaceous, 5–28 × 3.5–15 cm, dark dull green above, mid dull green below, lamina surface slightly raised between secondaries and less so between tertiaries; base rounded; apex acuminate; margins inconsistently ranging from entire to strongly serrate, the serrations being either closely or widely spaced; petioles 0.8–2 cm, light green to yellow-green, round. ***Stipules*** present in pairs, intrapetiolar, large, leafy, semi-persistent, up to 1.2 cm long. ***Indument*** present on all vegetative parts, densely villous, rough and sticky like Velcro; hairs simple, long, with hooked tips, light brown. ***Venation*** pinnate, faintly to prominently brochidodromous; costa adaxially flat, abaxially raised; secondary veins 10–15, looping close to margins, adaxially flat to impressed slightly, abaxially raised; tertiary veins scalariform, perpendicular to the secondaries; quaternary veins subscalariform to strongly scalariform, perpendicular to the tertiaries, forming rectangular patterns in the intercostal space.

Specimens
No voucher collected, but Wanang material seen corresponds to *Katik NGF 46548* and *Takeuchi 4728*.

Similar species
Artocarpus sepicanus, but the twigs are glabrous. *Homalium foetidum*, but this lacks sap, the stipules are intrapetiolar and paired, and margins prominently toothed.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark used to make traditional tapa cloth and firewood. Seeds are edible.

Notes
Originally referred to as *Artocarpus vriesianus* (under code ARTOVR) early during the first census, then the name was changed to *A. lacucha* during the second census. The former ID is correct as *A. lacucha* is not known to occur in New Guinea. The indument on twigs appears to be variable. The varietal designation is not specified here.

Ficus adelpha K.Schum. & Lauterb. FICUAL
Aŋ mitiŋ **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, [Enga], [Jiwaka], Madang, Morobe, Sandaun & Western Highlands
Elevational Range: 0–700? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 8938*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Oct–Nov.

Magi Uses
None recorded.

Notes

Ficus adenosperma Miq. FICUAD
Aŋ budu **Moraceae**

Global Distribution
Sulawesi to Vanuatu & N+E Australia

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2200? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 4873*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Oct.

Magɨ Uses
Leaves are used to make paint used during celebrations. Figs and leaves used as food for animals.

Notes

Ficus ampelas Burm.f. FICUAP
Kusakam kusakam **Moraceae**

Global Distribution
S Japan (Ryukyu Is.) to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Jiwaka, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–600(–2100?) m

Tree to 15 m tall and ca. 20 cm dbh. ***Twigs*** light green, smooth; maturing orangish brown, smooth. ***Leaves*** simple, alternate, spiral, chartaceous, 4.5–13 × 2–5, mid green above, light green below, lamina surface flat to very slightly raised between secondaries; base acute; apex cuspidate; margins entire, flat; petioles 0.4–0.9 cm, green, slightly grooved. ***Stipules*** present, circular and sheathing, early caducous, up to 0.6 cm long. ***Indument*** appears absent but actually present on youngest twigs, stipules and petioles; hairs simple, very short, early glabrescent, white. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries broadly looping very close to margin; costa adaxially flat, abaxially raised; secondary veins 7–10, adaxially flat, abaxially raised; tertiary veins weakly (to forked) percurrent, oblique at 45° to perpendicular to the costa, course varies, strongly recurved; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 471*, corresponding to *Takeuchi 10730* and *Henty & Lelean NGF 41843*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Sep–Jan & Mar.

Magi Uses
Timber used for making small benches.

Notes

Ficus archboldiana Summerh. FICUAB
Niŋ dáwaŋ **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, [Chimbu], East Sepik, Madang, Morobe, New Britain & Western
Elevational Range: 0–200(–1100?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Ledermann 8033* (typus: *Ficus archboldiana*).

Similar species
[Not yet available]

Habitat & Ecology
This species is a hemiepiphyte that is counted as a tree in the census.

Phenology
Flowering and fruiting observed year round.

Magɨ Uses
None recorded.

Notes
Mostly lowlands with a dubious record from Crater Mtn. at ca. 1100 m deposited at MIN (*Mack DW 1370*).

Ficus arfakensis King FICUAR
Uŋé mitiŋ **Moraceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Enga, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–2200 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Beccari s.n.* (typus: *Ficus arfakensis*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Apr, Jun–Jul & Nov.

Magɨ Uses
Timber used as firewood. Leaves used in a similar manner to steel wool. Fruits edible.

Notes
Fruits are cauliflorous and borne near the base of the tree on long, whip-like structures.

Ficus aurantiacifolia Weiblen & Whitfeld FICUAU
Uŋé mitiŋ makɨ **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Chimbu, [East Sepik], Madang, Morobe, New Britain & Sandaun
Elevational Range: 0–200(–1350?) m

Tree to ca. 10 m tall and 15 cm dbh. ***Twigs*** light brown, smooth; maturing greyish brown, mostly smooth with many stipular scars. ***Exudate*** watery, opaque white, sticky, produced in copious amounts. ***Leaves*** simple, alternate, spiral, 8–28 × 3.8–6.8 cm, chartaceous, dark glossy green above, mid semi-glossy green below, newly flushing orangish; lamina surface mostly flat to very weakly bullate, raised between secondaries and sometimes inconsistently between tertiaries; base rounded, asymmetric, uneven; apex strongly acuminate; margins variously subentire or wavy to conspicuously serrate, the serrations more prominent towards the apex and irregularly spaced; petioles 0.8–1.3 cm, orangish brown, grooved. ***Stipules*** present, circular and sheathing, early caducous, up to 1 cm long. ***Indument*** appears to be absent but very sparsely present on young petioles and the abaxial veins, early glabrescent; hairs simple, appressed, light yellow. ***Venation*** pinnate, mixed camptodromous, eucamptodromous towards base and brochidodromous towards apex, primary and secondaries often tinged orangish on abaxial side; costa adaxially slightly raised, abaxially raised; secondary veins 7–9, decurrent, adaxially slightly raised; abaxially raised; tertiary veins straight to weakly forked percurrent, oblique at 45° to perpendicular to the costa, course straight to angled, strongly recurved; quaternary veins prominent, forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 463*, corresponding to *Weiblen & Isua B119* and *Weiblen GW2337* (typus: *Ficus aurantiacifolia*).

Similar species
[Not yet available]

Habitat & Ecology
This species is usually briefly deciduous, shedding all its leaves for a short interval during the middle of the dry season (Jul–Aug).

Phenology
Flowering and fruiting observed January–February.

Notes
A single collection from Chimbu raises the altitudinal range possibly up to 1350 m.

Ficus badiopurpurea Diels FICUBA
Akembi akembi **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: [Chimbu], East Sepik, Gulf, Madang, [Morobe], Sandaun
Elevational Range: 0–200(–1000) m

Tree to ca. 10 m tall and 20 cm dbh. ***Twigs*** greyish brown, smooth; maturing dark brown to blackish, mostly smooth, with stipular and leaf scars. ***Exudate*** watery, opaque white, sticky, produced in relatively minute amounts. ***Leaves*** simple, alternate, spiral, chartaceous, 8.5–25 × 4–8 cm, dark green above, dark olive green below; base weakly cordate; apex acuminate, with elongated drip tip; margins toothed, the teeth triangular and closely spaced; petioles 0.5–1 cm, purplish brown, densely hairy. ***Stipules*** present, light brown, early caducous, up to 0.5 cm long. ***Indument*** present on all vegetative parts, of two types: sparse and stiff on the adaxial lamina with a harsh feel, dense and soft on abaxial laminas and stem; hairs simple, long pilose, dark reddish brown to purplish, long. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries semicraspedodromous with veins ending at teeth or not looping and running straight to toothed margins; costa adaxially slightly raised, abaxially raised; secondary veins 7–11, adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at 45° to perpendicular to the costa, course straight to angled, strongly recurved; quaternary veins prominent, forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 230* and *498*, corresponding to *Ledermann 10273* (typus: *Ficus badiopurpurea*).

Similar species
Ficus hahliana, but this has black hairs, larger leaves and stipules, the stipules semi-persistent.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Leaves used as sandpaper.

Notes
This species is likely more widespread than currently known.

Ficus botryocarpa subsp. hirtella C.C.Berg FICUBO
Mitiŋ iburra **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: All provinces and islands except Bougainville, [Eastern Highlands], Enga, Hela, [Jiwaka], Manus Is., New Ireland & [Western]
Elevational Range: 0–600(–1200) m

Tree to 10 m tall and 16 cm dbh. ***Twigs*** greenish to light brown, smooth; maturing light brown, with stipular and leaf scars, sandpapery. ***Leaves*** simple, alternate, spiral, 5–20 × 3–7 cm, flimsy chartaceous, semi-glossy dark green above, dull light green below, lamina surface flat; base acute, asymmetric, sometimes unequal; apex acuminate, long tapering; margins entire; petioles 0.7–1.5 cm, light brown, weakly grooved. ***Nectaries*** sometimes present on the stem below the petiole attachment, yellow-green. ***Stipules*** present, circular and sheathing, greenish brown to dark brown, early caducous, up to 1.1 cm long. ***Indument*** present on all vegetative parts, of two types: sparse and stiff on the adaxial lamina with a harsh feel, dense and soft on the abaxial lamina and petioles; hairs simple, white above and brown below. ***Venation*** pinnate, eucamptodromous; costa adaxially flat, abaxially raised; secondary veins 8–11, adaxially flat, abaxially raised; tertiary veins straight percurrent, oblique at 45 ° to perpendicular to the costa, course straight to angled, strongly recurved; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 750*, corresponding to Takeuchi *et al. 14225* and *Ridsdale NGF 33955*.

Similar species
[Not yet available]

Habitat & Ecology
Ants are often found on the branches.

Phenology
Flowering not observed. Fruiting observed February–March & November.

Magɨ Uses
None recorded.

Notes

Ficus congesta Roxb. FICUCG

Mitiŋ **Moraceae**

Global Distribution
Sulawesi to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Manus Is.]
Elevational Range: 0–600(–2000?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Weiblen YP2A0100*, *Ramos & Edaño 28831* (typus: *Ficus binuangensis*) and *Ramos & Edaño 47993*.

Similar species
[Not yet available]

Habitat & Ecology
Ants are regularly found in large numbers on trees, inhabiting hollowed branches.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used for firewood. Fruits are food for animals.

Notes
This is a species complex that is found across New Guinea; a detailed molecular study is necessary to tease apart any potentially hidden or cryptic taxa. The upper limits of its altitudinal distribution is not clear.

Ficus conocephalifolia Ridl. FICUCO
Kundam kundam **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang, Milne Bay, Morobe, Oro & Sandaun
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1353*, corresponding to *Hoogland 5003* and *Foreman et al. NGF 45973*.

Similar species
[Not yet available]

Habitat & Ecology
This species is tightly associated with low valleys and ridgelines.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ficus copiosa Steud. FICUCP

Kundam **Moraceae**

Global Distribution
Sulawesi to Vanuatu & E Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga] & [Hela]
Elevational Range: 0–2300 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Takeuchi et al. 14043* and *Brass 1388* (typus: *Ficus acanthophylla*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Latex used on parasite sores. Leaves and fruit edible.

Notes

Ficus drupacea Thunb. FICUDR

Niŋ dawaŋ **Moraceae**

Global Distribution
India & S China to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Chimbu], [Eastern Highlands], Enga, [Manus Is.], [New Ireland] & Western Highlands
Elevational Range: 0–600(–900) m

Hemiepiphytic strangler to 20 m tall and 250 cm dbh. ***Twigs*** light green to light brown, grooved; maturing light greyish white. ***Exudate*** milky white, sticky, produced in minute amounts. ***Leaves*** simple, alternate, spiral, 5–18 × 4–9 cm, coriaceous, glossy dark green above, glossy mid green below, lamina surface flat and often (strongly) curled inwards; base acute to obtuse, often weakly asymmetric; apex blunt acute; margins entire; petioles 1–3 cm, green, shallowly grooved. ***Stipules*** present, circular and sheathing, early caducous and leaving circular scars, green to yellowish to reddish, up to 2.5 cm long. Indument absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries tightly looping once or twice before being abruptly cutoff at the margin; costa adaxially raised weakly, abaxially raised; secondary veins 7–14, adaxially flat to weakly raised, abaxially flat to weakly raised; tertiary veins doubly to multi-forked percurrent, with a central intersecondary flanked on both sides by smaller intersecondaries formed compositely by smaller orders of tertiaries and quaternaries, oblique at 45° to the costa, course straight to convex, strongly recurved; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 1006*, corresponding to *Hoogland 5081* and *Womersley NGF 48675*.

Similar species
[Not yet available]

Habitat & Ecology
This species is hemiepiphytic and is counted as a tree in the census. This species may variously be evergreen or partially to fully deciduous during the dry season months Jun–Aug with new leaves flushing out alongside flowers soon after.

Phenology
Flowering observed Jun–Jul. Fruiting observed Aug–Sep.

Notes
The fruits ripen dark purplish-black and fall in large numbers, causing a mess below.

Ficus erythrosperma Miq. FICUER
Kamamté niŋi **Moraceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Jiwaka], Manus Is. & [Western Highlands]
Elevational Range: 0–2250? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1241*, corresponding to *Henty NGF 28012*, *Takeuchi et al. 17027* and *Warburg 20877* (typus: *Ficus lachnocarpa*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed May–Nov.

Magɨ Uses
Leaves are used as paint during celebrations. Figs and leaves as food for animals.

Notes

Ficus glandifera Summerh. FICUGL
Dawaŋ suku **Moraceae**

Global Distribution
Sulawesi to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, [Eastern Highlands], Enga, Hela, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–200(–1100?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Floyd NGF 7422* and *Gray 5218* (typus: *Ficus glandifera*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed nearly year round.

Magi Uses
None recorded.

Notes

Ficus gul K.Schum. & Lauterb. FICUGU
Yalim katam **Moraceae**

Global Distribution
Borneo & Philippines to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga], [Southern Highlands] & [Western Highlands]
Elevational Range: 0–1100(–1800) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1350*, corresponding to *Hoogland 5169*, *Brass 27638* and *Warburg 20851*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Leaves used in a similar manner to steel wool.

Notes
This is a variable species throughout its range with some variation in indument, petioles, leaves, and fruits.

Ficus hahliana Diels FICUHA
Aŋ sigi **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Chimbu, East Sepik, Madang, Morobe, Sandaun & Western
Elevational Range: 0–550(–1100?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Schlechter 16174* (typus: *Ficus hahliana*).

Similar species
Ficus badiopurpurea, but this has dark reddish-purplish hairs, small and narrow leaves, and stipules that are early caducous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Apr & Jun.

Magi Uses
None recorded.

Notes
Formerly identified as *F. bernaysii*, which may be confused for it. According to data from the second census, this is the most abundant species inside the Wanang plot. In contrast to its local abundance, this species appears infrequently collected across the island – although it may be more widespread than currently known. The upper limit of its altitudinal range is not yet clear.

Ficus hispidioides S.Moore FICUHI
Mitiŋ sanagi kiki **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & [West Papua]
PNG: Central, Madang, Manus Is., [Milne Bay], Morobe, New Britain, Oro & Western
Elevational Range: 0–200 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Weiblen GW1715* and *Forbes s.n.* (typus: *Ficus hispidioides*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
None recorded.

Notes
This species is kept separate from *Ficus hispida*, a taxonomic opinion which differs from *Fl. Males. 17*.

Ficus hombroniana Corner FICUHO
Mukul mukul **Moraceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, Eastern Highlands, Madang, Milne Bay, Morobe, [Oro], Sandaun & Western
Elevational Range: 0–1200 m

Tree to 30 m tall and 25 cm dbh. ***Twigs*** dark green, smooth; maturing greyish to light brown, smooth. ***Exudate*** present, milky white. ***Leaves*** simple, alternate, spiral, thick chartaceous, 6–20 × 3–11.5 cm, dark green above, mid green below, lamina surface flat; base acute; apex acuminate; margins entire, undulate; petioles 0.8–1.8 cm, green, with slight central groove. ***Stipules*** present, circular and sheathing, light green, early caducous, up to 2 cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping; costa adaxially raised, abaxially raised; secondary veins 13–18, adaxially flat, abaxially raised slightly; tertiary veins doubly forked percurrent, with a central intersecondary flanked on both sides by smaller composite intersecondaries, nearly parallel to the costa, course mostly straight, not recurved; quaternary veins squarely reticulate.

Specimens
Represented by the voucher *Ezedin 317*, *1349*, and *1354*, corresponding to *Brass 28653* and *Brass 28598* (typus: *Ficus hombroniana*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed May.

Magi Uses
Exudate used for dressing sores. Fruits used as food for animals.

Notes

Ficus melinocarpa Blume FICUME
Yalim kataŋ sisibarra **Moraceae**

Global Distribution
Malesia to Solomon Islands & Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga], [Hela], [Jiwaka], Manus Is., New Ireland
Elevational Range: 0–750? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1359*, corresponding to *Pullen 1130* and *Schlechter 18442* (typus: *Ficus hololampra*)

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Leaves used as steel wool.

Notes

Ficus mollior F.Muell. ex Benth. FICUMO

Yalim katam asid **Moraceae**

Global Distribution
New Guinea, Solomon Islands & Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Manus Is.]
Elevational Range: 0–950(–2250?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 4955*, *Vandenberg & Katik NGF 42373* and *Foreman & Galore NGF 45806* (typus: *Ficus spadicea*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting not observed.

Magi Uses
None recorded.

Notes
The upper limits of its altitudinal range are not yet clear, although it appears to be more commonly encountered below 1000 m.

Ficus nodosa Teijsm. & Binn. FICUNO
Aŋ iga **Moraceae**

Global Distribution
Moluccas to Solomon Islands & Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Eastern Highlands], Enga, Hela, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–200(–730?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Katik NGF 46650*, *Craven & Schodde 859* and *Vandenberg NGF 42127*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark used to make traditional tapa cloth. Timber used in house construction and firewood. Edible figs as animal food.

Notes

Ficus pachyrrhachis K.Schum. & Lauterb. FICUPA
Mitiŋ sanagi **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, [Enga], [Jiwaka], Madang, Morobe, Sandaun & [Western Highlands]
Elevational Range: 0–150(–1700?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Womersley NGF 13461* and *Darbyshire & Hoogland 7296*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
A primarily lowland species that appears largely restricted to the northern coast of New Guinea.

Ficus phaeosyce K.Schum. & Lauterb. FICUPH
Akembi niŋi **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Chimbu, Eastern Highlands, [East Sepik], Madang, Milne Bay, Morobe, Oro & Sandaun
Elevational Range: 0–900(–1300) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 434* and *459*, corresponding to *Takeuchi et al. 13967* and *Lauterbach 2316* (typus: *Ficus phaeosyce*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ficus polyantha Warb. FICUPO

Budu sisi barra **Moraceae**

Global Distribution
Philippines & Moluccas to Solomon Islands

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Chimbu, East Sepik, Madang, Morobe, New Britain, New Ireland & Sandaun
Elevational Range: 0–150(–900) m

[Not yet available]

Specimens
Represented by the vouchers *Ezedin 955*, *958* and *959*, corresponding to *Warburg 2087* (typus: *Ficus polyantha*) and *Takeuchi et al. 14161*.

Similar species
Artocarpus sepicanus, but this has thinner chartaceous leaves, stipules that are short, usually orange in color, not conical and leaving circular scars.

Habitat & Ecology
A weakly clumping species, quite often encountered along waterways.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used as firewood.

Notes

Ficus primaria Corner

FICUPR
Moraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua] & West Papua
PNG: East Sepik, Madang, Morobe, New Britain, [Sandaun] & Western Highlands
Elevational Range: 0–450 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Corner NGF 13528* and *Hoogland 4958* (typus: *Ficus primaria*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ficus pseudojaca Corner FICUPS
Budu tikibla **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Chimbu, East Sepik, Madang, Morobe, New Ireland, [Sandaun]
Elevational Range: 0–100(1100?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1385*, corresponding to *Saunders 430* (typus: *Ficus pseudojaca*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ficus pungens Reinw. ex Blume FICUPU
Irim **Moraceae**

Global Distribution
Sulawesi to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville & Manus Is.
Elevational Range: 0–2200 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 4846* and *Foreman & Farley NGF 45935*.

Similar species
Not easily confused.

Habitat & Ecology
Commonly encountered secondary growth species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ficus rubrivestimenta Weiblen & Whitfeld FICURU
Kamamté **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Eastern Highlands, East Sepik, [Jiwaka], Madang, Morobe & [Sandaun]
Elevational Range: 0–700(–1800?) m

Tree to ca. 15 m tall and ca. 30 cm dbh. ***Twigs*** light to orangish brown, smooth. ***Leaves*** simple, alternate spiral, (thin) chartaceous, 10.5–18.5 × 4–7 cm, semi-glossy dark green above, dull light green below, new leaves flushing yellowish orange to pinkish; lamina surface flat; base acute; apex acuminate; margins entire; petioles 1.5–3 cm, orangish green to light brown, grooved. ***Stipules*** present, circular and sheathing, light green, early caducous, up to 1.5 cm long. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous to weakly brochidodromous, with ultimate marginal tertiaries densely looping once or twice, dark crimson red underneath; costa adaxially raised, abaxially raised; secondary veins 9–13, adaxially flat to slightly raised, abaxially raised; tertiary veins straight percurrent, oblique at 45° to nearly perpendicular to the costa, course straight, weakly to strongly recurved; quaternary veins densely reticulate.

Specimens
Represented by the vouchers *Ezedin 749*, corresponding to *Weiblen & Isua GW2818* (typus: *Ficus rubrivestimenta*) and *Weiblen GW 2310*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is likely restricted to the northern coast of New Guinea, possibly into Indonesian Papua.

Ficus semivestita Corner FICUSE
Iga makal **Moraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Chimbu, Eastern Highlands, East Sepik, Madang, Milne Bay, Morobe, Oro & Sandaun
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1407*, corresponding to *Hoogland 5187*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Nov.

Magi Uses
None recorded.

Notes

Ficus subcuneata Miq. FICUSU

Kamamté asid **Moraceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Manus Is. & Western
Elevational Range: 0–1250 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Takeuchi et al. 14189* and *Vriese & Teijsmann s.n.* (syntypus: *Ficus subcuneata*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed nearly year round.

Magi Uses
None recorded.

Notes

Ficus subtrinervia K.Schum & Lauterb. FICUST
Budu maki **Moraceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Bougainville], Chimbu, Eastern Highlands, Enga, Jiwaka, [New Ireland], Southern Highlands & [Western]
Elevational Range: 0–1100 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1422*, corresponding to *Brass 699* (typus: *Ficus saxicola*) and *Lam 1380* (typus: *Ficus doormaniana*).

Similar species
[Not yet available]

Habitat & Ecology
This species is fully deciduous during the dry season months Aug–Sep.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The leaf shape is considerably variable, ranging from broadly elliptic to narrowly linear-lanceolate.

Ficus trachypison K.Schum. FICUTR
Akembi **Moraceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], Enga, Jiwaka & Western Highlands
Elevational Range: 0–1000(–2000?) m

Tree to ca. 20 m tall and 25 cm dbh. ***Twigs*** dark reddish brown, asperous to sandpapery; maturing brown, rough. ***Leaves*** simple, alternate, 2-ranked, 5–29 × 2–8.5 cm, thin subchartaceous, glossy dark green above, semi-glossy dark to mid green below, lamina surface flat and weakly subbullate; base rounded to weakly cordate, slightly asymmetric; apex acute to acuminate tapering; margins entire to weakly serrate, the serrations shallow and more prominent towards the apex; petioles 0.7–1 cm, green, adaxially flattened. ***Stipules*** present, circular and sheathing, light green, early caducous and leaving a faint scar that fades out, up to 0.5 cm long. ***Indument*** present on all vegetative parts, late glabrescent on stems, asperous; hairs simple, medium, white. ***Venation*** pinnate, eucamptodromous to sometimes weakly brochidodromous towards the apex, with ultimate marginal tertiaries very faint and looping once; costa adaxially flat, abaxially raised; secondary veins 8–13, adaxially impressed, abaxially raised; tertiary veins [in small leaves] scalariform, perpendicular to slightly oblique to the costa, straight to weakly convex apically; tertiary veins straight percurrent, oblique at >75° to nearly perpendicular to the costa, course straight to bent, strongly recurved, straight to weakly convex exmedially; quaternary veins straight percurrent.

Specimens
Represented by the voucher *Ezedin 822*, corresponding to *Hoogland 4901*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Apr & Aug.

Magi Uses
Leaves used in a similar manner to steel wool.

Notes
Leaves collected from juveniles or small adult trees are usually much smaller and narrower.

Ficus variegata Blume FICUVA
Iga sagil **Moraceae**

Global Distribution
S China to Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Manus Is.]
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 822*, corresponding to *Schodde & Craven 4294*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Mar–Apr & Oct.

Magi Uses
None recorded.

Notes
A species that is widespread across New Guinea and the Asian tropics.

Ficus virens Aiton FICUVI
Té dawaŋ **Moraceae**

Global Distribution
India & C China to Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.]
Elevational Range: 0–1450 m

Hemiepiphytic strangler to 20 m tall and 185 cm dbh. ***Twigs*** dark green, smooth; maturing light to dark brown with greenish grey splotches, smooth. ***Exudate*** from twigs milky white, produced in small quantity. ***Leaves*** simple, alternate, spiral, thin coriaceous, 5.5–14.5 × 2.5–5.5 cm, dark green above, lime green below, lamina surface flat to slightly raised between secondaries, sometimes warped in one plane; base acute; apex acuminate; margins entire, weakly undulate; petioles 1.5–4 cm, green, slightly grooved. ***Stipules*** present, sheathing, circular, up to 3 cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping twice; costa adaxially raised, abaxially raised; secondary veins 9–13, adaxially slightly raised, abaxially raised; tertiary veins admedial ramified; quaternary veins densely reticulate.

Specimens
Represented by the specimens *Ezedin 267* and *272*, corresponding to *Schodde & Craven 4294*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February–March & August–October.

Magi Uses
Bark used to make traditional tapa cloth. Latex used as medicine for broken bones and toothaches.

Notes

Ficus wassa Roxb. FICUWA

Kusakam **Moraceae**

Global Distribution
Timor & Moluccas to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2400 m

[Not yet available]

Specimens
Represented by the specimens *Ezedin 826*, corresponding to *Hoogland & Womersley 3422*.

Similar species
[Not yet available]

Habitat & Ecology
This is a rather commonly encountered tree in steep slopes and hilly areas. It is frequently found in fruit.

Phenology
Flowering and fruiting observed nearly year round.

Magi Uses
Young leaves are edible.

Notes

Parartocarpus venenosus (Zoll. & Moritzi) Becc. PARAVE
Moraceae

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, Southern Highlands
Elevational Range: 0–900 m

Tree to ca. 30 m tall and 60 cm dbh. ***Twigs*** dark green, smooth; maturing light brown, mostly smooth. ***Leaves*** simple, alternate, spiral, flimsy subcoriaceous, 6–24.5 × 4.5–13 cm, glossy dark green above, glossy mid green below, lamina surface weakly raised between secondaries, often slightly warped; base acute; apex short blunt acute; margins entire, undulate, the undulations widely spaced; petioles 1.5–7.5 cm, dark green, round, uneven in length. ***Stipules*** present, intrapetiolar, paired and fused, triangular, very early caducous and leaving scars, up to 0.3 cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries incomplete; costa flat to adaxially sunken, abaxially raised; secondary veins 7–12, adaxially flat to weakly impressed, abaxially raised; tertiary veins forked percurrent to weakly reticulate, forming composite intersecondaries, oblique at 45° to nearly parallel to the costa, course nearly straight to convex, not recurved; quaternary veins densely reticulate.

Specimens
Represented by the vouchers *Ezedin 963* and *964*, corresponding to *Saunders 539* and *Darbyshire 898*.

Similar species
Nearly identical to *Cerbera floribunda*, but this lacks stipules and stipular scars, has a raised costa, the adaxial veins white and clear, and the tertiaries/quaternaries faint and inconspicuous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Despite being locally rare in the Wanang area, this species is geographically widespread across the region.

