

## Appendix F Selecting Tropical Tree Species for Planting

The process of selecting tree species for planting will concern foresters into the distant future. With time, the objectives of planting may change, new or modified sites will become available, and attributes of more tree species, varieties, provenances, and genotypes will become known or be developed.

The selection of a species for a specific site and purpose depends on a growing fund of information about each option. Some of this information is so specific or so subject to change or to primarily local variables that generalization can be no more than a preliminary guide. All that is attempted here is to present a succinct compendium of information of a universal, probably durable, nature to remind foresters concerned with any sets of conditions under which species might be categorized as probables, possibles, or improbables. This information is incomplete, evidenced by the absence of some data. Much of this information may exist but was not found in the sources reviewed.

Once a species has been selected, the next step is more detailed and specific. A large amount of additional information should be obtained on subjects such as silvicultural practices; seed weight, sources, and handling; propagation; and pests and diseases.

The information included here was collected from a number of sources. Conflicting information was screened to favor the source that is apparently most representative of plantations growing under reasonably favorable circumstances.

**Name.** The most commonly accepted scientific name, with author, is followed by commonly used vernacular names.

**Elevation.** Two ranges of elevation are given in meters, the first corresponding to latitude 24° N. and the second (in parentheses) corresponding to latitude 10° S. These data, based on the study by Webb and others (1984), indicate where prospects of success seem greatest. Nevertheless, with unusual conditions of moisture, temperature, or soil, testing may show greater adaptation.

**Rainfall.** The range of annual rainfall is indicated in centimeters; the number of dry months and their season (W = cool and S = warm) are given in parentheses.

**Soil.** The soils corresponding to best development are described first; known tolerances of inferior conditions are then listed.

**Resistance.** References to resistance to frost (Fr), fire (F), and wind (W) are given. Where appropriate, low-temperature limits are shown. Slashes indicate evidence of a lack of resistance. Frost resistance of large trees is greater than that of small trees, and temperature tolerance varies with duration of the cold, moisture, and other factors. Wind resistance does not necessarily imply resistance to hurricanes, only to lesser winds.

**Synonym.** Only currently and widely used scientific names other than the accepted name are noted.

**Utility.** The first line shows the upper limit of diameter at breast height (d.b.h.) in nature; this is given in meters, to the nearest decimeter, and is followed by a slash and the corresponding height in meters (1.2d.b.h./20–30ht). These upper limits are usually much larger than minimal commercial maturity, but this indicates the degree to which commercial sizes might be attained by trees that are still young. This information is followed on the first line by a whole number or range of whole numbers corresponding to the reported specific gravity of the wood times 10 (4.5g). This is usually, but not always, based on oven-dry weight and green volume. The second line concerns traditional or prospective wood uses:

F = One or more of the following: furniture, cabinet work, interiors, millwork, moldings, novelties, musical instruments, or carving

V = Veneer or pulpwood, utility plywood, or core stock

T = Turnery, novelties, or carving

C = One or more of the following: light construction, heavy construction, boat building, flooring, carpentry, boxes, tools, handles, pallets, crossties, or decking

Pu = Pulpwood or particle board

Po = Poles or posts

Fu = Fuel (including charcoal)

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R = Soil reclamation, erosion control, or dune stabilization

A = Agroforestry, including taungya and other forms of integral production with food or fodder crops

**MAI.** Mean annual increment to maturity for the most logical product is expressed in cubic meters per hectare ( $m^3/ha$ ) or in some instances in tonnes per hectare (t/ha). There is no consistency with regard to outside or inside bark, or top diameter, because these are not always stated in source documents. Branchwood and bark are usually excluded. Where widely various levels are shown, such as in yield tables for different site qualities, data for slightly better than medium sites were used, rather than extremes. These figures are generally derived from living stands and are generally somewhat larger than actual yields to be expected from harvested crops. The letter "c" shown after the MAI figures indicates that the species reportedly coppices well enough for one or more coppice crops. These commonly exceed in yield the seedling crops cited in the MAI figures.

**Growth.** This factor is included primarily to give some idea of the rapidity of early height growth on sites to which the species is well adapted, reflecting the length of the period of weeding or vulnerability to fire, browsing, or frost prior to canopy closure. The height in meters precedes the slash, and the number of years follows it. The heights are not maxima but are commonly "top height," meaning the average height of the 10 percent of the trees with the largest diameters on sites to which the species is well adapted.

**Planting.** The complexity of plantation establishment is indicated, including the prospects for direct sowing or mechanized planting of bare-root stock or cuttings.

S = Direct sowing, may dominate weeds without attention; aerial, broadcasting, or spot-seeding

B = Bare-root stock, including possibly wildlings

Str = Striplings, bare-root with leaves partially removed

Stu = Stumps, bare-root with stem removed

C = Containerized stock, baskets, pots, bags, and tubes

Cu = Stem or root cuttings

u = Sufficiently tolerant to be suitable for underplanting with direct overhead light

**Source.** The extremes of the native range of the species (not necessarily the source of seeds) are given, along with the range in latitude.

**References.** The most important general sources follow:

fuelwood yields	Burley (1980c)
timbers	Chudnoff (1984)
Australia	Fenton and others (1977)
Latin America	Flinta (1960)
dry forest species	Goor (1955)
Central America	Goor and Barney (1968)
Trinidad	Loock (1950)
tropical Africa	Marshall (1939)
1954c)	Parry (1954a, 1954b,
what was formerly Zaire	Pierlot (1958)
the British	
Commonwealth	Streets (1962)
the Tropics generally	Webb and others (1984)

In addition, the following references listed chronologically by individual species, were consulted:

Acacia spp.	Giffard (1975)
<i>Acrocarpus fraxinifolius</i>	Anon. (1983b)
<i>Agathis</i> spp.	Burns and Mosquera (1988)
	Anon. (1961a)
	Whitmore (1977)
	Bowen and Whitmore (1980)
	Francis (1984–present)
<i>Albizia lebbek</i>	Parrotta ([n.d.]a)
<i>A. procera</i>	Parrotta ([n.d.]b)
<i>Anacardium occidentale</i>	Bascope and others (1958)
	Lefebvre (1966)
	Goujon and others (1973)
<i>Andira inermis</i>	Weaver (1989)
<i>Anthocephalus chinensis</i>	Grijpma (1967)
	Lugo and Figueroa (1984,
	1985)
<i>Araucaria</i> spp.	Anon. (1960a)
	Ntima (1968)
	Golfari (1970a)
<i>Aucoumea klaineana</i>	Braud and Catinot (1960)
	Deval (1976)
<i>Avicennia germinans</i>	Jimenez and Lugo (n.d.)

<i>Azadirachta indica</i>	Anon. (1963a) Parrotta and Chaturvedi (1994)	<i>Grevillea robusta</i>	Nelson (1960) Burns and Mosquera (1988) Bokkestijn and Francis (n.d.)
<i>Bambusa vulgaris</i>	Anon. (1962a) Groulez (1966) Francis (1984–present)	<i>Guaiacum officinale</i> <i>Guazuma ulmifolia</i> <i>Hibiscus elatus</i>	Francis (1984–present) Francis (1984–present) Swabey (1940)
<i>Brosimum alicastrum</i>	Burns and Mosquera (1