Paratrophis ascendens (Corner) E.M.Gardner PARAAS

Moraceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Papua] & West Papua
PNG: East Sepik, Madang & [Sandaun]
Elevational Range: 0–180? m

Tree to ca. 25 m tall and 40 cm dbh. ***Twigs*** green, smooth; maturing light orangish brown, smooth. ***Exudate*** present, opaque white, sticky, produced in small amounts. ***Leaves*** simple, 2–3-lobed or not, alternate, spiral, membranaceous to chartaceous, 7–28 × 5–13.5 cm, semi-glossy to dull mid green above, glossy mid green below, lamina surface flat; base truncate to cordate; apex acuminate; margins entire; petioles 1.3–7.5 cm, green, round and weakly grooved. ***Stipules*** present, interpetiolar, light green, triangular, early caducous and leaving small scars on both sides of the petiole base, up to 1.2 cm long. Indument present on all vegetative parts, soft pubescent; hairs simple, short, white. ***Venation*** palmate with 3 primary veins, the primaries eucamptodromous, the secondaries brochidodromous, with ultimate marginal tertiaries looping once (to twice) or fading out before margin; costa adaxially flat, abaxially raised; secondary veins 4–6, adaxially flat, abaxially raised; tertiary veins straight to irregularly forked percurrent, convex away from the petiole insertion; quaternary veins forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 951*, *952*, and *1274*, corresponding to *Mauriasi et al. BSIP 8624* (typus: *Streblus ascendens*).

Similar species
[Not yet available]

Habitat & Ecology
This species is fully deciduous during the dry season; the fruits ripen during this time on bare branches. It is believed the fruits are consumed by cockatoos.

Phenology
Flowering not observed. Fruiting observed Oct–Nov.

Magi Uses
None recorded.

Notes
Formerly known as *Streblus ascendens* and recently transferred into the expanded genus *Paratrophis* following the dissolution of the paraphyletic *Streblus* sensu lato. This species is unusual in the genus for its spiral phyllotaxy, although it is reported there are individuals collected elsewhere which have distichous leaves. All individuals collected from the plot have spiral arrangement and the leaves may be variously lobed or not.

Paratrophis philippinensis (Bureau) Fern.-Vill. PARAPH

Moraceae

Global Distribution
Borneo & Philippines to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Eastern Highlands, East Sepik, Hela, Madang, Morobe, [Sandaun] & Southern Highlands
Elevational Range: 0–600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 960*, *961*, and *962*, corresponding to *Pullen 964*.

Similar species
Nearly identical to *Antiaris toxicaria* subsp. *macrophylla*, but the tertiaries are (doubly) forked percurrent (vs. straight to once forked percurrent) and almost never recurved into the costa (vs. strongly recurved). May be confused with the small leaved form of *Artocarpus vriesianus*, but this has rough hairs on twigs and leaves, and the quinary veins are less dense and conspicuous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly known as *Trophis philippensis* and recently transferred into the expanded genus *Paratrophis*. Individuals of this species may be easily confused with some other Moraceae.

Dendrocnide cordata (Warb. ex H.J.P.Winkl.) Chew DENDCO
Apív sisibarra **Urticaceae**

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
PNG: Central, Eastern Highlands, Gulf, Madang & Morobe
Elevational Range: 0–200(1850?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 997*, corresponding to *Clemens 10774*.

Similar species
Not easily confused.

Habitat & Ecology
This is a secondary forest species found in forest gaps, openings, and often along waterways.

Phenology
Flowering observed Sep, likely year round. Fruiting not observed, likely year round.

Magi Uses
Leaves are used in treating body and muscle pain.

Notes
The leaves contain harsh stinging hairs and are painful to handle. The species seems to be common mainly in the lowlands, although a single collection known from Yawan in Morobe Province at 1850 m is currently the highest known.

Dendrocnide ternatensis (Miq.) Chew DENDTE
Apív kual s're **Urticaceae**

Global Distribution
Lesser Sunda Islands, Moluccas & New Guinea

New Guinea Distribution
ING: Aru Is. & Papua
PNG: Central, Chimbu, East Sepik, [Gulf], Madang, [Morobe] & New Ireland
Elevational Range: 0–600? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 986*, corresponding to *Saunders 385*, *Pullen 1219*, and *Demoulin 5739*.

Similar species
Not easily confused.

Habitat & Ecology
This is a secondary forest species found in forest gaps, openings, and often along waterways.

Phenology
Flowering observed Sep, likely year round. Fruiting not observed, likely year round.

Magi Uses
Leaves are used in treating body and muscle pain.

Notes
Formerly identified as *Dendrocnide longifolia*, but the leaves of this are much larger, often >50 cm long. The leaves contain harsh stinging hairs and are painful to handle. It is likely the species is more widespread across the island than currently known.

Oreocnide rubescens (Blume) Miq. OREORU
Aúl kasal **Urticaceae**

Global Distribution
S China to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Madang, Morobe, New Britain & Sandaun
Elevational Range: 0–1000 m

Tree to 10 m tall and 20 cm dbh. ***Twigs*** dark green to light brown, somewhat rough; maturing (light) brown, with many small longitudinal ridges, somewhat rough. ***Leaves*** simple, alternate, spiral, thick membranaceous, (8–)12–26 × 4–10 cm, glossy dark green above, glossy mid green below, lamina surface flat; base obtuse; apex acuminate, long drip tip; margins irregular, entire towards the base and serrate towards the margins, the serrations shallow to sharp; petioles 1–6 cm, unequal in length, purplish brown to brown, round. ***Stipules*** present, interpetiolar, triangular, caducous and leaving prominent scars, light green to reddish brown, up to 1.5 cm long. ***Indument*** present on all vegetative parts, pubescent; hairs simple, medium long, white. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries either terminating at a serration or looping once with a proximal vein then terminating at a serration; costa adaxially flat to raised slightly or impressed slightly, abaxially raised; secondary veins 5–8, adaxially flat, abaxially raised; tertiary veins broadly scalariform, oblique at 45° to the costa, straight to retroflexed; quaternary veins straight to weakly percurrent, often forming irregular composite intertertiaries.

Specimens
Represented by the voucher *Ezedin 792* and *841*, corresponding to *Lambinon 87/363*, *Womersley NGF 19151*, *Coode & Katik NGF 32768*, *Ramlanto 242* (det. *Orecnide* cf. *rubescens*), *Edaño & Gutiérrez PNH 37778*, and *Béguin 1913*. All specimens determined as *O. rubescens*, except unless noted.

Similar species
Not easily confused.

Habitat & Ecology
This is a secondary forest species found in forest gaps, openings, and along open waterways.

Phenology
Flowering observed Sep, likely year round. Fruiting observed Aug, likely year round.

Magi Uses
None recorded.

Notes
This species was curiously not listed as native in the *New Guinea checklist*, although the Wanang specimens, along with other specimens collected from across the island, appear to match the type of *Oreocnide rubescens* (*s.coll. s.n.* [K]) as well as other specimens collected in the neighboring regions of Moluccas, Philippines, and Sulawesi. Likely more widespread in New Guinea than is currently known.

Leucosyke capitellata (Poir.) Wedd. LEUCCA
Sikiáŋ irikal **Urticaceae**

Global Distribution
Malesia to Vanuatu

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, East Sepik, Gulf, Hela, Jiwaka, Madang, Milne Bay, Morobe, New Britain, New Ireland, Sandaun & [Western Highlands]
Elevational Range: 0–600(–1350?) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Demoulin & Smeets 5868* and *Henty NGF 10580*.

Similar species
Nearly identical to *Pipturus argenteus*, but the petioles are very long.

Habitat & Ecology
This is a secondary forest species found in forest gaps, openings, and often along waterways.

Phenology
Flowering and fruiting observed year round.

Magi Uses
Timber used in the construction of small huts. Leaves used in a similar manner to steel wool as well as a toothbrush.

Notes
Previously, there were two species of *Leucosyke* recognized at Wanang, however there appears to be only one.

Pipturus argenteus (G.Forst.) Wedd. PIPTAR
Sikiáŋ maniŋula **Urticaceae**

Global Distribution
Seychelles to Samoa

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 980*, corresponding to *Takeuchi et al. 13630*.

Similar species
Nearly identical to *Leucosyke capitellata*, but the petioles are very short.

Habitat & Ecology
This is a secondary forest species found in forest gaps, openings, and often along waterways.

Phenology
Flowering and fruiting likely year round.

Magɨ Uses
None recorded.

Notes
A very common and widespread species across the island.

Octomeles sumatrana Miq. OCTOSU
Kivul kalip **Tetramelaceae**

Global Distribution
Malesia to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, [Eastern Highlands], Enga, Hela, Jiwaka, [Manus Is.], [Papua], Western Highlands & [West Papua]
Elevational Range: 0–600? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1367*, corresponding to *Whitfeld 2083b*, *Schodde 4413*, and *Schodde 2474*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Leaves of this species mostly have entire margins however toothed margins of a few juvenile individuals have been seen in some Wanang specimens.

Tetrameles nudiflora R.Br. TETRNU
Digam **Tetramelaceae**

Global Distribution
W India & Indochina to N Australia (Queensland)

New Guinea Distribution
ING: Aru Is., [Papua], West Papua
PNG: Central, Madang, [Milne Bay], [Morobe], Oro & Western
Elevational Range: 0–500? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1318*, corresponding to *Hoogland 4635* and *Hoogland 4789*.

Similar species
[Not yet available]

Habitat & Ecology
This species is dry season deciduous and flowers while branches are still bare before the new leaves flush out.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Likely more widespread than is currently known.

Lophopetalum sp. 01 LOPH01
Kliŋ kliŋ maki **Celastraceae**

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: Madang
Elevational Range: 0–250? m

Tree or ***scrambling tree*** to ca. 20 m tall and ca. 15 cm dbh. ***Twigs*** green, smooth; maturing dark orange-reddish brown, smooth. ***Leaves*** simple, opposite to subopposite, 2-ranked, thick chartaceous to subcoriaceous, 10–25 × 3.5–5.5 cm, glossy mid green above, semi-glossy to dull light green below; lamina surface (weakly) raised between secondaries; base oblique to rounded; apex acuminate to weakly cuspidate, often long tapering; margins weakly serrate to entire, often appearing entire from a distance; petioles 0.7–1.2 cm, dark green, shallowly grooved. ***Stipules*** present, early caducous, thin, up to 0.2 cm. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping; costa adaxially (strongly) raised, abaxially raised; secondary veins 8–12, adaxially impressed, abaxially raised; tertiary veins straight percurrent, mostly perpendicular (to exmedially oblique at 45°) to the costa; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 262* and *1246*, corresponding to *Saunders 467* (det. *Lophopetalum sp.*).

Similar species
[Not yet available]

Habitat & Ecology
This species appears to have a tight ecological association with a particular species of galling wasp which constructs conical shaped galls on the abaxial lamina, often seen in high numbers. Older leaves are regularly found much damaged from herbivory. Similarly shaped galls have been seen on other taxa collected from other parts of PNG.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was recognized under multiple species codes in prior censuses. The vegetative morphology approaches *Lophopetalum macranthum* (esp. *Womersley & Millar NGF 37402*) but leaves of the Wanang material appear to be too large to be that species. It also approaches specimens of *Salacia macrophylla* (e.g., *Elbert 3141*), which is a climber but also referred to as a scrambling shrub or tree. However, the best specimen match appears to be with a specimen collected from a nearby locality (Faita) in the middle Ramu basin determined as *Lophopetalum*. Further verification is needed on the identity of this taxa, which possibly represents an undescribed species.

Siphonodon celastrineus Griff. SIPHCE

Iriŋté **Celastraceae**

Global Distribution
Indochina to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, [New Ireland] & Western
Elevational Range: 0–750? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 872*, corresponding to *Katik NGF 46778*.

Similar species
[Not yet available]

Habitat & Ecology
Mostly restricted to drier hills and ridges. Ants are commonly found swarming the tree while in fruit. Fruits are commonly found with small grey holes chewed out.

Phenology
Flowering not observed. Fruiting observed Aug–Nov.

Magi Uses
None recorded.

Notes

Aceratium oppositifolium DC. ACEROP
Siau siau **Elaeocarpaceae**

Global Distribution
Moluccas to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], [Enga] & [Southern Highlands]
Elevational Range: 0–300(–1300?) m

Tree ca. 15 m tall and 30 cm dbh. ***Twigs*** light greyish brown to reddish brown, smooth. ***Leaves*** simple, opposite to subopposite, 2-ranked, chartaceous, 5–13 × 2–5.5 cm, semi-glossy dark green above, dull light green below; lamina surface flat; bases rounded to weakly cordate; apex acute to acuminate; margins entire to weakly toothed, the teeth widely spaced; petioles 0.2–0.5 cm, green, golden-brown hairy, round. ***Stipules*** absent. ***Indumentum*** present on all young vegetative parts, late glabrescent; hairs simple, yellowish-golden to rusty orangish brown. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once or twice with some peripheral veinlets terminating at a marginal tooth; costa adaxially flat, abaxially raised; secondaries 6–9, adaxially slightly impressed, abaxially raised; tertiary veins straight percurrent, oblique at mostly 45° to nearly perpendicular to the costa, course convex to retroflexed; quaternary veins weakly percurrent to weakly reticulate, mostly perpendicular to tertiaries.

Specimens
Represented by the voucher *Ezedin 463*, *513*, and *1071*, corresponding to *Kajewski 2189* (typus: *Aceratium insulare*), *Versteeg 1735*, *Womersley NGF 19293*, *Gideon & Kiapranis UPNG 20291*.

Similar species
Lagerstroemia celebica, but this has flat lamina surfaces.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Sep.

Magi Uses
Timber used for construction of small huts.

Notes
This species was recognized under multiple species codes in prior censuses; some individuals under those codes appear to be misidentified *Lagerstroemia*. Previously, two species of *Aceratium* were recognized (*A. ledermannii* and *A. oppositifolium*) yet only one has been verified here; a second species may still be likely. The Wanang material verified during the survey most closely approaches *A. oppositifolium*, which is the name adopted here. It is likely that *A. oppositifolium* is a variable species, particularly with regard to indument density. Collections from higher elevations above 1000 m have smaller, narrower leaves. *A. ledermannii* appears to differ from the Wanang material in the following: the abaxial laminas are not densely hairy, infructescences pendulous, fruits in pairs of 2-3, sparsely covered in long silvery hairs, persistent style elongated. Due to lingering questions on species limits, a revision or synopsis of this genus in New Guinea is needed.

Elaeocarpus amplifolius Schltr. ELAEAM
Sanumé **Elaeocarpaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Madang, Morobe, [Oro] & Sandaun
Elevational Range: 0–200(–700?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1160*, corresponding to *Katik NGF 46656*, *Katik NGF 46583*, and *White NGF 10256*.

Similar species
Not easily confused. May be mistaken for a *Terminalia sp*., but these have entire margins and those at Wanang all lack a dense, orangish woolly indument.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Appears to be mostly restricted to the northern coast of New Guinea.

Elaeocarpus angustifolius Blume ELAEAN
Kapi s'ram **Elaeocarpaceae**

Global Distribution
Himalayas to E Australia & New Caledonia

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2600 m

Tree to 40 m tall and 65 cm dbh. ***Twigs*** dark green to yellowish brown, smooth, sparsely lenticellate. ***Leaves*** simple, alternate, irregularly 2-ranked, thick membranaceous with a nearly synthetic plastic-like feel, (5–)11–20 × (1.5–)4–6(–7.5) cm, glossy darker mid green above, glossy lighter mid green below; lamina surface bullate, with secondaries prominently impressed; base acuminate; apex cuspidate; margins serrate, the serrations closely spaced and triangular; petioles 1.3–2.5 cm, dark green with dark reddish tinge, deeply grooved. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries in semicraspedodromous pattern; costa adaxially raised, abaxially raised; secondary veins 11–17, adaxially impressed, abaxially raised; tertiary veins straight percurrent, oblique at >45° to the costa, course straight, recurved; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 520*, *533*, and *654*, corresponding to *Katik NGF 46581* and *Foreman et al. NGF 45983*.

Similar species
Not easily confused.

Habitat & Ecology
This is a large canopy tree that prefers low areas.

Phenology
Flowering not observed. Fruiting observed February–August.

Magi Uses
None recorded.

Notes
Formerly known as *Elaeocarpus sphaericus*, now synonymized under this name. Fruits are small blue berries.

Elaeocarpus coloides Schltr. subsp. *coloides* ELAECO

Elaeocarpaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Gulf, Madang, Milne Bay, Morobe, Oro & Western
Elevational Range: 0–650? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1161*, corresponding to *Katik NGF 46592* and *Versteeg 898* (typus: *Elaeocarpus coloides*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The morphology of this species approaches that of *Elaeocarpus womersleyi* and may be differentiated by the tertiary venation.

Elaeocarpus dolichodactylus Schltr. ELAEDD

Elaeocarpaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, [Enga], [Jiwaka], Manus Is., New Britain, New Ireland & [Western Highlands]
Elevational Range: 0–1900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1168*, *1207*, and *1327*, corresponding to *Schlechter 16667* (typus: *Elaeocarpus dolichodactylus*), *Ledermann 10137*, *Takeuchi & Ama 16265*, and *Katik NGF 46763*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This appears to be a widespread and variable species. It is likely some specimens determined as this species may not actually be conspecific.

Elaeocarpus miegei Weibel ELAEMI

Elaeocarpaceae

Global Distribution
New Guinea & N Australia (Northern Territory)

New Guinea Distribution
ING: Aru Is. & [Papua]
PNG: [Chimbu], Eastern Highlands, East Sepik, Hela, Madang, Manus Is., Milne Bay, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–1300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1164* and *1169*, corresponding to *Brass 25589* (typus: *Elaeocarpus miegei*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Elaeocarpus undulatus Warb. ELAEUN

Elaeocarpaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Central, [East Sepik], Madang, [Milne Bay], Morobe, Sandaun
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1159*, *1163*, and *1167*, corresponding to *Lane-Poole 185* (typus: *Elaeocarpus undulatus*), *Hochreutiner 54* (typus: *Elaeocarpus treubii*), and *Schlechter 17899*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The degree of hairiness may vary among specimens.

Sloanea sogerensis Baker f. SLOASO

Aliŋ aliŋ **Elaeocarpaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Chimbu, Enga, Jiwaka, Manus Is.
Elevational Range: 0–1800 m

Tree to 40 m tall and 50 cm dbh. ***Twigs*** dark green, densely reddish brown hairy; maturing dark greyish brown, rough. ***Leaves*** simple to deeply and irregularly (2–)4–6 lobed to compound, [when compound] imparipinnate, alternate, spiral, [when simple and unlobed] thick chartaceous, 9.5–25 × 5–14 cm, dark semi glossy green above, mid semi-glossy green below, lamina surface weakly bullate; [when simple and lobed] chartaceous, 18–25 × 16–30 cm; [when compound] rachis (the space between the bottom 2 leaflets and the terminal 3 leaflets) 3–5 cm, green; petiole [when simple and unlobed] 1–4(–5) cm, [when lobed or compound] 7–14 cm; [when compound] leaflets 3 (with a single terminal leaflet that is large and deeply lobed) to 5 (with 3 separate terminal leaflets), chartaceous, the lower 1(–2) pairs opposite, 10–23 × 3–12 cm, dark semi glossy green above, mid semi-glossy green below; lamina surface slightly raised between secondaries and tertiaries; base (of terminal leaflet) cordate, (of lower 2 leaflets) strongly oblique and asymmetric; apex (of all leaflets) acuminate, with elongated tip; margins entire [when simple] to deeply toothed [when lobed or compound], the teeth widely spaced; petiolules absent, leaflets sessile. ***Stipules*** present, in pairs, attached to the stem at petiole bases, large, green, leaf-like with venation to the fourth order, semi-circular to cordate shaped and helicoid, sessile with strongly unequal bases. ***Indument*** present on all parts, (sparse to) dense; hairs simple, yellow to brownish, appearing darker with age. ***Venation*** pinnate, simple to mixed craspedodromous (to semicraspedodromous [when simple]), with ultimate marginal tertiaries densely looping to sometimes appearing fimbriate; costa adaxially flat, abaxially raised; secondary veins [when simple] 8–10, adaxially flat, abaxially raised, [when toothed] each vein terminating at each tooth; tertiary veins straight to weakly percurrent, oblique at >35° to nearly percurrent to the costa; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 375* and *444*. The compound-leaved form corresponds to *Stevens & Martin LAE 54741* (sheet cited as juvenile of nearby adult), *Clunie et al. LAE 63378*, *Jacobs 9411*, and *Munzinger et al. 7028B*. The simple-leaved form corresponds to *Saunders 279* and *Viegh & Ridgwell NGF 7328*.

Similar species
The simple-leaved adult form may be confused with the simple-leaved adult form of *Sterculia ampla*, but this has linear stipules that are not leafy, palmate venation, and a sparsely hairy abaxial lamina with reddish hairs.

Habitat & Ecology
The leaves of this species may be either simple or compound pinnate and it is not entirely clear what causes this difference. It is likely that this morphological change is related to the age of the tree since younger, juvenile trees are often observed with compound leaves whereas larger, mature trees with simple leaves.

Phenology
Flowering observed Oct–Nov. Fruiting observed Jan, Mar & Jul–Oct.

Magi Uses
None recorded.

Notes
The specimen *Streimann NGF 45117*, described as a “medium sized, buttressed” tree, appears with both compound and simple leaves; the only specimen seen linking both simple- and compound-leaved forms to the same species.

Further investigation is needed to uncover the mechanisms behind the shift to simple unlobed leaves. The morphogenesis of the leaves appears to be considerably complex. The degree of indument density may vary.

Galearia celebica var. *celebica* GALECE
Mukus akab **Pandaceae**

Global Distribution
Sulawesi & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Enga, Jiwaka, Manus Is., [New Ireland], Southern Highlands & Western Highlands
Elevational Range: 0–700? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 593* and *713*, corresponding to *Takeuchi et al. 14927*.

Similar species
Galearia celebica var. pubescens, but this has soft pubescence on the abaxial lamina. *Rhyticaryum sp. 01*, but this has white petioles that are often contorted, entire margins, and the stems lack ridges.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed January. Fruiting observed February–March.

Magi Uses
Timber used in house construction. Branches used as gardening tool for digging. Fruits edible.

Notes
Possibly present in the Moluccas.

Galearia celebica var. *pubescens* Forman GALEPU
Mukus akab **Pandaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang & New Britain
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1386*, corresponding to *Floyd 7018* (typus: *Galearia celebica* var. *pubescens*).

Similar species
Galearia celebica var. *celebica*, but all parts are glabrous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction. Branches used as gardening tool for digging. Fruits edible.

Notes
This variety is currently recognized as a synonym of *Galearia celebica* however is kept separate here on the basis of consistency in morphological separation. This separation may or may not be warranted, further study is needed.

Carallia brachiata (Lour.) Merr. CARABR
Kapi kapi amaské **Rhizophoraceae**

Global Distribution
E Madagascar, W India, Himalayas & S China to N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka & Western Highlands
Elevational Range: 0–750(–2100?) m

Tree to 30 m tall and ca. 50 cm dbh. ***Twigs*** green, smooth; maturing light brown, smooth. ***Leaves*** simple, opposite, 2-ranked, flimsy subcoriaceous to subcoriaceous, 7–14 × 4.5–10 cm, glossy mid(–dark) green above, glossy light green below, lamina surface flat; base acute to rounded; apex blunt cuspidate; margins toothed, the teeth small and closely spaced, weakly to strongly undulate; petioles subsessile up to 1 cm, light green, grooved. ***Stipules*** present, large, circular, sheathing, leaving conspicuous brown circular scar at each node, up to 1.5(–2.5) cm long. ***Indument*** absent. ***Venation*** pinnate, (festooned) brochidodromous, with ultimate marginal tertiaries looping infinitely towards margins; costa adaxially impressed, abaxially raised; secondary veins 6–14, adaxially weakly raised, abaxially weakly raised; tertiary veins mostly absent, some visible near the base are faint and mostly parallel to the secondaries; quaternary veins absent or not visible.

Specimens
Represented by the voucher *Ezedin 643*, *644*, *646*, and *716*, corresponding to *Hoogland 5082* and *Streimann NGF 24336*.

Similar species
Garcinia sp., but these all have latex and clasping petioles and lack the conical apex.

Habitat & Ecology
Strongly associated with ridges, often forming short stilt roots.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
A widespread species which is highly variable across its range and even appears slightly variable within the plot.

Alchornea rugosa (Lour.) Müll.Arg. ALCHRU
Siau akab niŋi **Euphorbiaceae**

Global Distribution
S China to N Australia (Queensland)

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Madang, [Milne Bay], Morobe, [New Britain], New Ireland & Western
Elevational Range: 0–1100 m

Shrub or tree to 8 m tall and 10 cm dbh. ***Twigs*** green, smooth; maturing dark yellowish brown to light brown, slightly rough. ***Odor*** of inner bark initially reminiscent of passionfruit, then quickly dissipating within seconds. ***Leaves*** simple, alternate, spiral, often irregularly spaced or clustered in whorls of 3–4, chartaceous, 10–25 × 3–11.5 cm, lamina surface prominently raised between secondaries and less so between tertiaries, with up to 3 pairs of dark colored glands at or near base of the abaxial side found in rows on both sides of the costa; base rounded; apex acuminate, forming drip tip; margins serrate, the serrations widely spaced, the tips of the serrated teeth dark colored; petioles 1.5–3 cm, dark green, round. ***Stipules*** absent (or if present small and very early caducous). ***Indument*** present in small tufts in the axils of secondary veins on the abaxial lamina; hairs simple, white. ***Venation*** brochidodromous, with ultimate marginal tertiaries irregularly looping; costa adaxially raised, abaxially raised; secondary veins 7–11, adaxially raised slightly, abaxially raised; tertiary veins straight percurrent, often broadly spaced, oblique at 45° to nearly perpendicular to the costa, course straight to convex, often strongly recurved; quaternary veins straight percurrent, perpendicular to the tertiaries.

Specimens
Represented by the voucher *Ezedin 379*, *393*, *394*, *397*, and *399*, corresponding to *Womersley NGF 24790*, *Hartley 10892*, and *Vinas & Larivita LAE 62228*.

Similar species
Claoxylon sp. 01, but the leaves are regularly spaced along the stem.

Habitat & Ecology
Shows a highly clumped distribution pattern.

Phenology

Magi Uses
None recorded.

Notes
This species was initially identified as *Pittosporum sp. 01* then later changed to *Spathiostemon sp. 01*, but it appears to be best matched to *Alchornea rugosa*.

Claoxylon indicum (Reinw. ex Blume) Hassk. CLAOIN
Apív apív **Euphorbiaceae**

Global Distribution
S China to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro, Sandaun & Western
Elevational Range: 0–600(–1250) m

Tree to ca. 15 m tall and 20 cm dbh. ***Twigs*** light greyish yellow or grayish brown, smooth with linear lenticels. ***Leaves*** simple, alternate, spiral, chartaceous, 6–15(–22) × 2.5–11 cm, dark glossy green above, mid semi-glossy green below, lamina surface flat to slightly raised between secondaries; base rounded to acute; apex acute; margins broadly serrate, the serrations appearing faint in older leaves; petioles 1.2–11 cm, light green, grooved, unequal in length. ***Stipules*** present, very small, triangular, very early caducous. ***Indument*** absent. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping once; costa adaxially flat to raised slightly, abaxially raised; secondary veins 6–8, adaxially flat or impressed slightly, abaxially raised; tertiary veins straight to weakly percurrent, perpendicular (to oblique at 45°) to the costa, course mostly straight to convex, recurved; quaternary veins irregularly reticulate.

Specimens
Represented by the voucher *Ezedin 1199*, corresponding to *Katik NGF 46559* and *Ridsdale & Lavarack NGF 31571*.

Similar species
Claoxylon sp. 01 and *Alchornea rugosa*, but the petioles are much shorter and equivalent in length, and the leaves narrower and more lanceolate.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct. Fruiting observed Nov.

Magi Uses
None recorded.

Notes
Formerly known as *Claoxylon polot*, which is now synonymized under this species. Species is widespread across the lowlands. Leaves are variable in shape and size.

Claoxylon sp. 01 CLAO01

Euphorbiaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

Tree to ca. 10 m tall and ca. 12 cm dbh. ***Twigs*** brown, smooth. ***Leaves*** simple, alternate, spiral but with laminas oriented in a 2-ranked manner, thick chartaceous, 10–25 × 5–9 cm, dark green semi-glossy above, mid to light green semi-glossy below, lamina surface slightly raised between secondaries; base acute; apex acuminate, tapering into long drip tip; margins serrate, the serrations appearing soft or semi-crenate in older leaves; petioles 1.8–2.5 cm, light green, slightly grooved, equal in length. ***Stipules*** present, late caducous to semi-persistent, yellowish brown, up to 0.5 cm long. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries looping once or twice; costa adaxially impressed, abaxially raised; secondary veins 6–11, adaxially impressed slightly, abaxially raised; tertiary veins weakly scalariform, perpendicular to the costa; quaternary veins reticulate, perpendicular to the tertiaries, forming general box-like patterns.

Specimens
Represented by the voucher *Ezedin 707*. No matching specimens found.

Similar species
Claoxylon indicum, but the petiole lengths are unequal and the leaves rounder and broader.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Taxon of unknown genus affinity. It is placed in *Claoxylon* following prior census data however all known species of this genus have differential petiole length. Further study is required for positive ID. Max height and dbh size estimations may be inaccurate given the rarity of the species and low sample size.

Croton womersleyi Airy Shaw CROTWO

Euphorbiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: [Chimbu], Eastern Highlands, [Enga], [Gulf], [Jiwaka], Madang & Morobe
Elevational Range: 0–2000 m

Tree to ca. 15 m tall and ca. 10 cm dbh. ***Twigs*** light greyish brown to yellowish brown, rough; maturing whitish, mostly smooth. ***Exudate*** from petioles watery, translucent, slightly sticky. ***Leaves*** simple, alternate, spiral, thick membranaceous, 5–20 × 2–13.5 cm, dull dark green above, dull mid green below, new leaves flushing out whitish; lamina surface flat; base oblique to cordate; apex acute to acuminate; margins entire; petioles 1–11 cm, green, round, unequal in length. ***Stipules*** present, minute, early caducous, dark brown, up to 0.1 cm long. ***Indument*** present, covering all vegetative parts; hairs stellate, very small, white. ***Nectaries*** present at the base of the abaxial lamina, in pairs. ***Scales*** present on the petioles and both sides of the lamina, raised and giving a bumpy feel, yellowish. ***Venation*** pinnate, eucamptodromous to (weakly) brochidodromous, with ultimate marginal tertiaries looping; costa adaxially flat, abaxially raised; secondary veins 5–7, adaxially flat, abaxially raised; tertiary veins irregular, weakly percurrent to reticulate; quaternary veins faint, perpendicular to tertiaries.

Specimens
Represented by the voucher *Ezedin 350* and *1346*, corresponding to *Kairo & Streimann NGF 35632* and *Gardner 9071*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is rare at Wanang and appears to be infrequently collected elsewhere in PNG.

Endospermum moluccanum (Teijsm. & Binn.) Kurz ENDOMO
Aúŋ **Euphorbiaceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], Enga, [Gulf], Hela, Jiwaka, Manus Is., Milne Bay, Oro & Western Highlands
Elevational Range: 0–1100 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1362*, corresponding to *Hoogland 4920*.

Similar species
Endospermum medullosum, but this has hairy leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Exudate used in feminine hygiene, to prevent pregnancy, and treat illnesses resulting from sorcery exposure.

Notes
Formerly known as *Endospermum labios*, now synonymized under this name.

Endospermum medullosum L.S.Sm. ENDOME
Aúŋ akab **Euphorbiaceae**

Global Distribution
Moluccas to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and island except Aru Is., Chimbu, Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–1400? m

Tree to 45 m tall and 100 cm dbh. ***Twigs*** light green, hairy; maturing light grey to brown, rough with old leaf scars. ***Leaves*** simple, alternate, spiral, (flimsy) membranaceous, 10–35 × 5–26 cm, dull mid green above, semi-glossy light green below, new leaves flushing greenish coppery, lamina surface flat; base [when not peltate] truncate to cordate; apex acute; margins entire; petioles 3–30 cm, attachment either peltate or normal, light green, round. ***Glands*** acropetiolar and laminar, the acropetiolar glands paired, the laminar glands inconsistently found at the ultimate bifurcation of the secondary veins stemming from the 5 largest primaries, round and prominently raised, light to dark green. ***Stipules*** present, round and pubescent, very early caducous and leaving a small scar, yellow green, up to 0.1 cm long. ***Indument*** present on all vegetative parts, dense, velvety-pubescent; hairs simple, long, light yellow. ***Venation*** [when peltate] rotate, primary veins 7–9, the secondaries or secondary-like derivatives brochidodromous, the ultimate marginal tertiaries looping once or twice before being abruptly cut off by the margin; [when normal] eucamptodromous to brochidodromous (but often appearing craspedodromous), the lower most veins often behaving like primary veins, bearing secondary-like derivatives exmedially; costa adaxially raised, abaxially raised; secondary veins 2–6, adaxially raised, abaxially raised; tertiary veins straight percurrent, course varies, strongly recurved to convex near the center, retroflexed in the middle and concave before the margin; quaternary veins straight to forked percurrent to weakly reticulate.

Specimens
Represented by the voucher *Ezedin 789*, corresponding to *White et al. NGF 1703* (peltate form) and *Hartley 11515* (normal form).

Similar species
Endospermum moluccanum, but this has glabrous leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The leaf attachment may be peltate or normal, although it is not clear what mechanism determines this differentiation – it is obviously not related to age. All Wanang material seen thus far have peltately attached leaves.

Homalanthus novoguineensis K.Schum. HOMANO
Buku **Euphorbiaceae**

Global Distribution
Lesser Sunda to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Bougainville]
Elevational Range: 0–1800(–2400) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1361*, corresponding to *Novotny et al. 62*, *Novotny et al. 41*, and *Henty NGF 49257*.

Similar species
Not easily confused.

Habitat & Ecology
A secondary forest species commonly found in regrowth areas and gardens.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Juvenile and adult forms have differing morphologies: juveniles with larger leaves and longer petioles.

Melanolepis multiglandulosa Rchb. & Zoll. MELAMU
Guakul **Euphorbiaceae**

Global Distribution
S Japan (Ryukyu Is.) & Indochina to Solomon Islands

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Central, East Sepik, Madang, Morobe, New Britain, New Ireland & [Sandaun]
Elevational Range: 0–750 m

Tree to 20 m tall and 30 cm dbh. ***Twigs*** dark green to light yellowish brown, smooth. ***Exudate*** present, clear, watery, sticky. ***Leaves*** simple, 3-lobed towards the apex, alternate, spiral, thick membranaceous, 16–33 × 14–25 cm, dark dull green above, mid semi-glossy green below, lamina surface flat; base cordate; apex acuminate; margins toothed, the teeth widely spaced; petioles 8–18 cm, light green, round, conspicuously unequal in length. ***Nectaries*** present, at the base of the lamina, 5 total: 1 large green at the base of the upper surface secreting clear mucous-like liquid, 2 green on the lower surface on each side of the petiole, and 2 dark green in between the latter two that are slightly raised. ***Stipules*** absent. ***Indument*** present on all vegetative parts, densely tomentose, easily sloughing off; hairs stellate, light yellow. ***Venation*** palmate with 7 primary veins, simple craspedodromous, with ultimate marginal tertiaries anastomosing before margin; costa adaxially flat, abaxially raised; secondary veins 3–5, terminating at margins with a teeth, adaxially flat, abaxially raised; tertiary veins broadly straight percurrent, perpendicular to th e two adjacent primary veins, course straight to weakly convex; quaternary veins forked percurrent, forming composite intertertiaries, perpendicular to the tertiaries.

Specimens
No voucher collected, but Wanang material corresponds to *Essig & Lelean LAE 55017* and *Coode & Katik NGF 32820*.

Similar species
Not easily confused.

Habitat & Ecology
A secondary forest species commonly found in regrowth areas and gardens.

Phenology
Flowering observed Sep–Oct. Fruiting observed Nov–Dec.

Magi Uses
None recorded.

Notes
A commonly encountered species along trails and secondary growth. This species appears to be mostly restricted to the northern coast of New Guinea.

Macaranga aleuritoides F.Muell. MACAAL
Kui kapaŋisiŋ **Euphorbiaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], [Enga], [Hela] & [Jiwaka]
Elevational Range: 0–1200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1345*, corresponding to *Vandenberg & Mann NGF 42199*.

Similar species
Not easily confused.

Habitat & Ecology
A secondary forest species commonly found in disturbed regrowth areas; has high turnover rate.

Phenology
Flowering and fruiting observed year round.

Magi Uses
None recorded.

Notes
A commonly encountered species along trails and secondary growth. This species appears to be mostly restricted to the northern coast of New Guinea.

Macaranga bifoveata J.J.Sm. MACABI
Kui midaŋ simiŋ **Euphorbiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Enga, Hela, Madang, Milne Bay, Morobe, Oro, Sandaun, Western & Western Highlands
Elevational Range: 0–900(–1500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1347*, corresponding to *Takeuchi 10972*.

Similar species
Not easily confused.

Habitat & Ecology
A secondary forest species commonly found in disturbed regrowth areas; has high turnover rate.

Phenology
Flowering not observed. Fruiting observed Mar–May.

Magi Uses
None recorded.

Notes

Macaranga fallacina Pax & K.Hoffm. MACAFA
Kui sani dugag **Euphorbiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, [Eastern Highlands], East Sepik, Gulf, Madang, Morobe, New Britain & Sandaun
Elevational Range: 0–600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1339*, corresponding to *Takeuchi & Ama 22392* and *Sands 1162*.

Similar species
Not easily confused.

Habitat & Ecology
A secondary forest species commonly found in disturbed regrowth areas; has high turnover rate.

Phenology
Flowering not observed. Fruiting observed Apr–Jul & Oct–Nov.

Magi Uses
None recorded.

Notes

Macaranga inermis Pax & K.Hoffm. MACAIN
Kui sisi tikibla **Euphorbiaceae**

Global Distribution
Moluccas, New Guinea & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Enga, [Gulf], [Jiwaka], Manus Is. & New Ireland
Elevational Range: 0–2300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1343*, corresponding to *Schodde 3140*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Macaranga neobritannica Airy Shaw MACANE
Kui kuŋil **Euphorbiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Madang, Morobe, New Britain & Oro
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1342*, corresponding to *Ridsdale & Katik NGF 38033* and *Eddowes & Kaleh NGF 36034*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Macaranga novoguineensis J.J.Sm. MACANO
Kui yalim dugag **Euphorbiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Gulf, East Sepik, Madang, Milne Bay, Morobe, New Britain, Sandaun & Western
Elevational Range: 0–300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1337*, corresponding to *Schodde 4332*, *Brass 6643*, and *BRC 1092*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction and for firewood.

Notes

Macaranga punctata K.Schum MACAPU
Kui yalim dugag **Euphorbiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Morobe, Sandaun & Western
Elevational Range: 0–500? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1357*, corresponding to *Weiblen & BRC WP4A0960* and *Millar NGF 35438*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction of small huts and for firewood.

Notes

Macaranga quadriglandulosa Warb. MACAQU
Kui simblé **Euphorbiaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Chimbu, Eastern Highlands, Gulf, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–1800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1360*, corresponding to *Pullen 1165* and *Takeuchi 4595*.

Similar species
Macaranga tanarius, but this has glaucous white undersides.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes

Macaranga tanarius (L.) Müll.Arg. MACATA
Kui iburra **Euphorbiaceae**

Global Distribution
S China & S Japan (Ryukyu Is.) to Australia & Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Hela, Jiwaka & Western Highlands
Elevational Range: 0–1400? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Foreman et al. NGF 45853* and *Schodde 2413*.

Similar species
Mallotus floribundus, but this lacks large and persistent stipules.

Habitat & Ecology
A secondary forest species commonly found in forest gaps and regrowth areas; generally, has high turnover rate.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction of small huts.

Notes

Mallotus floribundus (Blume) Müll.Arg. MALLFL
Aŋ kombíŋ **Euphorbiaceae**

Global Distribution
Indochina to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–200(–900) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1356*, corresponding to *Katik NGF 46552* and *Saunders 314*.

Similar species
Macaranga tanarius, but this has large semi-leafy and persistent stipules.

Habitat & Ecology

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Mallotus peltatus (Geiseler) Müll.Arg. MALLPE
Kombíŋ niŋi **Euphorbiaceae**

Global Distribution
S China to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, Madang, Morobe, New Britain, [Oro] & Sandaun
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 741* and *1173*, corresponding to *Schlechter 14467* and *Katik NGF 46609*.

Similar species
[Not yet available]

Habitat & Ecology
This is a secondary forest species, often encountered in forest gaps and regenerating stands.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in construction of small huts and firewood.

Notes
In New Guinea, appears to be restricted to the northern coast.

Mallotus philippensis (Lam.) Müll.Arg. MALLPH

Euphorbiaceae

Global Distribution
Himalayas, C China (Sichuan) & S Japan (Ryukyu Is.) to Australia

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, [Eastern Highlands], Gulf, Madang, Milne Bay, Morobe, New Britain, New Ireland, Sandaun & Western
Elevational Range: 0–1100? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 293*, *294*, and *708*, corresponding to *Henty & Frodin NGF 27276* and *Takeuchi et al. 4221*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly referred to as *Mallotus sp. 02*. Some individuals may be misidentified as other Euphorbiaceae.

Mallotus sp. 01 MALL01

Euphorbiaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1355*. No matching specimens found.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Mallotus oblongifolius*, now a synonym of *M. peltatus*, which this material differs from. No match has yet been made.

Mallotus sp. 02 MALL02

Euphorbiaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 512*. No matching specimens found.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is an unknown morphospecies that has yet to matched to a known species.

Neoscortechinia forbesii (Hook.f.) S.Moore NEOSFO

Euphorbiaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, [East Sepik], Madang, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 507*, corresponding to *Saunders 211*, *Saunders 214*, *Saunders 264*, and *Saunders 280*.

Similar species
Spathiostemon javensis, but this has entire margins, shorter petioles, leaves not bullate and not as glossy.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Pimelodendron amboinicum Hassk. PIMEAM
Mulal **Euphorbiaceae**

Global Distribution
Sulawesi to Vanuatu & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], [Jiwaka] & [Manus Is.]
Elevational Range: 0–700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 236, 700, 874*, and *976*, corresponding to *Katik NGF 46516* and *Pullen 957*.

Similar species
Not easily confused.

Habitat & Ecology
Very common throughout the plot, with increasing density on ridges and slopes. Ants swarm the trees during the fruiting period.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Spathiostemon javensis Blume SPATJA

Euphorbiaceae

Global Distribution
Borneo & Philippines to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–200(–500) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 406*, *421*, *544*, *546*, and *806*, corresponding to *Saunders 185*, *Saunders 189*, *Saunders 199*, *Pullen 1140*, and *Hartley 11358*.

Similar species
Neoscortechinia forbesii, but this has serrated margins, longer petioles, leaves more prominently bullate and glossier.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Cleidion javanicum*. When sterile, this species looks similar to *Ptychopyxis chrysantha*, not known from Wanang but recorded from the region; it may be differentiated via the leaf base and apex which appear to differ only slightly so. Although apparently rare at Wanang, it is widespread in distribution. May be more widespread across New Guinea than currently known.

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Madang
Elevational Range: 0–520 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1338* and *1340*, corresponding to *Saunders 376*, *Saunders 378*, and *Katik NGF 46599*.

Similar species
[Not yet available]

Habitat & Ecology
This is a strongly clumping species, with only a single densely clustered population found inside the plot. The wood is said to be very hard and tough, perhaps indicating a high density.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is poorly known and sparsely collected, with its distribution in New Guinea appearing to be disjunct between the Ramu basin, Mamberamo basin, and adjacent areas around the Arfak Mountains. Although it is likely to be restricted along the northern coast of New Guinea, whether or not its range is actually disjunct or otherwise extends into other regions across the northern lowlands remains to be seen.

Antidesma excavatum Miq. ANTIEX

Phyllanthaceae

Global Distribution
Philippines, Borneo to Samoa & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga], [New Ireland] & [Western Highlands]
Elevational Range: 0–1900(–2900?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1045* and *1053*, corresponding to *Hartley 11336*.

Similar species
Baccaurea papuana, but this has *Terminalia*-like architecture (and cauliflorous inflorescences when fertile).

Habitat & Ecology
The leaves are usually found damaged with specific pattern of small linear cuts, likely by an insect that has evolved a close relation to this species.

Phenology
Flowering observed September, likely year round. Fruiting observed February–August & October–November, likely year round.

Magi Uses
None recorded.

Notes

Aporosa praegrandifolia (S.Moore) Schot APORPR
Kuveraŋ **Phyllanthaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Gulf, Hela, Madang, Milne Bay, Morobe, Oro, [Southern Highlands] & Western
Elevational Range: 0–750(–1350?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 445* and *449*, corresponding to *Takeuchi et al. 21154*, *Henty NGF 11993*, and *Henty NGF 14384* (typus: *Aporosa petiolaris*).

Similar species
Not easily confused. Sometimes the circular stipules may not be present.

Habitat & Ecology
Leaves can be often found bearing medium to heavy herbivory damage.

Phenology
Flowering not observed, likely year round. Fruiting observed February–May, July–August & November, likely year round.

Magi Uses
None recorded.

Notes
Formerly identified as *Aporosa papuana*, but this species generally has dark brown tomentose hairs on the twigs and abaxial laminas and generally smaller leaves. Sterile appearance of this species is similar to *A. papuana*, but differs in larger leaves, all parts being glabrous, and larger infructescences. The highest collection seen is from 1350 m in Hela Province (*Takeuchi et al. 19278*) which has smaller leaves than all other examined specimens.

Baccaurea papuana F.M.Bailey BACCPA
Mukus tiviŋ **Phyllanthaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Manus Is., New Britain & New Ireland
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1013*, corresponding to *Hoogland & Craven 10350* and *Hartley 9653*.

Similar species
Antidesma excavatum, but this lacks *Terminalia*-like architecture, lacks submarginal glands and generally has short petioles (at Wanang) that are flat to shallowly flexed at the apices. *Terminalia sp.*, but these all lack a double pulvinus and lack submarginal glands. *Elaeocarpus sp.*, but these all have serrated margins. *Saurauia sp.*, but this has toothed margins. Furthermore, this species may be easily distinguished from all the above in its fertile state as the inflorescences are cauliflorous; all other taxa listed here flower in either the axillary or terminal positions.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Fruits edible.

Notes
Many individuals of this species are likely incorrectly identified as species of *Terminalia*, *Elaeocarpus*, *Antidesma*, and perhaps *Saurauia*. The fruits of this species are consumed at Wanang village; they are said to have a taste similar to that of rambutan (*Nephelium lappaceum*).

Bischofia javanica Blume BISCJA

Phyllanthaceae

Global Distribution
India, C China & S Japan (Ryukyu Is.) to Cook Is. & E Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [East Sepik], Jiwaka, Manus Is., New Ireland & Southern Highlands
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 819*, corresponding to *Henty NGF 16742*.

Similar species
Sandoricum koetjape, but this has entire margins, white smooth bark, and lacks exudate. *Allophyllus cobbe*, but this lacks exudate, and the marginal serrations are widely spaced and more prominent.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be rare at Wanang, although there is likely some additional individuals that remain misidentified as other taxa.

Breynia cernua (Poir.) Müll.Arg. BREYCE
Kiagi té **Phyllanthaceae**

Global Distribution
Philippines & Java to Solomon Islands & Australia (Northern Territory)

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 922* and *1037*, corresponding to *Vandenberg & Katik NGF 42324*, *Takeuchi et al. 13723*, and *Brass 21831*.

Similar species
Breynia sp. 01, but this lacks glaucous undersides.

Habitat & Ecology
[Not yet available]

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Breynia sp. 01 BREY01

Phyllanthaceae

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING: Papua
PNG: Bougainville, East Sepik, Madang, Manus Is., Milne Bay, Morobe, New Britain, [New Ireland], Oro & Sandaun
Elevational Range: 0–1200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1038* and *1039*, corresponding to *Wiakabu & AMC LAE 73641*, *Henty & Foreman NGF 42889*, and *Takeuchi et al. 17313*.

Similar species
Breynia cernua, but this has glaucous undersides.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Bridelia macrocarpa Airy Shaw BRIDMA
Kusim kusim sisi barra **Phyllanthaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central & Madang
Elevational Range: 0–200? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Katik W 2823* and *Henty NGF 27498* (paratypus).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed year round.

Magi Uses
None recorded.

Notes
Given the odd distribution of this species, it likely is more widespread than currently known.

Bridelia insulana Hance BRIDIN

Phyllanthaceae

Global Distribution
S China to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Chimbu], [Enga], [Jiwaka], Manus Is., New Ireland
Elevational Range: 0–500(–850?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1042* and *1329*, corresponding to *Hoogland & Craven 10487* and *Hartley 11022*.

Similar species
Bridelia macrocarpa, but this has glaucous undersides.

Habitat & Ecology
The species is fully deciduous during the dry season (Jul–Sept), with new leaves flushing out immediately after.

Phenology
Flowering not observed. Fruiting observed Sep.

Magi Uses
None recorded.

Notes
Not recorded during prior censuses, additional individuals may be misidentified.

Glochidion granulare Airy Shaw GLOCGR
Mende té **Phyllanthaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang & Morobe
Elevational Range: 0–150(–1700?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 903* and *1254*, corresponding to *Takeuchi et al. 13966* and *Takeuchi & Ama 17009*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Nov. Fruiting observed Aug & Nov.

Magi Uses
None recorded.

Notes
Formerly identified as *Glochidion novoguineense*. This species is thus far only known from the Ramu and Markham basins in northeast PNG.

Maranthes corymbosa Blume MARACO

Chrysobalanaceae

Global Distribution
Malesia to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, [New Ireland], Southern Highlands & Western Highlands
Elevational Range: 0–500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 250* and *338*, corresponding to *Henty NGF 27445*.

Similar species
Not easily confused due to the conspicuous pair of glands at the leaf base.

Habitat & Ecology
There is a noticeable difference in the sun versus shade morphology of the leaves. In full sun, new leaves flush deep reddish purple, are strongly warped and curved downward, and young twigs and leaves nearly glabrous or very early glabrescent. In full shade, new leaves flush light green and silvery, are oriented flat on a single plane, and young twigs and leaves are densely covered in long silky white hairs.

Phenology
Flowering not observed. Fruiting observed Nov–Apr.

Magi Uses
None recorded.

Notes
This species is widespread and variable throughout its range.

Drypetes longifolia (Blume) Pax & K.Hoffm. DRYPLO
Yamé timab **Putranjivaceae**

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Morobe, New Britain, [Oro], Sandaun, Western
Elevational Range: 0–250 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 433*, *1046*, and *1050*, corresponding to *Saunders 534*, *White NGF 10313A*, and *Takeuchi & Ama 22004*.

Similar species
Drypetes sp. 01, but this has prominent and often sharply pointed teeth along the margins and the leaves are thick stiff coriaceous.

Habitat & Ecology
This species appears to have a close association with a specific type of galling insect.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Drypetes sp. 01 DRYP01

Putranjivaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 663*, *1055*, and *1056*. No matching specimens found but see notes.

Similar species
Drypetes lasiogynoides, but the leaves are not thick stiff coriaceous, the stipules are larger and semi-persistent, and the marginal teeth are not prominent nor sharp.

Habitat & Ecology
This species appears to have a close association with a specific type of insect which constructs circular structures on the adaxial surface, causing the affected cells underneath to die off and turn yellow. In juvenile individuals, the marginal teeth are larger, spikier, and sharper, and not angled.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Previously identified as *Aphananthe sp. 01* but this is actually an unknown species of *Drypetes*. The morphology seems to approach that of a specimen collected by *F. von Mueller* [s.n.] from 'Wide Bay', Queensland, Australia (housed at P), which is identified as *D. australasica* (=*D. deplanchei*) and less so approaches that of *H.S. MacKee 14459* from New Caledonia. However, the Wanang material differs primarily in that the leaves here are up to 28 cm long – more than twice that of the aforementioned specimens. A revision is needed in the *Drypetes australasica–deplanchei* complex.

Casearia clutiifolia Blume CASECL
Té ámaské niŋi **Salicaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING: Papua & [West Papua]
PNG: Bougainville, Central, [Chimbu], Eastern Highlands, East Sepik, Gulf, [Hela], Jiwaka, Madang, Milne Bay, Morobe, [Oro], Sandaun, Southern Highlands & Western
Elevational Range: 0–600(–900?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 823* and *1242*, corresponding to *Millar NGF 12032* and *Hollrung 536* (typus: *Casearia mollis*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct–Nov. Fruiting not observed.

Magi Uses
None recorded.

Notes
The highest collection determined as this species is *Takeuchi 12125* from Crater Mountain (Chimbu Province) at 1540 m; however, the specimen looks rather different with narrower 'herbaceous' leaves, fewer secondaries, and prominent serrations.

Flacourtia rukam Zoll. & Moritzi FLACRU
Suaraŋa **Salicaceae**

Global Distribution
Peninsular Malaysia to Samoa

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: [Bougainville], [East Sepik], Madang, Milne Bay, Morobe, [Oro] & Sandaun
Elevational Range: 0–200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 599* and *601*, corresponding to *Paul LAE 86443* and *Takeuchi 5605*.

Similar species

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The endemic species *Flacourtia zippelii*, also known from the Ramu basin, is very similar but has margins entire to (barely) shallowly serrate. Fruits ripen bright red.

Homalium foetidum Benth. HOMAFO
Té ámaské **Salicaceae**

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: East Sepik, Gulf, Madang, [Manus Is.], Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–750 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 855*, corresponding to *Vandenberg & Mann NGF 42237* and *Takeuchi & Ama 15551*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Rinorea bengalensis (Wall.) Kuntze RINOBE

Salicaceae

Global Distribution
India & S China to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Bougainville, Central, [East Sepik], [Gulf], Madang, Manus Is., Morobe, [Oro], Sandaun & Western
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1348*, corresponding to *Katik LAE 74725* (det: *Rinorea fasciculata*); *Oudemans s.n.* (typus: *Alsodeia obtusa*).

Similar species
The conical stipule may be mistaken for some *Ficus sp.*, but these all have white sap when cut.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ryparosa amplifolia (K.Schum.) Mildbr. RYPAAM
Aŋ sugi niŋi **Achariaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: [East Sepik], Madang, Milne Bay, Morobe, [Oro], Sandaun, Southern Highlands
Elevational Range: 0–600? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 735* and *1057*, corresponding to *Henty NGF 27431* and *Schlechter 17599* (paratypus: *Gertrudia amplifolia*).

Similar species
Ryparosa calotricha, but the leaves are smaller and brown hairy underneath.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowers not observed. Fruiting observed Sep.

Magi Uses
None recorded.

Notes

Ryparosa calotricha Mildbr. RYPACA
Aŋ sugi makɨ **Achariaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Chimbu, [Eastern Highlands], East Sepik, Madang, Morobe, Oro, [Sandaun]
Elevational Range: 0–1200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 899*, corresponding to *Streimann & Katik NGF 28904*.

Similar species
Ryparosa amplifolia, but the leaves are larger and glabrous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowers observed in Aug. Fruiting not observed.

Magɨ Uses
None recorded.

Notes

Erythrospermum candidum Becc. ERYTCA
Gublib **Achariaceae**

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Eastern Highlands, East Sepik, Gulf, Madang, New Britain, Sandaun & Western
Elevational Range: 0–100(–200) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 840* and *857*, corresponding to *Womersley NGF 13474*, *Saunders 565* and *Katik NGF 46502*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed Apr, Jul, Aug–Sep & Oct, likely year round.

Magi Uses
Liquid from bark used to treat sores.

Notes

Pangium edule Reinw. PANGED
Yandɨ **Achariaceae**

Global Distribution
Malesia to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands] & Western
Elevational Range: 0–1100(–2600?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 543* and *570*, corresponding to *Brass 28165*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Sep. Fruiting observed Jan–Apr & Sep–Nov.

Magɨ Uses
Exudate used to treat new sores. Leaves used as poison for killing fish. Fruits edible.

Notes

Calophyllum soulattri Burm. CALOSO
Sane migiŋ **Calophyllaceae**

Global Distribution
Indochina to Solomon Islands & N Australia (Northern Territory)

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Hela, Southern Highlands & Western
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 578* and *973*, corresponding to *Stevens & Lelean 58720* and *Darbyshire 1179*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed August–September. Fruiting observed November–February & August.

Magi Uses
None recorded.

Notes

Garcinia assugu Lauterb. GARCAS

Clusiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Central, East Sepik, Gulf, Hela, Madang, Morobe, Sandaun
Elevational Range: 0–1400? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 640*, *641*, and *642*, corresponding to *Streimann & Martin LAE 52823*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Garcinia dulcis Kurz GARCDU
Kapɨ kugam niŋi **Clusiaceae**

Global Distribution
Peninsular Malaysia to N Australia (Queensland)

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, Chimbu, East Sepik, Madang, Milne Bay, Morobe, New Britain & Sandaun
Elevational Range: 0–850 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 621* and *637*, corresponding to *Katik NGF 46902* and *White NGF 10807*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This widespread species is either a highly variable species or represents a species complex that may be non-monophyletic. Leaf size and shape appear to vary greatly throughout its range while some specimens determined as this species do not appear to match others. At Wanang, petiole color may be red or green.

Garcinia hunsteinii Lauterb. GARCHU
Kapi kapi suku **Clusiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Madang, Morobe, [Oro], New Britain, Sandaun, Southern Highlands & Western
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 622* and *623*, corresponding to *Takeuchi & Ama 15050* and *Takeuchi 6692*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Garcinia cf. *latissima* Miq. GARCLA

Clusiaceae

Global Distribution
Sulawesi to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Enga, Manus Is., Jiwaka, New Ireland & Western Highlands
Elevational Range: 0–500(–1850?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 636*, corresponding to *Sayers NGF 24161*, *Hoogland 4906* and *Teijsmann s.n.* (typus: *Garcinia latissima*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This appears to closely match *Garcinia latissima*, however the leaves of the Wanang material are larger (> 20 cm long) than the majority of other specimens seen (10–20 cm long).

Garcinia ledermannii Lauterb. GARCLE
Aŋ kapi kapi **Clusiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Chimbu, Gulf, Madang, Milne Bay, Morobe, [Sandaun]
Elevational Range: 0–200(–1000) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 645*, corresponding to *Henty LAE 54723* and *Kerenga LAE 56417*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Terminalia complanata K.Schum. TERMCO
Kɨmad yaŋam niŋi **Combretaceae**

Global Distribution
New Guinea, Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Enga, [Hela], Jiwaka, Western Highlands
Elevational Range: 0–800(–1300) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1434*, corresponding to *Womersley NGF 19232* and *Lauterbach 1638* (typus: *Terminalia complanata*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Terminalia impediens Coode TERMIM
Kimad sai **Combretaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Gulf, Madang, Morobe, Oro & Southern Highlands
Elevational Range: 0–730 m

[Not yet available]

Specimens
No voucher collected, but Wanang specimens correspond to *Coode NGF 46160*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species has leaves with conspicuous purple colored undersides.

Terminalia kaernbachii Warb. TERMKA
Sai **Combretaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Gulf, Madang, Milne Bay, Morobe & Western
Elevational Range: 0–600 m

[Not yet available]

Specimens
No voucher collected, but Wanang specimens correspond to *Coode NGF 40188*, *Coode NGF 46159*, *Brass 6973*, and *White 198* (typus: *Terminalia okari*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses

Notes

Global Distribution
Malesia to N Australia

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, Eastern Highlands, [East Sepik], Gulf, Madang, Milne Bay, Morobe, Sandaun, Western
Elevational Range: 0–200? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Katik NGF 46612*, *Gillison NGF 25239*, and *Lauterbach s.n.* (typus: *Terminalia hypargyrea*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Terminalia sepicana Diels TERMSE
Kɨmad sai niŋi **Combretaceae**

Global Distribution
New Guinea to Vanuatu

New Guinea Distribution
ING: [Papua]
PNG: Bougainville, [East Sepik], [Jiwaka], Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun & Western Highlands
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the vouchers *Ezedin 1437* and *1438*, corresponding to *Womersley NGF 48668* and *Hoogland 5214*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
There is slight variation among herbarium specimens, some with a rusty indument on twigs and abaxial lamina and others without. Domatia are usually present, either hairy or not.

Duabanga moluccana Blume

DUABMO
Lythraceae

Global Distribution
Malesia to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, Hela, Madang, Morobe, Sandaun & Western
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the vouchers *Ezedin 1243*, corresponding to *Takeuchi 6418*.

Similar species
Not easily confused.

Habitat & Ecology
This species is uncommon encountered at Wanang.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Lagerstroemia celebica Blume LAGECE

Lythraceae

Global Distribution
Malesia to New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, East Sepik, Oro, Madang, [Milne Bay], Morobe, New Britain, [Sandaun] & Southern Highlands
Elevational Range: 0–700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1248*, corresponding to *Hoogland 4908* and *Kanis 1001*.

Similar species
Aceratium oppositifolium, but the lamina surface is not flat.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Decaspermum neurophyllum K.Schum. & Lauterb. DECANE
Ulgidi niŋi akab **Myrtaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Manus Is., [Milne Bay], New Ireland, & Western
Elevational Range: (100–)500–1700(–2900) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1420* and *1430*, corresponding to *Schlechter 14239*, *Brass 27247*, *Hoogland 5141*, and *Lauterbach 229* (syntypus: *Decaspermum neurophyllum*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Nov. Fruiting not observed, likely in Dec–Jan.

Magi Uses
Timber used as posts in house framing and in the construction of small huts.

Notes
Formerly identified as *Rhodamnia sessiliflora*, but this genus has four petals whereas this species bears five, corresponding to either *Decasperumum* or *Rhodomyrtus*. This morphospecies appears to match *Decaspermum neurophyllum*, which is primarily a montane species, but with some specimens found as low as 100 m asl. A similar species, *D. bracteatum* is also known from the area, but this differs in narrower laminas with strongly tapering aristate apices, and secondaries that are not strongly impressed. Within *Rhodomyrtus*, this appears to be closest to *R. guymeriana*, but this has short, dense white pubescent hairs and petioles that are twice as long. It appears more distantly similar to *R. longisepala* and *R. trineura* var. *novoguineensis*, but these both have a denser ferrugineous indument, generally narrower leaves, attenuate apices, secondaries that are fused into a straight marginal vein (i.e., no arching of looped sections), and the basalmost secondaries are ±perpendicular to the costa.

Syzygium aeoranthum (Diels) Merr. & L.M.Perry SYZYAE

Myrtaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Madang & Morobe
Elevational Range: 0–250 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1429*, corresponding to *Coode & Katik NGF 32825* and *Takeuchi et al. 13666*.

Similar species
Syzygium longipes, but the pseudostipules are much smaller and late caducous, the leaves larger and thicker, and the bases acute.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not recorded in prior censuses and other individuals may be misidentified.

Syzygium cf. *branderhorstii* Lauterb. SYZYBR

Myrtaceae

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: [Bougainville], Central, [Gulf], Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun, Western
Elevational Range: 0–250 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1414* and *1456*, corresponding to *Hoogland 4990*, *Schodde 2749*, and *van Royen 3203*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The petioles of fresh specimens are black like most herbarium specimens, but leaf shape appears to be variable and the Wanang material seems to differ in the leaves appearing thinner than most specimens. There appears to be some minor variation within the group.

Syzygium cf. *fastigiatum* (Blume) Merr. & L.M.Perry SYZYFA
Kurkuŋil **Myrtaceae**

Global Distribution
Indochina to New Guinea

New Guinea Distribution
ING: Papua & [West Papua]
PNG: Central, Eastern Highlands, Gulf, Hela, Madang, Milne Bay, Morobe, Oro & Western
Elevational Range: 0–2300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1404*, corresponding to *Hartley 10540* and *Takeuchi & Ama 24169*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Likely a variable species throughout its range.

Syzygium gonatanthum (Diels) Merr. & L.M.Perry SYZYGO
Ulgidi niŋi **Myrtaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain & [Sandaun]
Elevational Range: 0–350 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1416* and *1427*, corresponding to *Hartley 9938* and *Wiakabu et al. LAE 72320*.

Similar species
Syzygium malaccense, but this has fewer tertiaries that are irregular and thinner petioles.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Syzygium goniopterum (Diels) Merr. & L.M.Perry

SYZYGP

Myrtaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: [Eastern Highlands], Gulf, Madang, Morobe, [New Britain], New Ireland & Southern Highlands
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1428*, corresponding to *Hoogland 5186*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Syzygium hylophilum (K.Schum. & Lauterb.) Merr. & L.M.Perry SYZYHL

Myrtaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & [West Papua]
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Jiwaka, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1453*, corresponding to *Pullen 985* and *Mann & Vandenberg NGF 43448*.

Similar species
Syzygium malaccense, but this has different tertiary venation.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Syzygium cf. *iteophyllum* Diels

SYZYIT
Myrtaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: East Sepik, Madang & Morobe
Elevational Range: 0–1200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1406* and *1432*, corresponding to *Hartley 11438*.

Similar species
Easily confused for *Syzygium sp. 02*, which can be differentiated by its wider, thinner leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The identity of this should be verified. This species is poorly collected in New Guinea, with apparently no known prior records from Madang Province.

Syzygium longipes (Diels) Merr. & L.M.Perry SYZYLO
Ulgidi suku **Myrtaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, [Eastern Highlands], Enga, Hela, Jiwaka, Manus Is. & Western Highlands
Elevational Range: 0–1400 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1417*, corresponding to *Kiapranis et al. LAE 87072* and *Takeuchi et al. 13875*.

Similar species
Syzygium aeoranthum, but the leaves and pseudostipules are larger, the leaves papery and wilting quickly.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Syzygium malaccense (L.) Merr. & L.M.Perry SYZYMA

Myrtaceae

Global Distribution
Indochina to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.], [Jiwaka], Manus Is. & Western Highlands
Elevational Range: 0–2800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1413*, corresponding to *Havel & Kairo NGF 17003*, *White NGF 10489*, and *Hoogland 5062*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Fruits edible.

Notes

Syzygium pteropodum (K.Schum. & Lauterb.) Merr. & L.M.Perry SYZYPT
Ulgidi asid **Myrtaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, Madang, Morobe, New Britain, Sandaun
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1423*, corresponding to *Takeuchi et al. 13855* and *Womersley & Kazakoff NGF 7913*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Syzygium sp. 01 SYZY01

Myrtaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: Madang
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1431*, corresponding to *Takeuchi et al. 13437* (det. *Syzygium sp.*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is an unknown species which appears to match a single undetermined specimen from Josephstaal.

Syzygium sp. 02 SYZY02

Myrtaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1419* and *1433*. Needs further investigation.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The identity of this group is not yet certain.

Astronia hollrungii Cogn. ASTRHO

Melastomataceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Gulf, Madang, Manus Is., Milne Bay, Morobe, Oro, Western & Western Highlands
Elevational Range: 0–1500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1394*, corresponding to *Mann & Vandenberg NGF 43400* and *Koster 10915*.

Similar species
Medinilla quadrifolia, but this is a small shrub or epiphyte with wider leaves that are often 4-ranked.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly treated as two separate species in prior censuses, *Astronidium acutifolium* and *Astronidium montanum*, both of which are not known from the middle Ramu and other adjacent areas.

Medinilla quadrifolia Blume MEDIQU
Waŋiŋ **Melastomataceae**

Global Distribution
Malesia to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Jiwaka
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 377* and *577*, corresponding to *Foreman et al. NGF 45949*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Memecylon excelsum Blume MEMEEX

Melastomataceae

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: [Papua]
PNG: [East Sepik], Madang & Sandaun
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1426*, corresponding to *Blume s.n.* (typus: *Memecylon excelsum*), *Kerenga LAE 56437*, *Merello et al. 3504*, *Laman et al. 1038*, and *Elmer 21646*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not recorded in prior censuses, likely rare inside the plot. Apparently a very rare species in New Guinea, being currently known from only a handful of collections from the Vanimo area in Sandaun. This represents a new record for this species in Madang Province, although it is likely found sporadically along the northern coast, possibly also occurring in East Sepik and into the Jayapura area.

Memecylon cf. *lilacinum* Zoll. & Moritzi MEMELI
Sir kaŋyaŋ niŋi **Melastomataceae**

Global Distribution
Indochina to New Guinea

New Guinea Distribution
ING: [Papua]
PNG: Central, Chimbu, [Eastern Highlands], East Sepik, [Gulf], Hela, Madang, Morobe, New Britain, Oro, Sandaun, Southern Highlands & Western
Elevational Range: 0–1700? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1415* and *1425*, corresponding to *Ledermann 9420A* (typus: *Memecylon hepaticum* var. *lauterbachianum*), *Lovave 105*, *Munzinger et al. 6913*, *Takeuchi 6297*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This taxon likely falls within the *Memecylon hepaticum–lilacinum* group, but the Wanang material differs in having slightly longer leaves and a higher number of secondaries that are more clearly visible. This species looks to be easily confused with *Memecylon schraderbergense*, another widespread species which seems to differ in rounder leaves; further investigation between the two would be helpful.

Memecylon cf. *papuanum* Merr. & L.M.Perry MEMEPA
Sir kaŋyaŋ makɨ **Melastomataceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Gulf, Madang & Western
Elevational Range: 0–500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 221*, corresponding to *Brass 977* (typus: *Memecylon papuanum*) and *Takeuchi et al. 13052*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This species is known from a few specimens that are scattered over a wide area.

Memecylon sp. 01 MEME01

Melastomataceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: Madang, [Milne Bay], [Oro]
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1405*, *1408*, and *1424*. The closest matching specimens appear to be *Henty NGF 27053* (det. *Memecylon sp.*) and to a much lesser extent *Gillison NGF 22345* (det. *Memecylon sp.*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This may be an unknown species, with its characteristic truncate bases. The only specimen with appears to match the Wanang material is *Henty NGF 27053* collected from Rossel Island which also shares truncate bases. Another specimen, *Gillison NGF 22345* from Wanigela in Oro Province has similarly shaped leaves with obtuse bases, yet the secondaries appear to be distinctly impressed. The genus *Memecylon* in New Guinea would greatly benefit from revisionary treatment.

Canarium acutifolium (DC.) Merr. CANAAC
Aŋ simul **Burseraceae**

Global Distribution
Sulawesi to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Eastern Highlands, Enga, Jiwaka, [Manus Is.], Western Highlands
Elevational Range: 0–700(–1000) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1315* and *1396*, corresponding to *Pullen 1014*, *Hoogland 5024*, *Darbyshire 886*, and *White NGF 10254*.

Similar species
Canarium asperum, but the leaves are covered in rough hairs.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed year round.

Magi Uses
None recorded.

Notes

Canarium asperum Benth. CANAAS

Burseraceae

Global Distribution
Malesia to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Chimbu, East Sepik, Gulf, Madang, Morobe, Oro, New Britain & Sandaun
Elevational Range: 0–1000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1316*, corresponding to *Takeuchi & Kulang 11537*, *Streimann & Stevens LAE 53848*, *Isles et al. NGF 32290*, and *Ledermann 7345* (paratypus: *Canarium papuanum*).

Similar species
Canarium acutifolium, but the leaves are subglabrous or covered in non-asperous hairs.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Infraspecific designation is not specified for this species.

Canarium indicum L. CANAIN
Bapiŋ **Burseraceae**

Global Distribution
Moluccas to Vanuatu

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Chimbu, East Sepik, Gulf, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–600? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1300* and *1301*, corresponding to *Hoogland 5036*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magi Uses
Fruit edible.

Notes
This is a major commercial timber tree.

Canarium macadamii Leenh. CANAMA

Burseraceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang & Morobe
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1308*, corresponding to *Sayers NGF 21682* and *White NGF 10169*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Canarium vitiense A.Gray CANAVI

Burseraceae

Global Distribution
New Guinea & N Australia (Queensland) to Samoa

New Guinea Distribution
ING: Papua
PNG: Bougainville, Central, Chimbu, Eastern Highlands, East Sepik, Madang, Milne Bay, Morobe, Oro, Sandaun, Southern Highlands & Western
Elevational Range: 0–600(–1800?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1309* and *1310*, corresponding to *Henty NGF 49224*, *Sayers NGF 19654*, *Brass 27538*, and *Munzinger et al. 7047*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The species *Canarium schlechteri*, formerly recognized as a separate taxon in prior census data, is synonymized under this name.

Garuga floribunda Decne. GARUFL
Aisapul **Burseraceae**

Global Distribution
India & Indochina to Samoa

New Guinea Distribution
ING: Aru Is., Papua & [West Papua]
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–1200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1305*, corresponding to *Conn & Katik LAE 66004* and *Hoogland 5215*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Haplolobus floribundus (K.Schum.) H.J.Lam HAPLFL
Malite asid **Burseraceae**

Global Distribution
Sulawesi to Fiji

New Guinea Distribution
ING: Papua & West Papua
PNG: [Bougainville], Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun & Western
Elevational Range: 0–1200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1311*, corresponding to *Kanis 1108* and *Streimann NGF 34080*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Haplolobus lanceolatus H.J.Lam HAPLLA
Muruŋ **Burseraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Gulf, Madang & [Morobe]
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1307*, corresponding to *Iwanggin BW 9009*, *Iwanggin BW 9081*, and *Iwanggin BW 10017*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Haplolobus pachypodus (Lauterb.) H.J.Lam HAPLPA
Simul sanume **Burseraceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang & Sandaun
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1313* and *1314*, corresponding to *Schram BW 9412*, *Kokkelink BW 15618*, *Womersley NGF 3754* (hairy form), *Koster BW 6967* (hairy form), *Kalkman BW 6241* (hairy form), and *Ledermann 9724* (typus: *Canarium pachypodum*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Protium macgregorii*, which is indeed very similar and easily confused but this has prominently brochidodromous secondaries which loop clearly before the margin. Apparently has two forms, an abaxially pubescent form and a glabrous form – both are treated under this species.

Buchanania arborescens (Blume) Blume BUCHAR
Yapan sisi galaŋ **Anacardiaceae**

Global Distribution
Indochina to N Australia & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Jiwaka & Western Highlands
Elevational Range: 0–700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 998* and *1033*, corresponding to *Spanoghe s.n.* (typus: *Buchanania longifolia*), *Brass 25505*, and *Daly et al. 13379*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in canoe and house construction. Bark cooked and chewed by breast feeding mothers. Liquid consumed to treat sorcery and other illnesses.

Notes
This is a variable species throughout its range.

Buchanania cf. *macrocarpa* Lauterb. BUCHMA

Yapan sisi burra **Anacardiaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, [Eastern Highlands], Enga, Jiwaka & Western Highlands
Elevational Range: 0–950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 405* and *811*, corresponding to *Gjellerup 181* (typus: *Buchanania mollis*), *Schodde 2539*, and *Schodde 2925*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Buchanania mollis*, which is synonymized under this name. However, specimens of *B. macrocarpa* lack dense hairs on the abaxial lamina, have smaller/shorter leaves, and have longer petioles (note: *Schodde 2539* has long petioles and hairy undersides); further investigation may help better assess these differences. The species *B. amboinensis* is also similar but differing in lamina and petiole length.

Dracontomelon dao (Blanco) Merr. & Rolfe DRACDA
Kawab **Anacardiaceae**

Global Distribution
S China (Guangdong) to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Hela, Jiwaka & Western Highlands
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1020*, corresponding to *Saunders 944*.

Similar species
Dracontomelon lenticulatum, but this has hairy leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in the construction of houses and fences. Fruits edible.

Notes

Dracontomelon lenticulatum Wilkinson DRACLE
Sani kawab **Anacardiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang, Morobe & Sandaun
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1018* and *1019*, corresponding to *Pullen 1178*.

Similar species
Dracontomelon dao, but this has glabrous leaves.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Euroschinus papuanus Merr. & L.M.Perry EUROPA
Malté **Anacardiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, Oro, New Britain, New Ireland & Sandaun
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 600*, corresponding to *Saunders 942*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes

Mangifera minor Blume MANGMI
Gisa **Anacardiaceae**

Global Distribution
Sulawesi & Lesser Sunda Islands to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, Manus Is., New Ireland & Western Highlands
Elevational Range: 0–1850? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 365*, corresponding to *Saunders 471*.

Similar species
Buchanania arborescens, but the lamina gradually tapers into the short petiole and the secondaries are often forking before the margin.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark applied to sores. Fruits edible.

Notes

Semecarpus australiensis Engl. SEMEAU

Anacardiaceae

Global Distribution
New Guinea, N Australia (Queensland), Vanuatu & New Caledonia

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro, Sandaun & Western
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1025*, corresponding to *Coode NGF 32829*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Sep. Fruiting not observed.

Magi Uses
None recorded.

Notes

Semecarpus forstenii Blume SEMEFO
Amandum tikibla **Anacardiaceae**

Global Distribution
Borneo & Philippines to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Jiwaka, Manus Is., [New Ireland], Southern Highlands & Western Highlands
Elevational Range: 0–1200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1031*, *1032*, and *1078*, corresponding to *s.coll. s.n.* (typus flor: *Semecarpus roxburghii*), *Korthals s.n.* (typus fruct: *Semecarpus roxburghii*), and *Mair NGF 1882*.

Similar species
May be confused with other *Semecarpus sp.*, but all others lack hairs on the abaxial lamina.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Sep. Fruiting not observed.

Magi Uses
None recorded.

Notes

Semecarpus magnificus K.Schum. SEMEMA
Kingi m'lim **Anacardiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, [Eastern Highlands], [Enga], Manus Is., New Britain, New Ireland & Southern Highlands
Elevational Range: 0–1300(–1800?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1023*, *1024*, and *1146*, corresponding to *Pullen 947* and *Takeuchi et al. 14217*.

Similar species
Barringtonia calyptrocalyx, but this has brochidodromous venation and weakly serrate margins.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Oct–Nov.

Magi Uses
None recorded.

Notes

Semecarpus schlechteri Lauterb. SEMESC
Amandum **Anacardiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, [Gulf], Madang, Milne Bay, Morobe, Oro,
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1029* and *1030*, corresponding to *Hartley 12216* and *Brass 29402*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction. Resin used to paint bows and arrows. Leaves used for wrapping sago. Fruits edible.

Notes

Semecarpus sp. 01 SEME01

Anacardiaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1021* and *1022*. No matching specimens found, although does appear to approach *Brass 32652* (det. *Semecarpus sp*.), but this has branched inflorescences which was not seen in the Wanang material.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Spondias dulcis Forst. SPONDU
Pukial **Anacardiaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Eastern Highlands, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Southern Highlands & Western
Elevational Range: 0–600? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 722* and *723*, corresponding to *Hartley 10851*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February & June.

Magi Uses
Leaves boiled and used to wash boils. Young shoots consumed for colds or sore throat.

Notes
Although the native range of this species is Papuasia, it is cultivated throughout the tropics for its fruit.

Alectryon ferrugineus (Blume) Radlk. ALECFE
Guli guli maki **Sapindaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Jiwaka, Manus Is., New Britain, New Ireland & Southern Highlands
Elevational Range: 0–2100 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1136*, corresponding to *Pullen 1802*, *Millar NGF 22852*, and *Takeuchi et al. 14728*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not properly recorded in prior censuses with individuals misidentified as various species of *Cupaniopsis*; care should be taken in future censuses to avoid misidentifying this taxon.

Allophylus cobbe (L.) Forsyth f. ALLOCO
S'ram niŋi **Sapindaceae**

Global Distribution
Pantropics

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Southern Highlands & Western Highlands
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1138*, corresponding to *Hoogland 4418*.

Similar species
Sandoricum koetjape, but this has entire margins. *Bischofia javanica*, but this has smaller, closely spaced teeth, red sap, and dark brown to black bark.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
A large, widespread, and notoriously difficult species complex; here, the *sensu lato* approach is taken for the pantropical species.

Arytera litoralis Blume ARYTLI
Guli guli asid **Sapindaceae**

Global Distribution
S China (Guangdong) to Solomon Islands

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Bougainville, Central, Eastern Highlands, East Sepik, [Jiwaka], Madang, Milne Bay, Morobe, [New Britain], New Ireland, Oro & Sandaun
Elevational Range: 0–1550 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 343*, corresponding to *Coode et al. NGF 29771* and *Takeuchi et al. 13596*.

Similar species
Mischocarpus sundaicus, but this has (sub)glaucous undersides, tertiaries that are forked percurrent with composite intersecondaries, and dark maroon twigs with lenticels.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This appears to be quite a variable species throughout its range.

Cnesmocarpon discoloroides Adema CNESDI

Sapindaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Milne Bay, Morobe, [Oro] & New Britain
Elevational Range: 100–950? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Benjamin LAE 67902* and *Frodin NGF 26792*.

Similar species
Not easily confused.

Habitat & Ecology
A rare species at Wanang, seemingly restricted to ridges and high points.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
A poorly known and apparently seldom collected species restricted to the northeastern coast of New Guinea. This species may be easily confused for *Cnesmocarpon dasyantha*, but this has generally alternate and shorter leaflets, and fewer secondaries; although, fertile collections would help to avoid any potential confusion. Some specimens of this species have rust-colored hairs on stems and rachises. The fruits are red and covered in irritating hairs, according to specimens.

Cupaniopsis cf. *stenopetala* Radlk. CUPAST
Guli guli suku **Sapindaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Enga, Jiwaka, Madang, Milne Bay, Morobe, New Britain, [Oro], Sandaun, Southern Highlands, Western & Western Highlands
Elevational Range: 0–2200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1137*, corresponding to *Hoogland 4897* and *Katik NGF 46834*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct–Nov. Fruiting observed Nov–Dec.

Magi Uses
Timber used in the construction of small huts.

Notes
Formerly identified as *Cupaniopsis curvidens*, which is a similar species that can be differentiated by the fruits which are more angular than *C. stenopetala* which is more globular. Based off of photos of fruits taken during past studies in the plot (tag nos. 234448 and 234448), the Wanang material appears to have globular reddish-brown hairy fruits, appearing to best match *C. stenopetala*. Several specimens determined as either *C. curvidens* or *C. stenopetala* have densely tomentose undersurface, but this does not appear to be consistent character in either species. Further studies in the genus may be helpful in resolving any issues regarding species limits.

Cupaniopsis macropetala Radlk. CUPAMA

Sapindaceae

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: [Central], Chimbu, [Eastern Highlands], Gulf, Madang, Milne Bay, Morobe, [Oro], Sandaun & Southern Highlands
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1141*, corresponding to *Warburg 20539* (typus: *Cupaniopsis macropetala*), *Weiblen WP4D0889*, *Clemens 121*, and *Regalado & Takeuchi 1395*.

Similar species
Not easily confused. Outside of Wanang, may potentially be confused with a few tomentose specimens of *Cupaniopsis stenopetala*, but the tertiaries are not abaxially prominent, are fewer and more widely spaced, and the marginal teeth are not as sharp and pointed. Looks more similar to tomentose specimens of *C. curvidens*, but the fruits are on panicles (vs. dense and short clusters).

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Some specimens (i.e., *Takeuchi 11146* and *Takeuchi & Ama 16384*) are rather unusual in having entire to weakly serrate margins; this variation in margin condition may be associated with the age of the tree.

Dictyoneura obtusa Blume DICTOB
Kulumbi tikibla **Sapindaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, Enga, Jiwaka, Manus Is. & Western Highlands
Elevational Range: 0–1100(–2400) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1134*, corresponding to *Hoogland 5167*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There is some minor variability in leaf morphology.

Ganophyllum falcatum Blume GANOFA
Aim kiski **Sapindaceae**

Global Distribution
Indochina to N Australia

New Guinea Distribution
ING: Papua & West Papua
PNG: [Bougainville], Central, East Sepik, Gulf, Madang, Manus Is., Milne Bay, Morobe, New Britain, Sandaun & Western
Elevational Range: 0–300(–1250) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1151*, corresponding to *Henty NGF 10510*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in the construction of houses and small huts.

Notes
Appears to be restricted to lowland and lower montane forests adjacent to the coastal regions while avoiding the central highlands. This is a major commercial hardwood for the region.

Guioa comesperma Radlk. GUIOCO
Dugag pli **Sapindaceae**

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Southern Highlands & Western Highlands
Elevational Range: 0–800(–1350) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1152*, *1153*, and *1154*, corresponding to *Takeuchi et al. 14188* and *Millar NGF 14484*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes
Not known from the Indonesian side, but likely present at least in Papua Province.

Guioa sp. 01 GUIO01

Sapindaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 373*. No matching specimens found.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is as of yet not identified with any certainty; further investigation is needed. The genus placement in *Guioa* is somewhat arbitrary and not given with any certainty; other closely related genera should be checked as well.

Harpullia arborea (Blanco) Radlk. HARPAR

Sapindaceae

Global Distribution
India & Indochina to N Australia (Queensland) & Samoa

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Bougainville, Central, [Chimbu], Eastern Highlands, East Sepik, Gulf, Jiwaka, Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun & [Western]
Elevational Range: 0–950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1157*, corresponding to *Hoogland 5205*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Harpullia crustacea Radlk. HARPCR

Sapindaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, East Sepik, Madang, Milne Bay, Morobe, New Britain & Oro
Elevational Range: 0–500 m

[Not yet available]

Specimens
No voucher collected, but Wanang specimens correspond to *Takeuchi et al. 13681* and *Takeuchi & Damas 4432*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Harpullia longipetala Leenh. HARPLO

Sapindaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Gulf, Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–1700? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1147* and *1155*, corresponding to *Millar & Holttum NGF 15792*, *Takeuchi & Ama 15457*, and *Takeuchi & Damas 4422*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Apr–May.

Magi Uses
None recorded.

Notes
This species is rather similar to *Harpullia cupanioides*.

Harpullia ramiflora Radlk. HARPRA

Sapindaceae

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Jiwaka, Manus Is., New Ireland, Western Highlands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1148* and *1149*, corresponding to *Takeuchi et al. 13759*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magi Uses
None recorded.

Notes

Jagera javanica (Blume) Blume ex Kalkman JAGEJA
Yarum kualu tikibla **Sapindaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Sandaun, Southern Highlands & Western
Elevational Range: 0–750(–900?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 282* and *803*, corresponding to *Hoogland & Craven 10071* and *Pullen 1170*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes
The size of the leaflets varies across its range.

Lepidopetalum cf. *micans* K.Schum. & Lauterb. LEPIMI

Sapindaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, East Sepik, Madang, Morobe & Sandaun
Elevational Range: 0–500 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Foreman et al. NGF 45938* and *Coode & Katik NGF 32833*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be similar to *Lepidopetalum xylocarpum*, further work is needed to ascertain the difference between the two. The species *L. fructoglabrum* usually has more densely golden-brown hairy young shoots.

Lepidopetalum sp. 01 LEPI01

Sapindaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1150*. No matching specimens found.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Mischocarpus largifolius Radlk. MISCLA

Sapindaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Eastern Highlands, East Sepik, Gulf, Hela, Madang, Morobe, Southern Highlands
Elevational Range: 0–1400(–2650?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1140*, corresponding to *Brass 29386* and *Takeuchi & Ama 15458*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in construction.

Notes
The highest collection of this species seen (*Hartley 13302*) is from around Goroka at 2620 m in Eastern Highlands, but the leaves look smaller than usual and the fruits somewhat different.

Mischocarpus sundaicus Blume MISCSU

Sapindaceae

Global Distribution
S China (Guangdong) to N Australia (Queensland)

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Eastern Highlands, East Sepik, [Gulf], Madang, Milne Bay, Morobe, New Britain, Sandaun, Western
Elevational Range: 0–1300(–1700?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1139*, corresponding to *Pullen 1876*, *Millar NGF 35330*, and *Brass 28207*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Pometia pinnata J.R.Forst. & G.Forst. POMEPI

Guli **Sapindaceae**

Global Distribution
Sri Lanka, S China (Guangdong) & Taiwan to Marquesas Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga]
Elevational Range: 0–700(–1300) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1135*, corresponding to *Saunders 559* and *Saunders 240*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Liquid used on sores. Fruits edible.

Notes
Widely cultivated across the island and the greater Asia-Pacific for its fruits.

Tristiropsis acutangula Randlk. TRISAC
Kubu keŋ geŋ **Sapindaceae**

Global Distribution
Malesia to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING: Papua & West Papua
PNG: [Bougainville], Central, East Sepik, Gulf, Madang, Manus Is., Milne Bay, Morobe, [New Britain], [New Ireland], Oro, Sandaun, Western
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 696*, corresponding to *Henty NGF 11525* and *Streimann LAE 52778*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed, likely year round. Fruiting observed year round.

Magi Uses
None recorded.

Notes

Citrus hystrix DC. CITRHY
Simbli dum **Rutaceae**

Global Distribution
S China (Guangdong) to Tahiti

New Guinea Distribution
PNG: Central, Gulf, Madang, Morobe, New Britain, New Ireland & [Oro]
Elevational Range: 0–800(–1000) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Coode et al. NGF 46105* and *Frodin NGF 26731*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
A rather sparsely collected species in New Guinea perhaps due to natural scarcity, although it is likely to be more widespread and also likely to be found on the Indonesian side.

Melicope elleryana (F.Muell.) T.G.Hartley MELIEL
Malau **Rutaceae**

Global Distribution
Moluccas to Solomon Islands & Australia

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–2500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1358*, corresponding to *Takeuchi & Damas 4398* and *Takeuchi et al. 17820*.

Similar species
May be confused with 3-foliolate specimens of *Vitex quinata*, but this is more often 5-foliolate, has a harsh vegetative odor, twigs that mature white, petioles that are longer, and petiolules with differential length.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Micromelum minutum (G.Forst.) Wight & Arn. MICRMI
Kupluŋ maksaŋ / Símbrité **Rutaceae**

Global Distribution
S China to Samoa & Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], Hela & Southern Highlands
Elevational Range: 0–1350 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 859*, *983*, and *1351*, corresponding to *Katik NGF 46515* (large leaf form), *Sands et al. 2960* (small leaf form), *Benjamin LAE 67807* (medium leaf form?).

Similar species
Dysoxylum sp., but these all lack pellucid dots and the leaflets are not as strongly asymmetric at the base.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Aug–Sep.

Magɨ Uses
None recorded.

Notes
There are at least two forms present at Wanang: a small-leaved glabrous form with strongly fragrant leaves and a large-leaved pubescent form with little to no fragrance. The morphological differences are quite stark and may be used as justification to recognize them as separate. The locals consider the two forms distinct entities, with separate unrelated names. The small-leaved form is known as **Símbrité** whereas the large-leaved form is **Kupluŋ maksaŋ**. Interestingly, the name "simbri" is associated with the Rutaceae family, whereas the name "maksang" is almost entirely restricted to the Meliaceae family (esp. *Aphanamixis*, *Chisocheton*, and *Dysoxylum*) – this is perhaps due to the striking appearance of the larger-leaved hairy form with that of some *Dysoxylum* than to Rutaceae. In addition, there appears to be an intermediary third form with medium sized leaves that is weakly hairy to early glabrescent. Due to this, only a single highly variable species is accepted for the entire island. The name *Micromelum pubescens*, largely considered as a synonym, may be associated with the larger-leaved hairy form, which is more common at Wanang Three. A detailed molecular study on this species complex is necessary to validate species concepts; for now, the two forms are united under a single name. Several individuals of this species were found misidentified as various Meliaceae (esp. *Dysoxylum*).

Wenzelia dolichophylla (K.Schum. & Lauterb.) Tanaka

WENZDO

Rutaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Milne Bay, Morobe & [Oro]
Elevational Range: 100–300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 259* and *1381*, corresponding to *Katik NGF 46841* and *Womersley NGF 19273*.

Similar species
[Not yet available]

Habitat & Ecology
Appears to exhibit a weakly clumping nature.

Phenology
Flowering not observed. Fruiting observed Nov.

Magi Uses
None recorded.

Notes
This is a rare species at Wanang and is poorly known from elsewhere. The unripe fruits smell strongly of citrus (lime).

Zanthoxylum pluviatile T.G.Hartley ZANTPL
Kaniaŋté **Rutaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Eastern Highlands, Madang, Milne Bay, Morobe, New Britain, Oro
Elevational Range: 0–1700(–2000?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 598*, corresponding to *Hartley 11349* (typus: *Zanthoxylum pluviatile*).

Similar species
Not easily confused. The only species with compound leaves and crenate margins with conspicuous glands.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ailanthus integrifolia Lam. AILAIN
Aplaŋ **Simaroubaceae**

Global Distribution
Indochina to N Australia (Queensland)

New Guinea Distribution
ING: Aru Is. & Papua
PNG: East Sepik, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–1500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 695* and *1324*, corresponding to *Sohmer & Katik LAE 75170* and *Mabesa s.n*.

Similar species
Micromelum minutum or some *Dysoxylum sp*., but these all lack two large basilaminar glands.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Several individuals were found misidentified as Meliaceae.

Picrasma javanica Blume PICRJA
Siŋum té **Simaroubaceae**

Global Distribution
S China to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Madang, Morobe, New Britain, New Ireland, Oro, Sandaun & Southern Highlands
Elevational Range: 0–600(–1000) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 856*, corresponding to *Saunders 442* and *Wiakabu & Kauning LAE 70334*.

Similar species
Millettia pinnata, but this lacks thickened nodes along the rachis and does not have rounded, leafy pseudostipules.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Aglaia agglomerata Merr. & L.M.Perry

AGLAAG
Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, [East Sepik], Gulf, Hela, Madang, Morobe, Oro, Sandaun & Southern Highlands
Elevational Range: 0–700(–1400) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 928*, *938*, and *942*, corresponding to *Takeuchi & Ama 16362* and *Takeuchi et al. 13685*.

Similar species
Most easily confused with *Aglaia lepidopetala*, but this has much denser abaxial scales, brochidodromous venation, and generally opposite leaflets. *Aglaia flavescens*, but this has laminas that are thinner, new leaves emerging elongated and whip-like, tertiaries that are straight percurrent and slightly raised on the abaxial surface, rachis with sparse stellate hairs, and lacks intersecondaries. *Aglaia parviflora*, but this lacks abaxial scales and the rachis is not tinged orange-coppery. *Aglaia subcuprea*, but this has white bark, generally longer leaves and larger leaflets, and the costa is flat to sunken.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia argentea Blume

AGLAAR
Meliaceae

Global Distribution
Indochina to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Eastern Highlands, Jiwaka, New Britain, New Ireland, Southern Highlands
Elevational Range: 0–1200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 907* and *916*, corresponding to *Saunders 558* and *Coode & Katik NGF 32796*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia cf. *flavescens* C.DC. AGLAFL

Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Madang, Morobe, [Oro], Sandaun & Western
Elevational Range: 0–300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 909*, *910*, and *911*, corresponding to *Versteeg 1417* (typus: *Aglaia flavescens*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The ID of this species is not certain, although the Wanang material seems to approach the type of this species. Several specimens determined as this appear to differ from the type.

Aglaia lepidopetala Harms AGLALP

Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Chimbu, East Sepik, Madang, Milne Bay, Morobe, Oro, Sandaun & Southern Highlands
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 939*, *940*, and *941*, corresponding to *Takeuchi et al. 14100* and *Lam 809* (typus: *Aglaia lepidopetala*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia lepiorrhachis Harms AGLALE

Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: East Sepik, Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–200(–500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 914*, *915*, and *917*, corresponding to *Hartley 11422*, *Hartley 11847*, *Hartley 12344*, and *Kiapranis LAE 69071*.

Similar species
Aglaia flavescens, but this has laminas that are thinner, new leaves emerging elongated and whip-like, tertiaries that are straight percurrent and slightly raised on the abaxial surface, rachis with sparse stellate hairs, and lacks intersecondaries.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia parviflora C.DC. AGLAPV

Meliaceae

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Bougainville, Central, Chimbu, Gulf, Madang, Manus Is., Morobe, New Britain, Oro & Southern Highlands
Elevational Range: 0–1400 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 927*, *929*, and *930*, corresponding to *Schodde & Craven 4722*, *Hoogland & Craven 10490*, and *Buderus NGF 23935*.

Similar species
Aglaia flavescens, but this has an indument, abaxially raised tertiaries and the adaxial surface is ±bullate. *Aglaia lepiorrhachis*, but this has laminas that are thicker, abaxial tertiaries that are faint and flat, rachis with densely short velvety hairs, and has intersecondaries. *Aglaia subcuprea*, but this has larger leaves and numerous white scales on the abaxial lamina.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Individuals from prior censuses appear to have been treated variously under both *Aglaia* & *Dysoxylum*. Some specimens have hairs on young twigs, although Wanang material is always glabrous. An earlier recorded name for this taxon is *Parasponia parviflora*.

Aglaia rimosa Merr. AGLARI

Meliaceae

Global Distribution
Taiwan to New Guinea

New Guinea Distribution
ING: Aru Is. & Papua
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–1850 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 905* and *932*, corresponding to *Henty NGF 27421*, *Brass 29220*, and *Barker et al. LAE 66769*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia sapindina (F.Muell.) Harms AGLASA
Kumba tikibla **Meliaceae**

Global Distribution
Moluccas to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 904* and *1276*, corresponding to *Foreman et al. NGF 48003*, *Streimann LAE 52958*, and *Brass 32592*.

Similar species
Not easily confused. The imparipinnate leaves always with 5 leaflets accompanied with a high glossy sheen and impressed secondaries is highly distinctive.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia subcuprea Merr. & L.M.Perry

AGLASU
Meliaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, Eastern Highlands, Hela, Madang, Morobe, New Ireland, Sandaun, Western
Elevational Range: 0–1200(–2300) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 926*, corresponding to *Clemens 5407* (paralectotypus: *Aglaia subcuprea*) and *Millar NGF 14560*.

Similar species
Aglaia agglomerata, but this has an orangish coppery rachis, brown bark, and eucamptodromous venation.
Dysoxylum kaniense, but this lacks scales on the abaxial lamina, has a ridged rachis, and the petiolules are green and thickened.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aglaia tomentosa Teijsm. & Binn. AGLATO
Kumba tikibla maki **Meliaceae**

Global Distribution
India to N Australia (Queensland)

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Madang, Morobe, Oro, Sandaun, Southern Highlands, Western & Western Highlands
Elevational Range: 0–1850 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 918* and *919*, corresponding to *Hartley 10566*, *Molino et al. 3100*, and *Benjamin LAE 67937*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Aphanamixis polystachya (Wall.) R.Parker

APHAPO
Meliaceae

Global Distribution
India to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1650 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 184* and *380*, corresponding to *Takeuchi et al. 13736*.

Similar species
Dysoxylum sp. 01 (when the rachis is ±ridged), but this species has a winged rachis with wings that always flare out towards the apex before the terminal leaflet and leaves that dry a distinct ghostly white color (the real *A. polystachya* dries brown). *Dysoxylum sp. 04*, but this has a flat costa and massive leaves when mature. *Dysoxylum sp. 06*, but this has generally smaller leaves, often thickened petiolules, and dark green adaxial lamina. *Dysoxylum sp. 03, 09 & 10*, but these all have a dense indument. *Dysoxylum sp. 08*, but this has a garlic-, onion-, or incense-like odor and generally smaller, narrower leaves that taper off more quickly towards the apex.

Habitat & Ecology
This species is dioecious with females bearing long pendulous racemes and males bearing large openly branched panicles; vegetatively, the morphologies of either sex are nearly indistinguishable.

Phenology
Flowering observed Jun & Oct–Nov, likely year round. Fruiting observed May & Sep, likely year round.

Magi Uses
None recorded.

Notes
A common and widespread species.

Aphanamixis polystachya (Wall.) R.Parker

APHAPO
Meliaceae

Global Distribution
India to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1650 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 184* and *380*, corresponding to *Takeuchi et al. 13736*.

Similar species
Dysoxylum sp. 01 (when the rachis is ±ridged), but this species has a winged rachis with wings that always flare out towards the apex before the terminal leaflet and leaves that dry a distinct ghostly white color (the real *A. polystachya* dries brown). *Dysoxylum sp. 04*, but this has a flat costa and massive leaves when mature. *Dysoxylum sp. 06*, but this has generally smaller leaves, often thickened petiolules, and dark green adaxial lamina. *Dysoxylum sp. 03, 09 & 10*, but these all have a dense indument. *Dysoxylum sp. 08*, but this has a garlic-, onion-, or incense-like odor and generally smaller, narrower leaves that taper off more quickly towards the apex.

Habitat & Ecology
This species is dioecious with females bearing long pendulous racemes and males bearing large openly branched panicles.

Phenology
Flowering observed Jun & Oct–Nov, likely year round. Fruiting observed May & Sep, likely year round.

Magi Uses
None recorded.

Notes

Chisocheton ceramicus Miq. CHISCE

Meliaceae

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., Western & Western Highlands
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 890* and *893*, corresponding to *Saunders 545*, *Sayers NGF 13259*, and *Takeuchi & Wiakabu 10032*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There is low confidence in the identity of any *Chisocheton* species. The limits of this species is questionable and should be considered undetermined until further molecular study.

Chisocheton cumingianus Harms

CHISCU
Meliaceae

Global Distribution
Indochina to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, Western & Western Highlands
Elevational Range: 0–900(–1300) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 877* and *892*, corresponding to *Foreman & Katik LAE 59119* and *Stevens & Katik LAE 58007*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There is low confidence in the identity of any *Chisocheton* species. The limits of this species is questionable and should be considered undetermined until further molecular study.

Chisocheton lasiocarpus (Miq.) Valeton

CHISLA
Meliaceae

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1750 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 880* and *891*, corresponding to *Schodde 2528, Branderhorst 351, Versteeg 1423, Brass 5367* (typus: *Chisocheton myrmecophilus*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Sometimes alternatively spelled as *Chisocheton lasiocarpum*. This is a highly variable species which is currently not monophyletic. There is low confidence in the identity of any *Chisocheton* species. The limits of this species is questionable and should be considered undetermined until further molecular study.

Chisocheton longistipitatus (F.M.Bailey) L.S.Sm. CHISLO

Meliaceae

Global Distribution
New Guinea & N Australia (Queensland)

New Guinea Distribution
PNG: Central, [East Sepik], Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun & Southern Highlands
Elevational Range: 0–1100 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Schodde 2404*, *Womersley NGF 19176*, *Cowley 8D* (typus: *Castanospora longistipitata*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There is low confidence in the identity of any *Chisocheton* species. The limits of this species is questionable and should be considered undetermined until further molecular study.

Dysoxylum acutangulum subsp. *foveolatum* (Radlk.) Mabb. DYSOAC

Meliaceae

Global Distribution
Sumatra to Solomon Islands & N Australia

New Guinea Distribution
ING: Aru Is. & Papua
PNG: East Sepik, Madang, Milne Bay, Morobe, Oro, Sandaun & Western
Elevational Range: 0–950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1281*, corresponding to *Katik NGF 46539* and *Takeuchi et al. 10235*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Dysoxylum kaniense Harms

DYSOKA
Meliaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
PNG: Chimbu, East Sepik, Gulf, Madang, Morobe, Western
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 202* and *253*, corresponding to *Takeuchi et al. 21929*, *Takeuchi & Ama 21885*, and *Schlechter 17641* (typus: *Dysoxylum kaniense*).

Similar species
[Not yet available]

Habitat & Ecology
The shiny leaf form appears to have a very close association with an unknown species of insect, perhaps a wasp, which builds thin erect structures (eggs or galls) with a bulbous tip which sit atop the leaves. This occurrence appears to be specific to this species only, which may be used as an aid to identification.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Aglaia sp. 02* but appears to best match *Dysoxylum*. This is a rarely collected species and is poorly known; likely also into Indonesian Papua. There appears to be two forms of this taxon at Wanang with consistent differences, albeit minor. However, as a temporary precaution, they are treated under different species codes until sufficient evidence dictates otherwise.

Dysoxylum latifolium Benth. DYSOLA

Meliaceae

Global Distribution
New Guinea & N Australia

New Guinea Distribution
ING: Papua
PNG: Central, Eastern Highlands, East Sepik, [Gulf], Madang, Morobe & [Sandaun]
Elevational Range: 0–1300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1299*, corresponding to *Womersley NGF 37468*, *MacGillivray 300*, and *Brass 7992* (typus: *Dysoxylum confertiflorum*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Dysoxylum sp. 01 DYSO01

Meliaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 942* and *945*. No matching specimens found.

Similar species
Dysoxylum kaniense, but the adaxial leaf surface is dull and is never galled.

Habitat & Ecology
Appears to display a tight association with a galling insect which frequently builds thin erect galls on the upper surface of the leaflets.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Didymocheton mollis (Miq.) Holzmeyer & Hauenschild DIDYMO

Meliaceae

Global Distribution
Sulawesi to Tonga & E Australia

New Guinea Distribution
ING: Papua
PNG: Central, Chimbu, Eastern Highlands, East Sepik, Hela, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–1900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1289* and *1290*, corresponding to *Vriese & Teijsmann s.n.* (typus: *Dysoxylum mollissimum*), *Wilkes Expedition s.n*, (typus: *Didymocheton richii*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
There may be some confusion between sterile specimens of this species and the tomentose versions of *Epicharis parasitica*, although the latter does not appear to occur at Wanang.

Didymocheton papuanus (Merr. & L.M.Perry) Mabb. DIDYPA

Meliaceae

Global Distribution
New Guinea, Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING: [Papua]
PNG: Central, Chimbu, Gulf, Hela, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, [Sandaun], Southern Highlands & Western
Elevational Range: 0–500(–1500) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1292*, corresponding to *Womersley NGF 48677* and *Kerenga & Lelean LAE 72897*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Didymocheton pettigrewianus (F.M.Bailey) Hauenschild & Holzmeyer DIDYPE
Meliaceae

Global Distribution
Moluccas to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Enga, Jiwaka & Manus Is.
Elevational Range: 0–1400 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1282* and *1283*, corresponding to *Saunders 5*, *Schodde & Craven 4445*, and *Hoogland & Craven 10216*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Didymocheton setosus (Span.) Mabb. & Holzmeyer DIDYSE

Meliaceae

Global Distribution
Lesser Sunda Islands to New Guinea & N Australia (Queensland)

New Guinea Distribution
ING: [Papua]
PNG: Central, Chimbu, Eastern Highlands, Gulf, Madang, Morobe, Oro, Sandaun, Western & Western Highlands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1278*, corresponding to *Spanoghe s.n.* (typus: *Epicharis setosa*), *Forbes 731* (typus: *Dysoxylum magnifolium*), and *Carr 15738*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Epicharis alata (Harms) Harms EPICAL

Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Madang
Elevational Range: 0–150 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1285* and *1286*, corresponding to *Hoogland 5033* and *Coode & Katik NGF 32808*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The rachis wings may be diminutive and appear as strong ridgelines.

Epicharis parasitica (Osbeck) Mabb. EPICPA

Meliaceae

Global Distribution
Taiwan & Peninsular Malaysia to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Jiwaka & Western Highlands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1438* and *1455*, corresponding to *Hoogland 3607*, *Hoogland 3974*, and *Ridsdale NGF 33952*. A potentially distinct second form is represented by the voucher *Ezedin 1284*, corresponding to *Clemens 11148* and *Streimann LAE 53819*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is a widespread species complex, with potentially multiple distinct taxonomic entities. Some specimens appear to be densely hairy while other glabrous. At Wanang, there appear to be some minor variation. A semi-distinct form found among the Wanang material dries characteristically with a warty leaf undersurface and has fluted secondary vein bases, this is here separated out as a distinct species, *Epicharis sp. 01*.

Epicharis sp. 01 EPIC01

Meliaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
PNG: Madang, Morobe, Sandaun
Elevational Range: 0–1100? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1284*, corresponding to *Clemens 11148* and *Streimann LAE 53819* (det. *Epicharis alata*).

Similar species
Epicharis parasitica, but the secondary vein bases are not fluted, and leaves do not become warty upon drying.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be very similar to *Epicharis parasitica*, and matching specimens of this are determined as such, however the secondary vein bases are distinctly fluted (thickened) and the abaxial lamina appears minutely warty or papillose upon drying. Due to these distinctions, this variant is kept separate from *E. parasitica*. It appears to be much rarer in occurrence.

Goniocheton arborescens Blume

GONIAR
Meliaceae

Global Distribution
Taiwan & Peninsular Malaysia to Vanuatu & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu & Southern Highlands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1287* and *1441*, corresponding to *Ridsdale NGF 33901* and *Katik NGF 46664*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Goniocheton brassii (Merr. & L.M.Perry) Hauenschild & Holzmeyer GONIBR
Meliaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Chimbu, [East Sepik], Gulf, Madang, Milne Bay, Morobe, Sandaun
Elevational Range: 0–700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1279*, corresponding to *Katik NGF 46565* and *Takeuchi 7151*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
The degree of hairiness of leaves and young twigs may vary among specimens.

Prasoxylon alliaceum (Blume) M.Roem. PRASAL

Meliaceae

Global Distribution
Peninsular Malaysia to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Enga, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–1000? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1296*, *1297*, and *1298*, corresponding to *Takeuchi & Ama 16659*, *Brass 7903*, *Hartley 11027*, *Hochreutiner 147*, *de Wilde & Duyfjes 20416*, and *Hoogland & Craven 10297*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is not monophyletic. Four subgroups of this morphospecies (A–D) do not evenly match back to specimens of *Prasoxylon alliaceum* and *P. excelsum*, which themselves appear to be jumbled and incoherent. A fifth subgroup (F) was assessed as a mixed bag of minor variation morphotypes, all of which are here treated under the broad name "*P. alliaceum*". A molecular-based revision of the *Prasoxylon alliaceum–exelsum* complex is needed; until then, limits between the two species should be viewed with some skepticism.

Prasoxylon excelsum (Spreng.) Mabb.

PRASEX
Meliaceae

Global Distribution
Sri Lanka & S China (Guangxi) to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, East Sepik, Gulf, Hela, Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Sandaun
Elevational Range: 0–1900? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1293*, *1294*, and *1295*, corresponding to *Takeuchi 11897*, *Carr 12014*, *Pennington 8057*, and *Blume s.n.* (typus: *Dysoxylum excelsum*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is close to *Prasoxylon alliaceum* and possibly not monophyletic. Specimens of this species are jumbled and incoherent – see note under *P. alliaceum*.

Sandoricum koetjape (Burm.f.) Merr. SANDKO
Apisaŋ **Meliaceae**

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Aru Is. & [Papua]
PNG: East Sepik, Gulf, Madang & Morobe
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1328*, corresponding to *Saunders 318*.

Similar species
[Not yet available]

Habitat & Ecology
Exhibits a very slight clumping habit along ridges.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in house construction.

Notes
This species appears to be poorly collected throughout the island, although it does not appear to be significantly rare at Wanang.

Toona sureni (Blume) Merr. TOONSU
Mururuŋ ikam **Meliaceae**

Global Distribution
C China (Hubei) to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: [Central], Eastern Highlands, [East Sepik], Madang, [Milne Bay], Morobe, Oro, Sandaun & Western
Elevational Range: 0–1800? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1326*, corresponding to *Hartley 10918*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is an important commercial hardwood species, known in the trade as Red Cedar.

Bombax ceiba L. BOMBCE
Kimbáŋ **Malvaceae**

Global Distribution
India & C China to N Australia

New Guinea Distribution
ING: Aru Is. & Papua
PNG: Central, East Sepik, Madang, Morobe, [Oro] & Sandaun
Elevational Range: 0–700 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Streimann & Martin LAE 52811*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
In New Guinea seemingly restricted to tropical dry forests or otherwise seasonal forests.

Commersonia bartramia (L.) Merr. COMMBA
Makal gubuŋ **Malvaceae**

Global Distribution
S China (Guangdong) to Tahiti & E Australia

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–3000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1317*, corresponding to *Stevens LAE 50196*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
Timber used in construction of small huts and tables. Leaves used to roll tobacco.

Notes
Leaf shape appears quite variable throughout its range.

Kleinhovia hospita L. KLEIHO
Siuliŋ **Malvaceae**

Global Distribution
India & Taiwan to Samoa

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka, Manus Is., Southern Highlands & Western Highlands
Elevational Range: 0–600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 234* and *360*, corresponding to *Brass 27675* and *Craven & Schodde 439*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Microcos argentata Burret MICRAR
Aŋ kubal **Malvaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Eastern Highlands, East Sepik, Madang, New Britain & Sandaun
Elevational Range: 0–500(–1500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1377*, corresponding to *Hoogland 5002*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction. Bark used as poison for killing fish.

Notes

Microcos grandiflora Burret MICRGR
Kubal **Malvaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Chimbu, East Sepik, Gulf, Madang, Morobe, New Britain, Sandaun, Southern Highlands & Western
Elevational Range: 0–1500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1238*, corresponding to *Takeuchi 6134*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Microcos triflora (Blanco) R.C.K.Chung

MICRTR

Malvaceae

Global Distribution
Borneo, Sulawesi, Philippines & New Guinea

New Guinea Distribution
PNG: Madang & Sandaun
Elevational Range: 0–500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1376*, corresponding to *Clunie et al. LAE 63528* and *Merrill 864* (neotypus: *Microcos triflora*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Microcos stylocarpa*, synonymized under this name. This species is poorly known from the island, apparently restricted to the northern lowlands.

Trichospermum pleiostigma (F.Muell.) Kosterm. TRICPL
Tikul **Malvaceae**

Global Distribution
Moluccas to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Chimbu], [Enga], Manus Is., New Britain & New Ireland
Elevational Range: 0–2050 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1368*, corresponding to *Frodin & Drisoll UPNG 6604*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house framing and firewood. Liquid extract from bark swallowed to treat sorcery.

Notes

Talipariti ellipticifolium (Borss.Waalk.) Fryxell TALIEL

Malvaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: East Sepik, Madang & Sandaun
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1370*, corresponding to *Whitfeld et al. OE4E0182*, *Hoogland 4880*, and *Hoogland & Craven 10613*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species appears to be endemic to the northeastern lowlands (Momase) of PNG.

Thespesia fissicalyx Borss.Waalk. THESFI

Malvaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang & Sandaun
Elevational Range: 0–400? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1369* and *1372*, corresponding to *Takeuchi et al. 13739* and *Womersley NGF 24785*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species was not identified by prior censuses, thus other individuals of this species may be misidentified as other taxa.

Heritiera novoguineensis Kosterm. HERINO
Ume iburra **Malvaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Madang, Morobe & Western
Elevational Range: 0–300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 402*, corresponding to *Iwanggin BW 10048*, *Moll BW 2490*, and *Saunders 444*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Heritiera littoralis*, however this species lacks golden brown undersides and is restricted to coastal sites.

Pterocymbium beccarii K.Schum. PTERBE
Niŋl **Malvaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, Oro & Sandaun
Elevational Range: 0–850 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1034*, corresponding to *Hoogland 5221*.

Similar species
Not easily confused.

Habitat & Ecology
Trees of this species flower profusely before leafing out at the end of the dry season.

Phenology
Flowering observed Sep–Oct. Fruiting observed Oct–Nov.

Magɨ Uses
None recorded.

Notes

Pterygota forbesii F.Muell. PTERFO

Malvaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: Central, [East Sepik], Madang, [Sandaun]
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 816*, *817*, and *1001*, corresponding to *Pullen 1176*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Pterygota horsfieldii*, a species which was recently assessed as not native to New Guinea although published accounts seem to differ in their interpretation. The type of *P. horsfieldii* was collected in Java (*Horsfield 4*), with other specimens from various other Malesian islands. A revision of this genus is likely needed to reassess species concepts and proper naming; for now, *P. forbesii* is accepted as the name for the New Guinea material. This species is rare at Wanang and is sparsely collected from the island. Although believed to be endemic, it may also extend into the Moluccas.

Sterculia ampla Baker f. STERAM
Malvaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Hela, [Manus Is.], [Southern Highlands] & Western Highlands
Elevational Range: 0–600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 667* and *1259*, corresponding to *Leach NGF 33261* and *Worabai BW 2431*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
When sterile, mature individuals of this species are known to resemble *Trichadenia philippensis* (Achariaceae), which is known from the area but not yet verified from the plot.

Sterculia tantraensis Morat STERTA
Ume **Malvaceae**

Global Distribution
Moluccas to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], Enga, Hela, Manus Is. & [Southern Highlands]
Elevational Range: 0–1300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 342*, *742*, and *1374*, corresponding to *Schlechter 14238* and *Hoogland 4871*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Sterculia schumanniana*, which is a synonym of this name. This species is part of the *Sterculia shillinglawii–tantraensis* which are regularly considered separate taxa but are here considered under the same name due to lack of differentiating morphology.

Phaleria macrocarpa (Scheff.) Boerl. PHALMA
Kubul niŋi **Thymelaeaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Enga, Hela, Jiwaka & Southern Highlands
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 698* and *1258*, corresponding to *Clemens 10649*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Phaleria perrottetiana (Decne.) Fern.-Vill. PHALPE
Kubul maki **Thymelaeaceae**

Global Distribution
Philippines, Borneo & Moluccas to Solomon Islands

New Guinea Distribution
ING: Aru Is., Papua & West Papua
PNG: East Sepik, Jiwaka, Madang, Milne Bay, Morobe, New Britain, [Oro], Sandaun, Western & Western Highlands
Elevational Range: 0–1650 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 540* and *846*, corresponding to *Craven & Schodde 738* and *Womersley & Millar NGF 8511*.

Similar species
Garcinia sp., but these all have latex.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Hopea sp. 01 HOPE01
Ikeike **Dipterocarpaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Aru Is. & Papua
PNG: East Sepik, Milne Bay, Morobe & Western
Elevational Range: 0–450? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 424*, *547*, *548*, and *549*. No matching specimens are given due to uncertainty in sterile material. Wanang material approaches some *H. iriana* specimens such as *Womersley NGF 19369* and *Havel & Kairo NGF 17210*.

Similar species
Maranthes corymbosa, but this has a pair of glands at the base of the leaf.

Habitat & Ecology
This species is densely clumping with only two populations known from inside the plot. The clumping nature likely due to the fruits not traveling far from the parent trees.

Phenology
Flowering not observed, likely year round. Fruiting observed nearly year round.

Magi Uses
None recorded.

Notes
Identity is not entirely certain; fertile specimens may be necessary here. Formerly identified as *Hopea iriana*, however this is noted for having domatia on the axils of the abaxial secondary veins and, in addition, no records of this species from Madang were seen. Preventing the certainty in its identity is the generally smaller leaves and lack of domatia in the lower axils of the secondaries in the Wanang material. Further complicating matters is the relatively similar sterile morphology among some other New Guinea *Hopea* species, including *H. novoguineensis*.

Vatica rassak (Korth.) Blume VATIRA
Diqua maki **Dipterocarpaceae**

Global Distribution
Philippines & Borneo to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., New Britain, New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–1200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 414*, *536*, and *538*, corresponding to *Reginaldo & Katik 1144*.

Similar species
Inocarpus fagifer, but the stipules are early caducous, and the petioles are not brown.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Vatica papuana*, now synonymized under this name. Although rare at Wanang, this species is widely collected throughout New Guinea.

Ceodes longirostris (Teijsm. & Binn.) Merr. & L.M.Perry CEODLO
Kinesaŋ **Nyctaginaceae**

Global Distribution
Moluccas to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], Enga, [Hela] & Manus Is.
Elevational Range: 0–550(–750?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 985* and *1331*, corresponding to *Hoogland 5025* and *Brass 29224*.

Similar species
Syzygium versteeghi (not known from inside plot), but this has brochidodromous venation.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Jul & Sep. Fruiting not observed.

Magɨ Uses
None recorded.

Notes

Ceodes umbellifera J.R.Forst. & G.Forst. CEODUM
Kinesaŋ makɨ **Nyctaginaceae**

Global Distribution
Indochina to Hawaii & E Australia

New Guinea Distribution
ING & PNG: All provinces except Chimbu, East Sepik, [Eastern Highlands], Enga, Hela, Jiwaka, Sandaun, Southern Highlands & Western Highlands
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 179* and *977*, corresponding to *Womersley & Hoogland 5154*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes

Barringtonia apiculata Lauterb. BARRAP
Pumbu pumbu maki **Lecythidaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro & Sandaun
Elevational Range: 0– 600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 318*, *589*, and *596*, corresponding to *Streimann et al. LAE 51903* and *Takeuchi & Ama 15634*.

Similar species
Terminalia sp., but the petioles are often longer and mostly lack bases which taper into the petiole. *Planchonia papuana* but this has margins conspicuously serrate, lacks a discolorous petiole, the apical meristem is conical shaped, and this species is restricted to waterways.

Habitat & Ecology
New leaves flush out during the dry season months of Jul–Sep.

Phenology
Flowering observed Oct–Nov. Fruiting not observed.

Magi Uses
Timber used for construction of small huts.

Notes
Although likely to be *Barringtonia apiculata*, this should be verified with fertile collections as there are a couple other species that may be confused such as *B. novae-hiberniae*.

Barringtonia calyptrocalyx K.Schum. *var. mollis* Lauterb. BARRCA
Pumbu pumbu niŋi **Lecythidaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Aru Is., [Papua], West Papua
PNG: Central, East Sepik, Madang, Milne Bay, Morobe & Sandaun
Elevational Range: 0–150 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 537*, *793*, and *999*, corresponding to *Takeuchi et al. 13567* and *Pullen 936*.

Similar species
Buchanania macrocarpa, but this has shorter leaves, fewer secondaries with no intersecondaries, and the margins are entire and undulating. *Semecarpus magnificus*, but this has glaucous undersides and craspedodromous venation with dense areolation.

Habitat & Ecology
This species has a semi-clumped distribution.

Phenology
Flowering observed Sep–Oct. Fruiting observed Oct–Nov.

Magɨ Uses
None recorded.

Notes
All individuals of this species at Wanang appear to be of this variety, which is rarely collected. This variety is unique within the genus for the pubescent undersides of the leaves, which is an unusual character for *Barringtonia*. Individuals formerly identified as *Barringtonia novae-hiberniae* (BARRNO) in prior censuses are actually this species.

Planchonia papuana R.Knuth PLANPA
Dupu **Lecythidaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Enga, Jiwaka, Manus Is., New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–700 m

[Not yet available]

Specimens
No voucher collected from inside plot, but census photos confirm presence. Wanang material corresponds to *Schram BW 9365* and *Katik NGF 46578*.

Similar species
[Not yet available]

Habitat & Ecology
This species appears to be restricted to occurring along waterways.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Ternstroemia cherryi (F.M.Bailey) Merr. ex J.F.Bailey & C.T.White TERNCH
Dumu **Pentaphylacaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Eastern Highlands, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, Southern Highlands & Western
Elevational Range: 0–700(–1500) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 505*, *863*, and *864*, corresponding to *Cherry s.n.* (typus: *Ternstroemia cherryi*).

Similar species
Garcinia sp., but these all have latex and visible secondaries.

Habitat & Ecology
More commonly associated with high ridges and hills.

Phenology
Flowering and fruiting not observed.

Magi Uses
Bark used as poison to kill fish.

Notes

Donella lanceolata (Blume) Aubrév. DONELA
Yamisuŋ **Sapotaceae**

Global Distribution
E Madagascar, W India & S China to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING: Papua & West Papua
PNG: Eastern Highlands, East Sepik, Madang, [Milne Bay], Morobe, Oro, New Britain & Sandaun
Elevational Range: 0–1100 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 464* and *485*, corresponding to *Saunders 421* and *Katik NGF 46624*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun.

Magɨ Uses
None recorded.

Notes
Formerly identified as *Chrysophyllum roxburghii*, now a synonym of this species. Appears mostly restricted to the northern coast of New Guinea.

Palaquium morobense P.Royen PALAMO
Mulim té **Sapotaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Manus Is., Morobe & New Britain
Elevational Range: 0–1200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1268*, corresponding to *Clemens 8293* (typus: *Palaquium morobense*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used in house construction.

Notes

Palaquium supfianum Schltr. PALASU

Sapotaceae

Global Distribution
Borneo, Moluccas & New Guinea

New Guinea Distribution
ING: [Papua] & [West Papua]
PNG: [East Sepik], Madang, Milne Bay, Morobe, [Oro], Sandaun
Elevational Range: 0–700(–1200?) m

[Not yet available]

Specimens
Not voucher collected from inside plot, but eyewitness accounts from assistants allow for its tentative verification. Wanang material corresponds to *Saunders 342*, *Saunders 377*, *Saunders 381*, and to a lesser extent *Schlechter 13921* (typus: *Palaquium supfianum*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is incorrectly referred to as *Palaquium morobense* by BRC botanists, causing confusion. This species is not endemic to New Guinea, although some sources report it as such; it extends into the Moluccas and there appear to be a couple records from Borneo, although interestingly none seen from Sulawesi. In New Guinea, appears to be restricted to the northern coast and is apparently sparsely collected.

Palaquium warburgianum Schltr. ex K.Krause PALAWA
Mulim té niŋi **Sapotaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Eastern Highlands, [East Sepik], Madang, Morobe, New Britain, Sandaun
Elevational Range: 0–200(–800) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 409*, *416*, and *503*, corresponding to *Henty & Lelean NGF 29416* and *Conn et al. 5107*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
Timber used for garden fencing and house construction.

Notes

Planchonella myrsinodendron (F.Muell.) Swenson, Bartish & Munzinger PLANMY
Yamu sisi barra **Sapotaceae**

Global Distribution
Java to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–1700(–2250?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1266* and *1267*, corresponding to *Katik NGF 46900* and *Katik NGF 46671*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed year round.

Magi Uses
Timber used in house construction.

Notes
Leaf shape is quite variable.

Planchonella sp. 01 PLAN01

Sapotaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1162*. No matching specimens found; further investigation needed.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This morphospecies is a placeholder taxon based on a single individual from the plot (tag no. 046301), formerly identified as *Elaeocarpus sp. 01* but instead appears to be rather Sapotaceae-like.

Planchonella thyrsoidea C.T.White PLANTH
Imi **Sapotaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Papua]
PNG: Bougainville, [Central], Chimbu, [Eastern Highlands], Gulf, Madang, Manus Is., [Morobe], New Britain & New Ireland
Elevational Range: 0–700(–1500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 747* and *1269*, corresponding to *White NGF 562* (typus: *Planchonella thyrsoidea*), *Munzinger et al. 7008*, and *Henty & Lelean NGF 29482*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes

Planchonella torricellensis (K.Schum.) H.J.Lam PLANTO

Sapotaceae

Global Distribution
Lesser Sunda Islands to Niue

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, Oro, [Sandaun] & [Western Highlands]
Elevational Range: 0–1550 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 796* and *1265*, corresponding to *Bau LAE 82720*, *Moll BW 6677*, *Kostermans 478*, and *Docters van Leeuwen 11113* (typus: *Planchonella paludosa*).

Similar species
[Not yet available]

Habitat & Ecology
The juvenile and adult forms appear to be slightly different with juveniles bearing larger leaves and widely spaced tertiaries whereas adults bear smaller leaves and closely spaced tertiaries. This species appears to have a close association with a species of galling insect as adult leaves are often covered in galls.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Most stems under the POUTTO code are actually PALAMO. The specimen *Bau LAE 82720* is wrongly determined as *Pleioluma firma*, which BRC botanists often confused with this species.

Pleioluma firma (Miq.) Swenson PLEIFI

Sapotaceae

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: [Central], Eastern Highlands, [East Sepik], Madang, Morobe, [New Britain], New Ireland, Oro, Sandaun, Southern Highlands, Western & Western Highlands
Elevational Range: 0–1500(–2700) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1264*, corresponding to *Munzinger et al. 6850* and *van Royen NGF 16483*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is a commercial grade timber species.

Diospyros elliptica (J.R.Forst. & G.Forst.) P.S.Green DIOSEL

Ebenaceae

Global Distribution
Sulawesi(?) to Tonga

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Central, Chimbu, [Eastern Highlands], Madang, Milne Bay, Morobe & [Oro]
Elevational Range: 0–1800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 517*, *582*, *675*, *676*, and *677*, corresponding to *Saunders 91*, *Vandenberg & Mann NGF 42223*, *Takeuchi et al. 14574*, and *Smith 9185* (typus: *Diospyros elliptica* var. *fruticosa*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This name is currently synonymized under *Diospyros foliosa*, however it is treated separately here due to noticeable and ± consistent differences in leaf morphology. This species is part of the *Diospyros foliosa–elliptica–ellipticifolia* complex, a diverse and unresolved species complex with wide-ranging morphology which would benefit greatly from a detailed molecular-based investigation. The names in this group are all used interchangeably and often misapplied. The species concept of *Diospyros elliptica* used here is not considered to be equivalent to *D. foliosa* and may be separated from the latter vegetatively. It is here tentatively kept separate on the basis on the following: larger/wider laminas, abaxially conspicuous wide festooned brochidodromous venation with looping far from the margins, tertiaries less densely reticulating, adaxially impressed secondaries, costa (weakly) sunken adaxially, larger flowers/fruits, calyx often flaring out like a saucer from base of fruit, and fruits oblong. Some specimens have hairy twigs, perhaps a consequence of altitudinal variance. This species also looks deceptively similar to *D. villosiuscula* (also known from Madang), but this has densely rusty-tomentose twigs, usually larger laminas, and somewhat blunter apices. Varietal designation is not applied here. Likely to be more widespread across the island than is currently known.

Diospyros ferrea (Willd.) Bakh. DIOSFE

Ebenaceae

Global Distribution
Paleotropical

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Hela, Jiwaka, Manus Is., Western Highlands & [West Papua]
Elevational Range: 0–1500(–2050?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 461*, *524*, *674*, and *690*, corresponding to *Bau LAE 82861*, *Takeuchi & Towati 14847*, *Takeuchi et al. 14943*, and *Brass 28386*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This is likely part of the widespread and complex species *Diospyros ferrea*, found throughout the Old World tropics and in need of a molecular-based investigation to test its monophyly with sampling across its range. Some morphological variations of this group look rather similar to those of the *Diospyros foliosa–elliptica* complex, but Wanang material may be differentiated from those in the following manner: leaves smaller, secondaries not impressed adaxially, tertiaries denser and tightly reticulating abaxially, festooned brochidodromous venation with looping closer to the margins, costa sunken adaxially, smaller flowers/fruits, calyx appressed to base of fruit, and fruits globose.

Diospyros lolin Bakh. DIOSLO
Mau sisi galaŋ **Ebenaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Aru Is. & West Papua
PNG: Madang, Milne Bay, Morobe & [Oro]
Elevational Range: 0–450 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 683–689*, corresponding to *Clunie et al. LAE 63524*, *Streimann NGF 24282*, and *Farley et al. NGF 45914*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This likely forms an immediate species complex with *Diospyros sogerensis*, which appears nearly identical but is more commonly known from Central Province. This complex then likely forms an extended complex with the seemingly closely related *Diospyros peekelii–lolinopsis* complex, two species with similar laminar morphologies.

Diospyros lolinopsis Kosterm. DIOSLP
Mau kiki **Ebenaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang & Morobe
Elevational Range: 0–150 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 679* and *680*, corresponding to *Henty NGF 28009* (typus: *Diospyros lolinopsis*) and *Floyd NGF 7238*.

Similar species
Diospyros lolin, but this lacks a dense brown indument.

Habitat & Ecology
Appears to be largely restricted to occurring on ridges.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Diospyros peekelii*, a similar species which likely forms a complex with it, however *D. lolinopsis* may be differentiated from the latter by its brown tomentum on the twigs/leaves and (much) narrower-linear leaves. The difference between the *D. peekelii–lolinopsis* and *D. lolin–sogerensis* complexes: the latter group has fruits which are densely hairy and leaves that are slightly wider and abaxially hairier (but this is rather negligible in the field). Fertile collection not made but fruit photos confirm presence of the species, however *D. peekelii* still may be present in the plot as collections are known from nearby regions! A molecular-based revision of this group would be helpful.

Diospyros sp. 01 DIOS01

Ebenaceae

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 681* and *682*, corresponding to *Gillison NGF 25377* (det. *Diospyros elliptica*) and *Seemann 295* (typus: *Maba elliptica* var. *glabrescens*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Part of the *Diospyros foliosa–elliptica* complex and separated out based on consistent morphological difference from the other forms present at Wanang. Recognition of this taxonomic entity as representing a separate taxon is uncertain; it is merely treated separately for the time being. This version of the complex appears to hold a combination of traits from the other two taxa recognized here from the *D. ferrea* and *D. foliosa* groups and may be separated from them by the following: leaves feel thick chartaceous, lamina somewhat linear shaped, secondaries clearly thicker than tertiaries with conspicuous looping near margins (unlike the weakly defined loops of *D. ferrea* with secondaries the same thickness as tertiaries), costa raised adaxially, and tertiaries very densely reticulate. Fertile individuals from Wanang were not seen, thus specimens listed here are based on a sterile approximation.

Conandrium polyanthum (Lauterb. & K.Schum.) Mez CONAPO
Té natotamu **Primulaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands
Elevational Range: 0–1600(–2000) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1182* and *1363*, corresponding to *Takeuchi et al. 17322* and *Clunie et al. LAE 63525*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct–Nov. Fruiting observed Apr.

Magi Uses
None recorded.

Notes
Formerly identified as two separate *Ardisia* species, *A. lanceolata* and *A. imperialis*, but flowering material confirms the material belongs to *Conandrium*. Some stems of this species could potentially belong to the genus *Ardisia*, which unfortunately looks exactly like *C. polyanthum* in the vegetative state. The fruits are small berries that ripen black. The flowers are slightly fragrant, the odor somewhat reminiscent of black cherry.

Maesa haplobotrys F.Muell. MAESHA

Primulaceae

Global Distribution
New Guinea, Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–2600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 798* and *1260*, corresponding to *Takeuchi & Ama 16278*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct–Nov. Fruiting observed Nov.

Magi Uses
None recorded.

Notes
Formerly identified as *Maesa edulis*, now synonymized under this species.

Saurauia sp. 01 SAUR01

Actinidiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang
Elevational Range: 0–150? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 527*, *574*, *649*, *650*, and *746*. No matching specimens found.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Saurauia purgans*, but this is a lower-mid montane species that may be differentiated by its shorter and wider laminas, hairy (vs. scaly) stems and leaves, and most easily by its branched inflorescences. This species approaches the lowland *Saurauia schumanniana* but the leaves are longer and thicker, inflorescences never branched, flowers larger, peduncles shorter and stouter (esp. *Takeuchi et al. 14557*, *Kuria et al. LAE 87081*, and *Hoogland 4444*). Also approaches the montane *S. conferta*, but the leaves are narrower and longer, secondaries less numerous and not sharply ascending, peduncles shorter and stouter (esp. *Floyd 6657*, *Takeuchi 10815*, *Takeuchi 11036*, and *Weiblen & BRC YS4H0129*).

Saurauia poolei C.T.White & W.D.Francis SAURPO

Actinidiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Eastern Highlands, Madang, Morobe & Oro
Elevational Range: 0–1700(–1850) m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Weiblen & BRC YS3K0099* and *Hartley 11372*.

Similar species
Not easily confused.

Habitat & Ecology
Exhibits a semi-clumping habit along ridges.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
This species is more commonly known from montane sites and appears to be restricted to northeastern New Guinea.

Merrilliodendron megacarpum (Hemsl.) Sleumer MERRME
Kingɨ **Icacinaceae**

Global Distribution
Philippines & Sulawesi to Vanuatu

New Guinea Distribution
ING: Aru Is. & [West Papua]
PNG: Madang, Morobe & New Britain
Elevational Range: 0–200? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 701* and *1209*, corresponding to *Katik NGF 70818*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Likely more widespread across the island than currently known.

Rhyticaryum longifolium K.Schum. & Lauterb. RHYTLO
Svanté **Icacinaceae**

Global Distribution
New Guinea, Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Bougainville, Central, Chimbu, [Eastern Highlands], East Sepik, Gulf, Madang, Morobe, Oro, New Britain & [Sandaun]
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 468*, *706*, and *1208*, corresponding to *Lavarack & Ridsdale NGF 31908*, *Hartley 10385*, and *Brass 23559*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magi Uses
None recorded.

Notes
Some individuals of this species were formerly misidentified as *Dichapetalum papuanum* and *Rhyticaryum novoguineensis*. This species looks similar to *Rhyticaryum novoguineensis*, which is known from some collections in nearby Josephstaal. The wood of this species is extremely hard with twigs up to 4 cm in diameter being difficult to cut with regular pruning shears and twigs larger than 5 cm being impossible to cut or break off by hand. The density of the indument on the abaxial leaves is slightly variable. The leaves have a faintly rank odor when dry. The inflorescences are axillary and racemose.

Rhyticaryum sp. 01 RHYT01
Svanté kañaŋ **Icacinaceae**

Global Distribution
Unknown

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 174, 190, 191, 281, 284,* and *316*. No matching specimens found.

Similar species
Galearia celebica, but this has dark reddish or brown petioles that are straight (i.e., not curved), weakly serrate to crenate margins, and the stems are ridged.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This is an unknown species placed in the genus *Rhyticaryum* based on past census data, however this genus ID is not certain as no fertile collections have been made. According to community members, this species has never been witnessed in flower or fruit, despite its relative commonness.

Canthium aurantiacum Merr. & L.M.Perry

CANTAU
Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central & Madang
Elevational Range: 0–300? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1180*, corresponding to *Brass 5580* (typus: *Canthium aurantiacum*) and *McDonald & Ismail 3736*.

Similar species
Psydrax cymiger, but this has clear lower order venation and sharply ascending secondaries.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Aug–Sep.

Magi Uses
None recorded.

Notes
This species appears to be *Canthium auranticum*, with the fruits described as "bright orange, smells of sewage and sweetness" (*McDonald & Ismail 3736*), which matches the Wanang material. Several individuals of this species are likely misidentified due to field errors of prior census errors. A poorly known species, known only from a couple scattered localities across the island.

Eumachia leptothyrsa (Miq.) Barrabé, C.M.Taylor & Razafim. var. *leptothyrsa* EUMALE

Rubiaceae

Global Distribution
Philippines, Sulawesi & Java to New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Eastern Highlands, Jiwaka & Southern Highlands
Elevational Range: 0–1500(–2150?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1190* and *1250*, corresponding to *Takeuchi 13062*, *Takeuchi et al. 13062*, and *Sohmer & Katik 75178*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Aug–Sep.

Magi Uses
None recorded.

Notes
Formerly identified as *Psychotria leptothrysa*, the species recently having been transferred over to *Eumachia*.

Eumachia sp. 01 EUMA01

Rubiaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 535* and *1183*. No matching specimens found, although further investigation may be needed.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct. Fruiting observed Jun.

Magi Uses
None recorded.

Notes
Formerly identified as *Psychotria beccarii*, but this is incorrect. Genus placement in *Eumachia* is an approximation based on floral and fruit morphology that should be confirmed via molecular placement as well. This species does not seem to match any known *Eumachia* or *Psychotria* species from nearby areas.

Gardenia hansemannii K.Schum. GARDHA
K'niŋ **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Central, [Gulf], Madang, Milne Bay, Morobe, New Britain, New Ireland, Oro & Western
Elevational Range: 0–450? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1043* and *1197*, corresponding to *Vandenberg & Katik NGF 42348*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Sep–Oct. Fruiting not observed.

Magi Uses
None recorded.

Notes
Found throughout the lowlands of Papua New Guinea and likely also into Indonesian Papua, albeit curiously absent from the Sepik basin.

Ixora amplexifolia Lauterb. IXORAM
Kiaŋam maki **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: [East Sepik], Madang, Morobe & Sandaun
Elevational Range: 0–200(–700) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 169, 178, 204*, and *923*, corresponding to *Lauterbach 1133* (typus: *Ixora coleopoda*), *Lamei et al. LAE 90062*, and *Katik NGF 46524* (det. *Ixora subauriculata*).

Similar species
Not easily confused.

Habitat & Ecology
The distribution of this species appears to be strongly associated with ridges.

Phenology
Flowering observed Jan & May. Fruiting observed Aug–Sep.

Magi Uses
Branches used to excavate sago palms.

Notes
Several specimens of *Ixora subauriculata* appear to be the same as this species and are likely misidentified; the type of *I. subauriculata* was not seen, however. This species appears to be restricted to northeast New Guinea.

Ixora novoguineensis Mouly & B.Bremer IXORNO
Simun simun **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, Chimbu, [Gulf], Eastern Highlands, East Sepik, Madang, Milne Bay, Morobe, Oro, Sandaun & Western
Elevational Range: 0–400(–2000) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 384*, *398*, and *476*, corresponding to *Katik NGF 46897* and *Clunie et al. LAE 63536*.

Similar species
Not easily confused.

Habitat & Ecology
Flowers are cauliflorous and minute and are often swarming with ants.

Phenology
Flowering observed Oct–Nov. Fruiting observed Jan & Jun–Jul.

Magi Uses
Timber used as posts in house framing. Branches used as gardening tool.

Notes
Originally known as *Versteegia cauliflora*, a former monotypic genus that was recently found to be molecularly nested within *Ixora*. Only a few collections are known from above 400 m asl.

Ixora timorensis Decne. IXORTI
Kiaŋam niŋi **Rubiaceae**

Global Distribution
Java to New Guinea & N Australia

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Gulf, Madang, [Milne Bay], Morobe, New Britain, New Ireland, [Oro], Sandaun & Western
Elevational Range: 0–350 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1191*, corresponding to *Koch 566* (typus:), *Schodde 2661*, and *Brass 8094*.

Similar species
[Not yet available]

Habitat & Ecology
This species appears to be slightly clumping in nature and favors ridges and hills.

Phenology
Flowering observed Aug. Fruiting observed Sep–Oct.

Magi Uses
None recorded.

Notes
This species appears to be somewhat variable.

Ixora sp. 01 IXOR01

Rubiaceae

Global Distribution
Unknown, likely endemic

New Guinea Distribution
Unknown
Elevational Range: unknown

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1186* and *1189*. No matching specimens found.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun & Oct.

Magi Uses
None recorded.

Notes
This is believed to be an unknown species of *Ixora* that is not yet placed to species.

Mastixiodendron pachyclados Melch. MASTPA
Yagul **Rubiaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Gulf, East Sepik, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–200(–1500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 327* and *491*, corresponding to *Katik W 2882* and *Katik NGF 46521*.

Similar species
Ixora novoguineensis, but this has shorter leaves that are widely spaced and green, clasping stipules that are much shorter and pointier.

Habitat & Ecology
Commonly encountered on hills, this species tends to avoid low valleys and steep ridges.

Phenology
Flowering not observed, likely year round. Fruiting observed year round.

Magi Uses
None recorded.

Notes
Most collections are known from below 300 m asl, with only a single collection known from 1500 m in the Telefomin subdistrict (*Vinas & Kenesi LAE 59385*). According to data from the second census this is the fifth most common species in the plot.

Morinda bracteata Roxb. MORIBR
Mibul té **Rubiaceae**

Global Distribution
Philippines & Sulawesi to New Guinea & N Australia

New Guinea Distribution
ING: Aru Is. & Papua
PNG: East Sepik, Madang, Milne Bay, Morobe, New Britain & [Oro]
Elevational Range: 0–250 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1204*, corresponding to *Paul et al. LAE 87893*, *Lam 1203*, *Santos 5262*, and *Wisse 49*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Oct.

Magi Uses
None recorded.

Notes
Formerly identified as *Morinda citrifolia*, to which it is closely related and may be easily distinguished from by the presence of inflorescence bracts.

Mussaenda cylindrocarpa Burck MUSSCY
Mundé pápási maki **Rubiaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: [Enga], Hela, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, [Oro], Sandaun & Western
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1193*, corresponding to *Coode & Lake NGF 32627* and *Takeuchi 16696*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Mussaenda scratchleyi Wernham MUSSSC
Mundé pápási niŋi **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Eastern Highlands, East Sepik, Gulf, Hela, Madang, Morobe, Oro, Southern Highlands & Western
Elevational Range: 0–600(–1550) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1194*, corresponding to *Gideon & Johns 57332*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Flowers used as decoration.

Notes
Formerly identified as *Mussaenda ferruginea*. This species has not yet been recorded from the Indonesian side of New Guinea, but it is likely it occurs there given its widespread range in PNG.

Nauclea tenuiflora Merr. NAUCTE

Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Eastern Highlands, East Sepik, Madang, Morobe, [Oro], Sandaun & Western
Elevational Range: 0–900(–1800) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1176*, corresponding to *Womersley NGF 19144* and *Millar NGF 22886*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
This species was not properly recorded in prior censuses and likely several stems are misidentified as other Rubiaceae taxa. Currently only known from PNG, but likely also found in Indonesian Papua given its widespread distribution.

Nauclea orientalis (L.) L. NAUCOR
Até sisibarra **Rubiaceae**

Global Distribution
Sri Lanka & Indochina to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–800(–2500?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 430*, corresponding to *Schodde & Craven 4296* and *Craven & Schodde 728*.

Similar species
[Not yet available]

Habitat & Ecology
A weakly clumping species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
A couple specimens seen (i.e., *Hartley 10778* and *Hoogland 5226*), both from the lowlands, have densely woolly abaxial laminas.

Neonauclea clemensiae Merr. & L.M.Perry NEONCL

Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Central, Madang, Milne Bay, Morobe & Oro
Elevational Range: 0–950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1142* and *1175*, corresponding to *Hartley 10921*, *Takeuchi & Ama 17914*, and *Womersley NGF 15312*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
This species was not properly recorded in prior censuses and likely several stems are misidentified as other Rubiaceae taxa. Appears to be restricted to northeast Papua New Guinea.

Neonauclea coronata Ridsdale

NEONCO
Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang
Elevational Range: 0–180 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1205*, corresponding to *Foreman et al. NGF 45879* (typus: *Neonauclea coronata*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
This species was not properly recorded in prior censuses and likely several stems are misidentified as other Rubiaceae taxa. This species appears to be a narrow endemic restricted to the Ramu basin with the type collected from Usino subdistrict.

Neonauclea maluensis Arn.

NEONMA
Rubiaceae

Global Distribution
Sulawesi & New Guinea

New Guinea Distribution
ING: Papua
PNG: [Central], [East Sepik], Gulf, Madang, Milne Bay, Morobe, New Britain, Oro & [Sandaun]
Elevational Range: 0–550(–1900) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1332*, corresponding to *Vandenberg & Katik NGF 42371* and *Ledermann 7872* (syntypus: *Nauclea maluensis*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
Range likely also extends into the Moluccas.

Neonauclea obversifolia (Valeton) Merr. & L.M.Perry NEONOB
Até makul **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & [West Papua]
PNG: [East Sepik], [Enga], [Gulf], Madang, Morobe, New Britain, New Ireland, [Oro], Sandaun & Western
Elevational Range: 0–900(–1650?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1177*, corresponding to *Hoogland & Craven 10207* and *Brass 21647*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Pavetta platyclada K.Schum. & Lauterb. PAVEPL
Muki muki **Rubiaceae**

Global Distribution
Lesser Sunda Islands & New Guinea

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, [Enga], [Gulf], [Hela], [Jiwaka], Madang, Milne Bay, Morobe, New Britain, Oro, Sandaun, Western & Western Highlands
Elevational Range: 0–600(–1200) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1198*, corresponding to *Vandenberg & Womersley NGF 42295*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Psychotria ramuensis Sohmer var. *ramuensis* PSYCRA

Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: [East Sepik], Madang, Morobe & Sandaun
Elevational Range: 0–750 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1195*, corresponding to *Sohmer & Katik LAE 75114*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
This is the most common species of Rubiaceae in the plot and is rather variable in morphology. The other variety of this species, *P. ramuensis* var. *pubescentia*, has densely hairy leaf undersides.

Psydrax cymiger (Valeton) S.T.Reynolds & R.J.F.Hend. PSYDCY
Kunugul niŋi **Rubiaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
PNG: Bougainville, Central, Chimbu, [Eastern Highlands], East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain & Sandaun
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1179* and *1218*, corresponding to *Henty NGF 14729* and *Gillison NGF 22256*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Plant used as house decoration.

Notes
Formerly identified as *Canthium cymigerum*, now synonymized under this name. There appears to be two distinct forms of this species, with the only noticeable difference being the presence of domatia.

Randia schumanniana Merr. & L.M.Perry RANDSC
Uŋa kiaŋ **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Chimbu, [East Sepik], Madang, Morobe, [Sandaun] & Western
Elevational Range: 0–500(–700) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1192*, corresponding to *Darbyshire 969* and *Lauterbach 761*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magɨ Uses
Plant used as house decoration.

Notes

Ridsdalea macromera (Lauterb. & K.Schum.) J.T.Pereira RIDSMA
Kimal kimal niŋi **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Eastern Highlands, East Sepik, Madang, [Morobe] & [Sandaun]
Elevational Range: 0–500(–1300?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1187* and *1188*, corresponding to *Takeuchi et al. 22166* and *Schletcher 1907*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Branches used as gardening tool. Leaves used to wrap eggs and to make bow.

Notes
Formerly identified as *Randia dryadum*.

Timonius pulposus C.T.White

TIMOPU
Rubiaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
PNG: Madang, Morobe, [New Britain] & New Ireland
Elevational Range: 0–200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1215*, corresponding to *Takeuchi et al. 21136*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
The fruits of *Takeuchi et al. 21136* are described as "blue" but those of the isotype (*Walker BSIP 285*) are "cream", indicating some variation in fruit color.

Timonius timon (Spreng.) Merr. TIMOTI
Munde yagul **Rubiaceae**

Global Distribution
Java to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Eastern Highlands], [Hela], [Jiwaka] & [Southern Highlands]
Elevational Range: 0–1750 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1181*, corresponding to *Schodde & Craven 4561* and *Katik NGF 46649*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
Varietal designation is not specified here.

Timonius kaniensis Valeton TIMOKA
Uŋakiaŋ **Rubiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: East Sepik, Hela, [Madang], Morobe, Sandaun & Western
Elevational Range: 0–1000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1178*, corresponding to *Schlechter & Rudolf 17786* (typus:), *Takeuchi & Ama 21938*, and *Floyd NGF 7216*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Timber used in the construction of small huts. Branches used as gardening tools.

Notes
Formerly identified as *Timonius rufescens*. This species also very closely approaches *T. clathratus* (esp. *Floyd 5545* and *Katik NGF 46793*) and it is likely that these two species form a complex and should be investigated further. Leaf shape varies with bases appearing acute to strongly cordate.

Neuburgia corynocarpa (A.Gray) Leenh. NEUBCO
Ugul kiski **Gentianaceae**

Global Distribution
New Guinea to Fiji

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga]
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1206*, corresponding to *Weiblen YP2C0152, Leach & Katik NGF 56130*, and *Kanehira 3962* (syntypus: *Couthovia novo-britannica*).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes

Alstonia scholaris (L.) R.Br. ALSTSC
Bugul **Apocynaceae**

Global Distribution
Himalayas & S China (Fujian) to Solomon Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Enga, Hela, Jiwaka, Manus Is., New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–800(–1400) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1320*, corresponding to *Henty NGF 27444* and *Hoogland & Craven 10446*.

Similar species
[Not yet available]

Habitat & Ecology
Trunk used by birds to make nest cavities.

Phenology
[Not yet available]

Magi Uses
Liquid consumed for common cold and diarrhea.

Notes

Cerbera floribunda K.Schum. CERBFL
Mángaté **Apocynaceae**

Global Distribution
Sulawesi to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, [Enga], [Jiwaka], New Ireland & Western Highlands
Elevational Range: 0–1950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 364* and *672*, corresponding to *Womersley NGF 24770* and *Weiblen WP4C0923*.

Similar species
[Not yet available]

Habitat & Ecology
Fruits are usually eaten and dispersed by cassowaries.

Phenology
[Not yet available]

Magi Uses
Latex applied to sores and used as glue. Used as herbal medicine for scabies.

Notes

Ochrosia citrodora K.Schum. & Lauterb. OCHRCI
Ugam galaŋ **Apocynaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Eastern Highlands, East Sepik, Madang, Morobe, Sandaun & Western
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 458*, *581*, and *588*, corresponding to *Henty NGF 28019*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magɨ Uses
None recorded.

Notes
Formerly identified as *Neisosperma citrodora*, now synonymized under this species.

Ochrosia coccinea (Teijsm. & Binn.) Miq. OCHRCO
Ugam galaŋ **Apocynaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, [Eastern Highlands], East Sepik, Madang, Morobe, [Oro] & Sandaun
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 651* and *1323*, corresponding to *Takeuchi et al. 13998*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
None recorded.

Notes
Formerly identified as *Lepiniopsis ternatensis*, which has similar leaves but has ovoid fruits that are black when mature. The fruits of this species are rhombic (diamond) shaped and bright red when mature.

Tabernaemontana aurantiaca Gaudich. TABEAU
Kapisaŋ suku **Apocynaceae**

Global Distribution
Moluccas to Vanuatu

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–900 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 652* and *1322*, corresponding to *Frodin NGF 26938*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed Aug–Oct.

Magɨ Uses
Fruits used as ball for playing.

Notes

Tabernaemontana pandacaqui Lam. TABEPA
Kapisaŋ sani maki **Apocynaceae**

Global Distribution
Indochina to Tahiti & N+E Australia

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Jiwaka, Manus Is., New Ireland, Western Highlands
Elevational Range: 0–1000(–1400?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 692* and *993*, corresponding to *Henty NGF 49246*.

Similar species
[Not yet available]

Habitat & Ecology
Papillio aegeus ormenus was observed frequenting the flowers.

Phenology
Flowering and fruiting observed Aug–Nov.

Magi Uses
Timber used in bush hut construction. Branches used to make sling shots.

Notes

Voacanga grandifolia (Miq.) Rolfe VOACGR
Kapisaŋ **Apocynaceae**

Global Distribution
Java to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Manus Is., New Ireland, Southern Highlands & Western Highlands
Elevational Range: 0–600 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1319*, corresponding to *Forster 10956* and *Henty NGF 27490*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February.

Magɨ Uses
None recorded.

Notes
The identity is based on fruiting photos only, although the fruits of this are not too different from *Tabernaemontana aurantiaca*; flowering specimens should be collected to further verify this species.

Wrightia laevis Hook.f. WRIGLA
Té kubul **Apocynaceae**

Global Distribution
S China (Guizhou) to N Australia (Queensland)

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Manus Is., Milne Bay, Morobe, Oro, [Sandaun]
Elevational Range: 0–800 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 648*, corresponding to *Henty NGF 49267* and *Katik NGF 46662*.

Similar species
[Not yet available]

Habitat & Ecology
Commonly found on ridges.

Phenology
Flowering observed Sep–Nov, likely year round. Fruiting observed Mar–Nov, likely year round.

Magi Uses
Timber used by ancestors to make plates.

Notes
Individuals identified as *Kopsia flavida* in prior censuses are actually this species. Appears to be mostly restricted to northern New Guinea.

Lycianthes oliveriana (Lauterb. & K.Schum.) Bitter LYCIOL
Munde té **Solanaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Bougainville, [Chimbu], [Jiwaka], Manus Is., [Milne Bay], New Britain, New Ireland & [Southern Highlands]
Elevational Range: 0–2300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1325* and *1334*, corresponding to *Millar & Dockrill NGF 35176* and *Hartley 10136*.

Similar species
Not easily confused.

Habitat & Ecology
This is a lianescent species which may appear as an upright or scandent shrub when juvenile and is thus often recorded in the census as a "tree".

Phenology
Flowering observed Nov. Fruiting not observed.

Magi Uses
None recorded.

Notes
Formerly identified as *Solanum oliverianum*, now synonymized under this name. The leaves are quite variable throughout its range and across altitude.

Chionanthus brassii (Kobuski) Kiew

CHIOBR
Oleaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, [Chimbu], Eastern Highlands, [Enga], Hela, [Jiwaka], Madang, Morobe, [Oro], [Southern Highlands] & [Western Highlands]
Elevational Range: 0–2300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1454*, corresponding to *s.coll. [Native Collector] 5585*, *Gray 4079*, *Brass 11234* (typus: *Linociera brassii*), and *Floyd & Morwood 6202*.

Similar species
Easily confused with *Chionanthus sessiliflorus*, but the petioles are white, thickened, and are often transversally cracking with age (at Wanang).

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Timber used for construction of small huts. Branches used as supporting stakes for crops.

Notes
This species is likely more widespread than currently known. There is noticeable variation in leaf and floral morphology throughout its range. The flowers have been described as either white (*Brass 11234*) or yellow (*Brass 32274*). Fruits are small, globose berries with a rough surface (almost sandpapery) that ripen dark greyish to black.

Chionanthus ramiflorus Roxb. CHIORA
K'niŋ makɨ **Oleaceae**

Global Distribution
S India (Karnataka) & S China (Guizhou) to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except [Enga], [Jiwaka], [New Ireland] & [Western Highlands]
Elevational Range: 0–1350(–1700?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1439*, corresponding to *Hartley 11769*, *Takeuchi et al. 15149*, and *Pullen 7661*.

Similar species
Not easily confused. The other two *Chionanthus* species always have smaller, elliptic leaves and short petioles at Wanang (vs. long, ±lanceolate leaves and long petioles).

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
Leaf size and shape are significantly variable throughout its range. Flowers are usually described as yellow (*Heyligers 1356*) or greenish-yellow (*Sayers NGF 19510*). Fruits are small, ovoid to elliptic berries with a smooth surface that ripen dark violet (*Heyligers 1356*) to purplish black (*Gillison NGF 25372*).

Chionanthus sessiliflorus (Hemsl.) Kiew

CHIOSE
Oleaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, Chimbu, East Sepik, Gulf, Hela, Madang, Morobe, Sandaun, Southern Highlands & Western
Elevational Range: 0–1650 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1440*, corresponding to *Ctvrtecka 3962*, *Hartley 11861*, *Hartley 9882*, and *Widjaja et al. 6190*.

Similar species
Easily confused with *Chionanthus brassii*, but the petioles are not white and do not crack with age (at Wanang).

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February.

Magi Uses
Likely used in similar manner to *Chionanthus brassii*.

Notes
Leaf morphology appears to be noticeably variable throughout its range. Fruits are large, ovoid berries which variously ripen reddish to maroon (*Ctvrtecka 3962* and *Hartley 9882*), purple-red (*Kalkman BW 6296*), or purple (*Henty et al. NGF 41604*). Perhaps also into the Moluccas.

Cyrtandra erectiloba G.W.Gillett

CYRTER
Gesneriaceae

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: [Papua]
PNG: Central, Bougainville, [Eastern Highlands], Gulf, Madang, Manus Is., Morobe, New Britain, New Ireland, [Oro], Southern Highlands, [Western] & Western Highlands
Elevational Range: 0–1700(–2100?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 167*, corresponding to *Sands 782* and *Kerenga LAE 56411*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed May–Jun. Fruiting not observed.

Magi Uses
None recorded.

Notes
Commonly encountered in understory growth. Likely more widespread than currently known. Flowers are small and translucent white.

Callicarpa longifolia Lam. CALLLO
Sumiŋ makɨ **Lamiaceae**

Global Distribution
S China (Guizhou) to N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Chimbu, Eastern Highlands, [Jiwaka] & Manus Is.
Elevational Range: 0–1500 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 976*, corresponding to *Takeuchi 10973* and *Henty NGF 11980*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed year round.

Magɨ Uses
None recorded.

Notes

Callicarpa pentandra Roxb. CALLPR
Sumiŋ akab **Lamiaceae**

Global Distribution
Peninsular Malaysia to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Chimbu], [Eastern Highlands] & [Enga]
Elevational Range: 0–1000? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 494* and *824*, corresponding to *Hoogland 4862* and *Brass 27693*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting observed year round.

Magɨ Uses
None recorded.

Notes

Clerodendrum porphyrocalyx K.Schum. & Lauterb. CLERPO
Sunam akab maki **Lamiaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua
PNG: Central, East Sepik, Madang, Morobe & [Oro]
Elevational Range: 0–200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 346* and *478*, corresponding to *Takeuchi 6046* and *Takeuchi et al. 13653*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Timber used to make kundu drums.

Notes
Formerly identified as *Clerodendrum inerme*.

Clerodendrum tracyanum (F.Muell.) Benth. CLERTR
Sunam akab niŋi **Lamiaceae**

Global Distribution
Borneo to Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Jiwaka] & [Western Highlands]
Elevational Range: 0–2000 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 830*, corresponding to *Takeuchi & Wiakabu 10049*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
[Not yet available]

Magi Uses
Timber used in construction.

Notes

Gmelina moluccana Backer ex K.Heyne GMELMO
Amim **Lamiaceae**

Global Distribution
Moluccas & New Guinea

New Guinea Distribution
ING: [Aru Is.], Papua & West Papua
PNG: Central, East Sepik, [Enga], Gulf, Madang, Manus Is., Morobe, New Britain, [New Ireland] & Sandaun
Elevational Range: 0–1100 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 500*, *501*, and *794*, corresponding to *Gardner 9129* and *Galore & Stevens LAE 50185*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jul–Nov.

Magi Uses
Timber used to make kundu drums. Bark applied onto sores. Liquid mixed with water and fed to sick dogs.

Notes

Premna serratifolia L. PREMSE
Kwaindé **Lamiaceae**

Global Distribution
E Kenya–Tanzania, E Madagascar to W India, S Japan (Ryukyu Is.) to Marquesas Islands & N Australia

New Guinea Distribution
ING & PNG: All provinces and islands except [Chimbu], [Eastern Highlands], [Hela], [Southern Highlands]
Elevational Range: 0–700(–1200?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 363* and *988*, corresponding to *Pullen 993*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Jul–Aug. Fruiting observed Aug–Sep.

Magi Uses
None recorded.

Notes
Formerly identified as *Premna obtusifolia*, now synonymized under this name.

Teijsmanniodendron cf. *bogoriense* Koord. TEIJBO
Sigil sigil **Lamiaceae**

Global Distribution
Peninsular Malaysia to New Guinea

New Guinea Distribution
ING:
PNG:
Elevational Range: 0–500? m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 415* and *530*, corresponding to *Katik NGF 46625*, *Hoogland 5061*, *Mabberley & Jebb 2413*, and *Saunders 913*.

Similar species
Not easily confused.

Habitat & Ecology
Regularly found growing near waterways and low valleys.

Phenology
Flowering not observed. Fruiting observed Mar.

Magi Uses
None recorded.

Notes
The morphological difference between this species and *Teijsmanniodendron ahernianum*, also known from nearby areas, is rather difficult to discern.

Vitex cofassus Reinw. ex Blume VITECO
Muki **Lamiaceae**

Global Distribution
Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, [Enga], Hela, Manus Is., Eastern Highlands & Western
Elevational Range: 0–950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 1333*, corresponding to *Wiakabu & Hausari LAE 70358*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed January–February, likely year round. Fruiting observed January–September, likely year round.

Magi Uses
None recorded.

Notes

Vitex cf. *glabrata* R.Br. VITEGL
Aŋ glu **Lamiaceae**

Global Distribution
India & Indochina to N Australia

New Guinea Distribution
ING: Papua & West Papua
PNG: East Sepik, Madang, Morobe, Sandaun & Western
Elevational Range: 0–200 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 435* and *568*, corresponding to *Katik NGF 37970*, *Katik NGF 46595*, and *Takeuchi et al. 1717613*.

Similar species
Teijsmanniodendron bogoriense, but this has round twigs, swollen petioles and petiolules that are variously flexed, and leaflets that are thickly chartaceous.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering

Magɨ Uses
None recorded.

Notes
Formerly identified as *Vitex quinata* which looks essentially identical when sterile but (in New Guinea) tends to have shorter petioles and leaflet bases that are not as strongly attenuate, although these traits are hardly convincing. Fertile specimens may be necessary for a positive ID.

Calycacanthus magnusianus K.Schum.

CALYMA
Acanthaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: [Papua]
PNG: Central, Chimbu, Eastern Highlands, [East Sepik], Enga, Gulf, [Hela], [Jiwaka], Madang, New Britain, New Ireland, Oro, Sandaun, Western & Western Highlands
Elevational Range: 0–2050? m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 4864* and *Katik NGF 46504*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Oct–Nov. Fruiting not observed.

Magi Uses
Plant used as house and ceremony decoration.

Notes

Graptophyllum pictum (L.) Griff. GRAPPI

Acanthaceae

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.] & Bougainville
Elevational Range: 0–2050 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 271* and *727*, corresponding to *Daniel et al. 6530* and *Wheeler ANU 6094*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering observed Jan & May–Nov, likely year round. Fruiting not observed, likely year round.

Magi Uses
None recorded.

Notes
The native range of this species is questionable due to its history of cultivation throughout the tropics. Although it is often cited as being endemic to New Guinea, this is not certain.

Gomphandra cf. *ramuensis* (Lauterb.) Sleumer GOMPRA
Maŋal nimali **Stemonuraceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua
PNG: East Sepik, Madang, [Morobe] & Sandaun
Elevational Range: 0–300 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 291*, *479*, and *1009*, corresponding to *Streimann & Martin NGF 52878* (fruits elongated, ripening orange) and *Saunders 309* (sterile). The specimen *Ctvrtecka 3537* from Wanang village corresponds to *Takeuchi 4780* (fruits ovoid, ripening white).

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun & Sep.

Magɨ Uses
None recorded.

Notes
Identification of the Papuan species of *Gomphandra* is quite challenging, even when fertile. In prior censuses, three species were recognized in the plot: *G. australiana*, *G. montana*, and *G. papuana*, however there is likely only one variable taxon that has been seen thus far which is here determined to be closest to *G. ramuensis*. Following a detailed revision by Schori (2010), the species *G. montana* was restricted to lower to mid montane forests from ca. 1300–1700 m asl, *G. australiana* was restricted to specimens collected in southern Papua namely Gulf and Central Provinces, and *G. papuana* was not found to be present in the Ramu basin. The species *G. rarinervis*, also known from the Ramu, is similar but has a dense brown indument on twigs and young leaves. Also similar is the species *G. pseudoprasina*, known from nearby Morobe Province, but this is noted to be more common at elevations above 500 m asl, has fruits that are not as swollen (thinner), and ripen yellow or pink/salmon (Schori 2010). The fruits of *G. ramuensis* have been described as usually ovoid and white, but the fruits from the plot ripen a salmon or light orangish color and have a more elongated shape matching that of *Streimann & Martin NGF 52878* from Sandaun. Fruits from specimens collected at Wanang village (*Ctvrtecka 3537*) are short ovoid and ripen opaque white, more closely matching the description of *G. ramuensis* (Schori 2010). It should be noted that this name is regularly considered a synonym of *G. australiana* and often cited as such. A molecular test of species limits is badly needed for all Papuan taxa to assess proper degrees of variability among and within species-level clades.

Medusanthera laxiflora (Miers.) R.A.Howard MEDULA
Maŋal maŋal **Stemonuraceae**

Global Distribution
Philippines & Sulawesi to Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except [Aru Is.], [Chimbu], [Eastern Highlands], Enga, Gulf & Hela
Elevational Range: 0–1700 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 486* and *1256*, corresponding to *Hoogland 5005* and *Streimann 8607*.

Similar species
Merrilliodendron megacarpum, but this has a bullate lamina surface with more prominently brochidodromous secondaries and clearly visible tertiary and quaternary venation.

Habitat & Ecology
Tends to avoid steep ridges.

Phenology
Flowering observed Sep–Nov. Fruiting observed Mar.

Magi Uses
None recorded.

Notes

Citronella suaveolens (Blume) R.A.Howard CITRSU
Kiaŋé muŋim **Cardiopteridaceae**

Global Distribution
Indochina to New Guinea

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, Chimbu, [Eastern Highlands], [Enga], [Gulf], Hela, Jiwaka, Madang, [Milne Bay], Morobe, [Oro], Southern Highlands, Western & Western Highlands
Elevational Range: 0–1950 m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 620* and *1048*, corresponding to *Takeuchi & Ama 16557*, *Saunders 205*, and *Takeuchi 5990*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering and fruiting not observed.

Magɨ Uses
None recorded.

Notes
This species looks confusingly similar to *Gonocaryum littorale* when sterile, another commonly collected lowland species in the same family. Here, *Citronella suaveolens* is distinguished from the latter on the basis of more sharply ascending secondaries, generally larger and thicker leaves with an apex that is not as strongly cuspidate, eucamptodromous venation, and more numerous lower order venation.

Pittosporum sinuatum Blume PITTSI
Blumes **Pittosporaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING & PNG: All provinces and islands except Bougainville, Manus Is., [Milne Bay], New Britain & New Ireland
Elevational Range: 0–1950(–2700?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 171* and *205*, corresponding to *Katik NGF 46830* and *Kerenga et al. LAE 73819*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed May.

Magi Uses
None recorded.

Notes
An easily recognizable species, known throughout the island. Collections from above 2000 m asl have leaves which look rather distinct from the rest: the lamina smaller and narrower, margins smooth, the apex strongly caudate and elongated, and the fruits smaller and smoother.

Polyscias spectabilis (Harms) Lowry & G.M.Plunkett POLYSP
Mui **Araliaceae**

Global Distribution
New Guinea, Solomon Islands & N Australia (Queensland)

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., [Bougainville], [East Sepik], [Enga], Gulf, [Milne Bay], [New Britain], Western
Elevational Range: 0–2250 m

[Not yet available]

Specimens
No voucher collected, but Wanang material corresponds to *Hoogland 5089*.

Similar species
[Not yet available]

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed February–April & November.

Magi Uses
Timber used for construction of houses, small huts, and tables. Leaves used as rolling paper for smoking.

Notes
Formerly known as *Gastonia spectabilis*, now synonymized under this name.

Osmoxylon cf. *boerlagei* (Warb.) Philipson OSMOBO
Ipé kapé té **Araliaceae**

Global Distribution
New Guinea endemic

New Guinea Distribution
ING: Papua & West Papua
PNG: [Central], Chimbu, Eastern Highlands, East Sepik, Hela, Madang, Milne Bay, Morobe, Oro, Sandaun, Southern Highlands
Elevational Range: 0–1300(–1800?) m

[Not yet available]

Specimens
Represented by the voucher *Ezedin 560* and *744*, corresponding to *Takeuchi et al. 13296* and *Takeuchi 4383*.

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Sep.

Magi Uses
None recorded.

Notes
Formerly identified as *Osmoxylon novoguineense*, which looks rather similar, but the Wanang material more closely approaches *O. boerlagei* which has margins weakly serrate (vs. smooth), infructescences more open (i.e., less dense), and fruits on thicker pedicels.

Appendix 4

Examples of completed species accounts. The following five completed species accounts are provided to give an accurate portrayal of the overall contents of the *Tree Flora of Wanang FDP*, with all relevant information included. The five species exemplified herein were chosen based on completeness of available information and relative accuracy in their identification.

Each species account is presented in a three-page format below. The first page incorporating all written information appearing in Appendix 3, the second page with stand tables and maps, and the third page with illustrations. For the book, species accounts will be condensed into a two-page format.

In addition to the written information outlined on the first page of Appendix 3, the following will be provided for each taxon:

- Stand table with total stems per size class
- Plot distribution maps
- Photographs*
    a. Stems (adaxial, abaxial)
    b. Leaves (adaxial, abaxial)
    c. Venation detail
    d. Bark (if available)
    e. Stem growth tip (if available)
    f. Miscellaneous vegetative parts (e.g., stipules) (if available)
    g. New leaves flushing (if available)
    h. Inflorescences & flowers (if available)
    i. Infructescences & fruit (if available)

**Note: Not all parts will be photographed for each species.*

All scale bars in photos equal 10 cm in length.

Gnetum costatum K.Schum. GNETCO
Sir kunu **Gnetaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Central, East Sepik, Gulf, Madang, Milne Bay, Morobe, New Britain, Oro, Papua, Sandaun, West Papua
Elevational Range: 0–200 m

Shrub or Tree to 5 m tall and 12 cm dbh. ***Twigs*** light brown to reddish brown, smooth, with nodes thickened and articulated. ***Leaves*** simple, opposite, 2-ranked, 13–20.5 × 7.3–10 cm, (flimsy) coriaceous, glossy dark green above, dull(–semi-glossy) light green below; lamina surface weakly to strongly raised between secondaries; bases acute to obtuse; apex caudate, with long drip tip; margins entire, often weakly undulate; petioles 0.8–1.4 cm, dark crimson red, round. ***Stipules*** absent. ***Indument*** absent. ***Venation*** pinnate, brochidodromous, with ultimate marginal tertiaries broadly looping once or sometimes twice with the latter arches being faint or abruptly cut off by the margin; costa dark pinkish-red below, adaxially flat to raised slightly, adaxially raised; secondary veins 6–8, excurrent, adaxially impressed, abaxially raised; tertiary veins irregular, straight percurrent to admedially ramified with derivatives sometimes anastomosing and appearing forked percurrent, oblique at sharp angles(–perpendicular) to the costa; quaternary veins penultimate, faint, reticulating towards the costa.

Specimens
Represented by the voucher *Ezedin 866* which corresponds to *Katik NGF 46836*, *Forster 11080*, and *Hoogland 4872*.

Similar species
Gnetum gnemon, but this is a large tree with usually less rounded leaves and the abaxial costa green. *Gnetum latifolium*, but this is a liana.

Habitat & Ecology
Locally rare at Wanang but reported to be somewhat common in other parts of its range.

Phenology
Does not bear flowers or fruits. Cones observed in August, but likely year round.

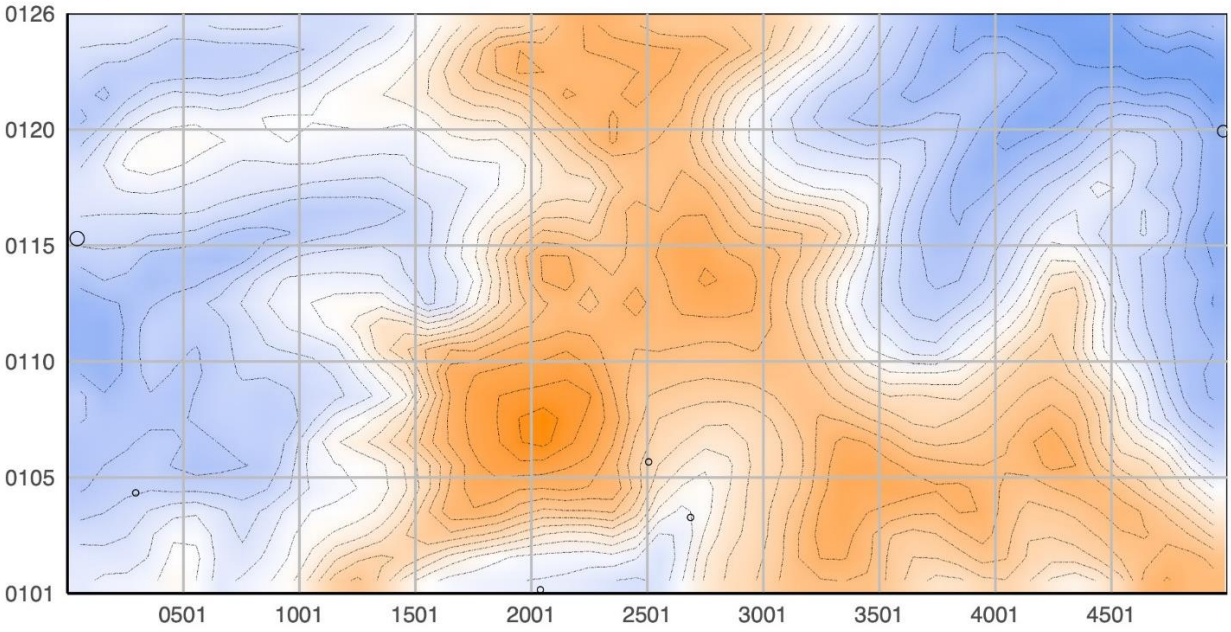
Magi Uses
Fibrous inner bark used to make strings for traditional string bags known as bilums.

Notes
Unlike its close relative *Gnetum gnemon*, the foliage of this species is not edible.

Stand Table

Size Class	Stems
1–2	3
2–5	12
5–10	0
10–20	1
20–30	4
30–60	0
>60	0
Total	20

Plot Distribution



Photograph: Twig with adaxial leaves (left); abaxial leaf (upper right); adaxial leaf (middle right); and infructescence (lower right).

Polyalthia longirostris (Scheff.) B.Xue & R.M.K.Saunders POLYLO
Ibutei **Annonaceae**

Global Distribution
New Guinea & Solomon Islands

New Guinea Distribution
ING & PNG: All provinces and islands except Aru Is., Chimbu, Hela, Jiwaka, Manus Is., [New Ireland], Southern Highlands
Elevational Range: 0–1300(–2000?) m

Tree to ca. 7 m tall and ca. 10 cm dbh. ***Twigs*** green, smooth; maturing dark brown, vertically striate. ***Odor*** of all parts long lasting, harsh, strongly fruity tropical and reminiscent of sweetsop/soursop or possibly unripe guava, some may interpret the odor as chicken feces. ***Leaves*** simple, alternate, 2-ranked, thick (stiff) chartaceous, 15–33 × 7–13 cm, dark semi-glossy green above, mid dull green below, new leaves flush salmon pink; lamina surface warped and prominently bullate between secondaries and tertiaries; base oblique, uneven; apex acuminate; margins entire; petioles 0.2–0.5 cm, dark yellowish green, shallowly grooved. ***Stipules*** absent. ***Indument*** present on apical buds, petioles, and abaxial veins, sparse; hairs simple, light brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries continuously looping in 2–3 series; costa adaxially slightly impressed, abaxially prominently raised; secondary veins 9–13, adaxially impressed, abaxially raised; tertiary veins irregular, straight to (doubly) forked percurrent, often forming multiple short composite intersecondaries, oblique at 45–90° to the costa, course variable but usually straight, weakly recurved or not; quaternary veins faint, broadly reticulate.

Specimens
Represented by the voucher *Ezedin 440* and *511*, corresponding to *Brass 24039* and *Rodatz & Klink 26* (typus: *Papualthia grandifolia*).

Similar species
Not easily confused.

Habitat & Ecology
Not much is known about the ecology of this species.

Phenology
Flowering not observed. Fruiting observed Jun.

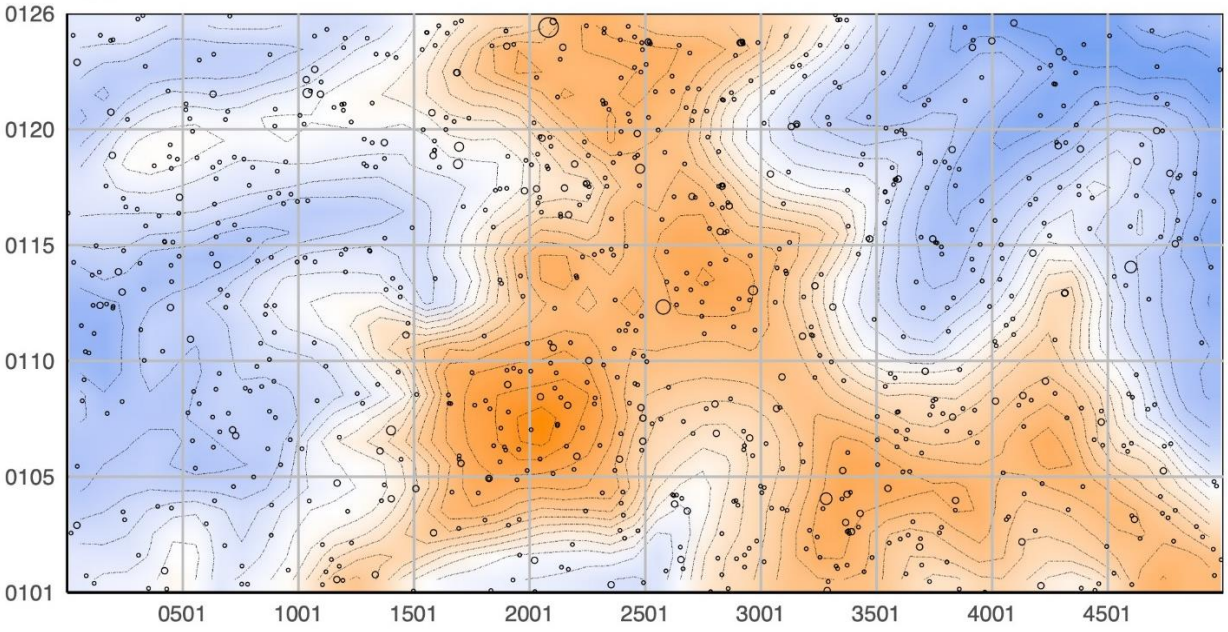
Magi Uses
Planted with yams in gardens. Timber used in house construction, burned as mosquito repellant, and used in preparing medicine for dogs.

Notes
Formerly known as *Haplostichanthus longirostris*. Specimens determined as this species collected from above 1300 m asl have smaller and narrower leaves.

Stand Table

Size Class	Stems
1–2	1471
2–5	247
5–10	13
10–20	6
20–30	2
30–60	0
>60	2
Total	1784

Plot Distribution



Photograph: Twig with adaxial leaves (upper left); twig with abaxial leaves (lower left); new leaves flushing (right).

Litsea timoriana Span. LITSTI
Malaŋ malaŋ suku **Lauraceae**

Global Distribution
Borneo & Philippines to Solomon Islands

New Guinea Distribution
ING: [Papua] & West Papua
PNG: Bougainville, Central, East Sepik, Gulf, Jiwaka, Madang, Manus Is., Milne Bay, Morobe, New Britain, New Ireland, Oro, Sundaun & Western Highlands
Elevational Range: 0–600(–1200) m

Tree to 35 m tall and 40 cm dbh. ***Twigs*** green, smooth; maturing light orangish brown to dark reddish brown, smooth. ***Odor*** of all parts spicy lauraceous. ***Leaves*** simple, alternate, spiral, (5–)9.5–15(–24) × 3–7 cm, thick chartaceous approaching thin coriaceous, glossy mid green above, glaucous white below, lamina surface slightly raised between secondaries; base acute to acuminate; apex variously blunt acute to rounded; margins entire; petioles 1.2–1.5, dark green, slightly grooved. ***Stipules*** absent. ***Indument*** present on young twigs and petioles, very early glabrescent; hairs simple, short, dark coppery brown. ***Venation*** pinnate, eucamptodromous, with ultimate marginal tertiaries broadly looping and fading out; costa adaxially raised, abaxially raised; secondary veins 6–10, weakly decurrent, adaxially slightly impressed, abaxially raised; tertiary veins broad, somewhat irregular, straight to forked percurrent exmedially to weakly reticulate admedially, ±perpendicular to the costa towards the margins, course mostly straight; quaternary veins faint, reticulate, forming a dense geometrical net-like pattern nearly filling the intercostal matrix.

Specimens
Represented by the voucher *Ezedin 306* and *488*, corresponding to *Miller NGF 9911* and *Henty NGF 14380*.

Similar species
Not easily confused.

Habitat & Ecology
Fruits are known to be an important source of food for wildlife.

Phenology
Flowering observed September–Octobber. Fruiting observed August–September.

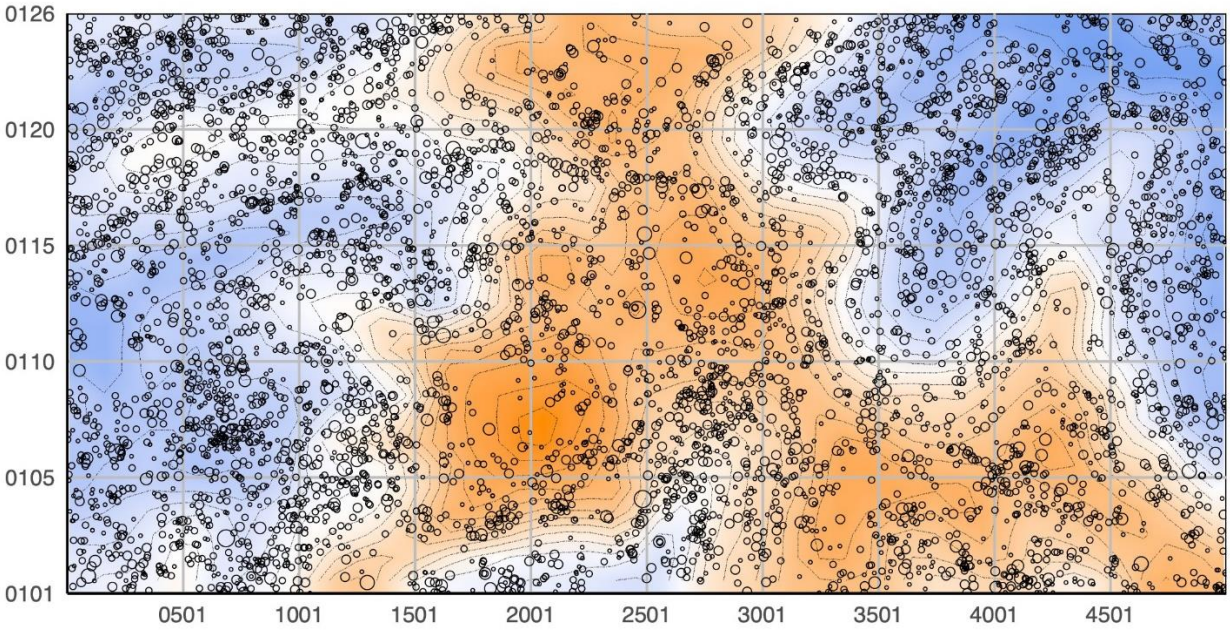
Magi Uses
Bark used to make traditional tapa cloth. Timber used for firewood and in house construction.

Notes
A widespread species common in the plot and elsewhere in the New Guinea lowlands.

Stand Table

Size Class	Stems
1–2	3578
2–5	5039
5–10	1778
10–20	400
20–30	38
30–60	12
>60	0
Total	11027

Plot Distribution



Photograph: Twig with adaxial and abaxial leaves (left); twig with axillary flowers (upper right); twig with fruits at different stages of maturity (lower right).

Celtis latifolia (Blume) Planch. CELTLA
Klaŋ **Cannabaceae**

Global Distribution
Philippines & Moluccas to Solomon Islands

New Guinea Distribution
ING: Papua & West Papua
PNG: Bougainville, Central, East Sepik, Madang, Morobe, New Britain, New Ireland, Oro, Sandaun & Western
Elevational Range: 0–200(–800) m

Tree to 30 m tall and 50 cm dbh. ***Twigs*** green, smooth; maturing grey, smooth. ***Leaves*** simple, alternate, 2-ranked, thick stiff chartaceous, 8–23 × 4.5–12 cm, dark glossy green above, dark semi-glossy olive green below, lamina surface curling inwards and plateauing from the base; base oblique, asymmetric and unequal; apex acuminate, often with prominent drip tip; margins entire; petioles 0.7–1.2 cm, dark green, with slight central groove. ***Stipules*** present, small, triangular, semi-circular, early caducous, up to 0.8 cm long. ***Indument*** appears absent but very sparsely present on abaxial leaves; hairs very small, white, appressed. ***Venation*** pinnate, perfect (to imperfect) basal acrodromous, the outer secondaries brochidodromous, with ultimate marginal tertiaries looping in 1–2 series; costa adaxially flat, abaxially raised; [outer] secondary veins ca. 18–25, adaxially flat, abaxially raised slightly; tertiary veins [between the primaries] weakly percurrent, ±perpendicular to costa, course mostly convex; tertiary veins [between the secondaries] forked percurrent, forming composite intersecondaries, oblique at 45° to the costa, course mostly straight; quaternary veins densely reticulate.

Specimens
Represented by the voucher *Ezedin 383* and *875*, corresponding to *Saunders 250*.

Similar species
Celtis ridgescens, but this has larger leaves that are thin flimsy membranaceous and secondaries off the central primary.

Habitat & Ecology
Has a weakly clumped distribution pattern that is strongly associated with ridgelines. This species may variously be evergreen or partially to fully deciduous during the dry season months Jun–Sep. The sulfur crested cockatoo (*Cacatua galerita*) and palm cockatoo (*Probosciger aterrimus*) were observed feeding on the fruits on multiple occasions.

Phenology
Flowering not observed, likely year round. Fruiting observed February–April & June–November.

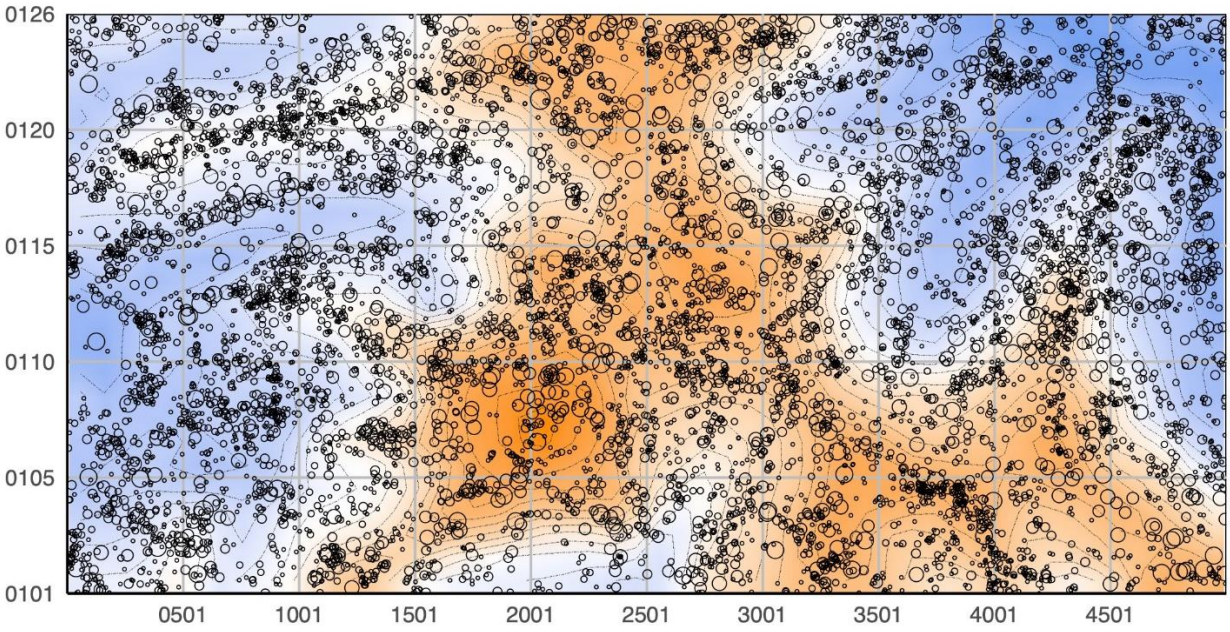
Magi Uses
Timber used for house construction of small huts and firewood. Leaves used as decoration during ceremonies and is edible by pigs.

Notes
According to data from the second census, this is the second most abundant species inside the Wanang plot, surpassed only by *Ficus hahliana*. The collection by *Coode et al. NGF 29762* notes it as growing as a semi-epiphyte on another tree.

Stand Table

Size Class	Stems
1–2	8464
2–5	5156
5–10	1823
10–20	906
20–30	381
30–60	439
>60	27
Total	17455

Plot Distribution



Photograph: Twig with abaxial leaves (left); adaxial leaf (upper right, left side); abaxial leaf (upper right, right side); twig with fruits at different stages of maturity (lower right).

Intsia bijuga (Colebr.) Kuntze INTSBI
Kulum **Fabaceae**

Global Distribution
E Tanzania to Samoa

New Guinea Distribution
ING & PNG: All provinces and islands except Chimbu, Eastern Highlands, Enga, Hela, Jiwaka, Southern Highlands & Western Highlands
Elevational Range: 0–200(–600?) m

Tree to 40 m tall and 90 cm dbh. ***Twigs*** dark green to blackish, smooth; maturing light grey to chalk white, rough with many small dark lenticels. ***Odor*** of vegetative parts strong, leguminous. ***Leaves*** compound, paripinnate, alternate, 2-ranked; rachis 4–6 cm, green, round; petioles 2.5–7 cm, green to grey, thickened at base with pulvinus; leaflets 4, opposite to subopposite, (thick) subcoriaceous, 4–15 × 4–12 cm, dark glossy green above, mid semi-glossy green below; lamina surface flat; bases obtuse to rounded (to truncate), often asymmetric; apex blunt acute; petiolules 0.4–0.8 cm, ovoid, often contorted. ***Stipules*** present, small, early caducous. ***Indument*** absent. ***Venation*** pinnate, festooned brochidodromous, with ultimate marginal tertiaries infinitely looping; costa adaxially raised, abaxially raised; secondary veins 7–9, adaxially raised slightly, abaxially raised slightly; tertiary veins forked percurrent to weakly reticulate, forming composite intersecondaries, oblique at 45° to nearly perpendicular to the costa; quaternary veins reticulate.

Specimens
Represented by the voucher *Ezedin 1007*, corresponding to *Takeuchi & Regalado 10249*.

Similar species
Not easily confused. *Kingiodendron* spp. leaflets are always alternate whereas *Millettia pinnata* and *Ormosia calavensis* are always imparipinnate.

Habitat & Ecology
This species is either fully deciduous, losing all its leaves, or partially deciduous and holding on to a few leaves per stem, for a brief period during the dry season months (Jul–Aug). New leaves flush out immediately after the deciduous phase has ended. During the flowering period, numerous butterflies, particularly *Papilio ambrax*, can be seen regularly circling the tree crowns.

Phenology
Flowering observed late Aug–Sept. Fruiting observed Aug–Nov & Jan–May.

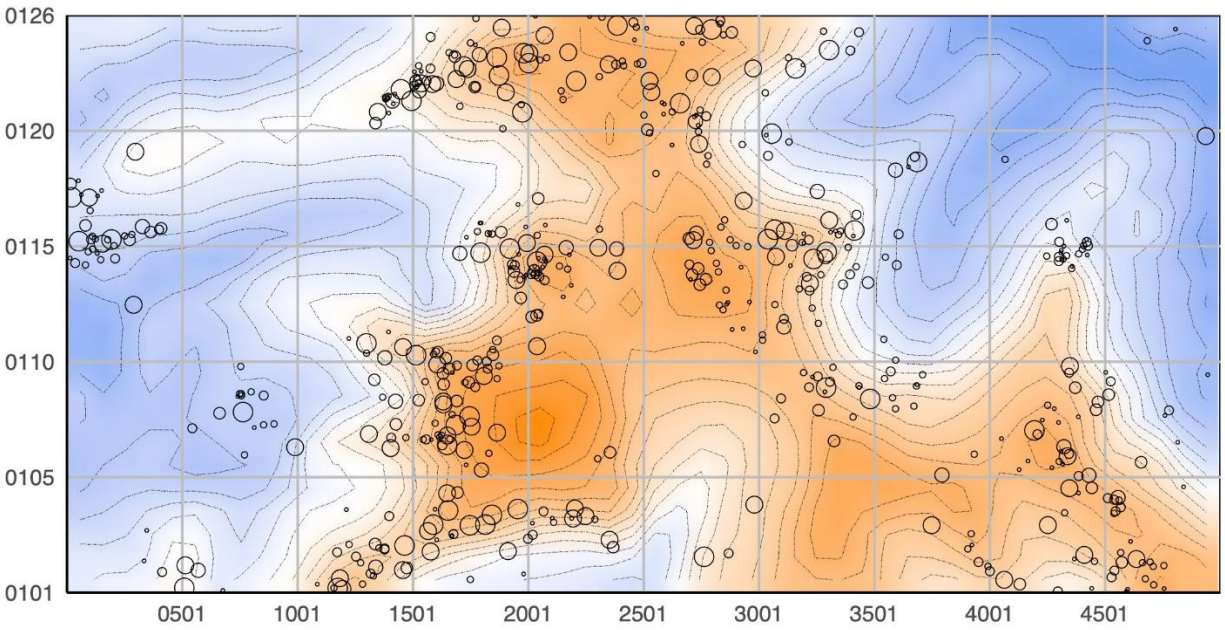
Magi Uses
Liquid mixed with water or food and fed to dogs so they gain weight, seeds chewed with betel nut, liquid consumed for body aches, wood use for slit drums.

Notes
A prized commercial timber tree, known by the name “kwila” in trade. The flowers emit a powerful fragrance that fills the air and the forest understory for a couple weeks during the flowering season. The presence of large-stemmed individuals (>30 cm dbh) of this species is usually a good indicator of unlogged primary forest.

Stand Table

Size Class	Stems
1–2	276
2–5	318
5–10	188
10–20	142
20–30	55
30–60	143
>60	115
Total	1244

Plot Distribution



Photograph: Twig with abaxial leaves (left); inflorescence (right).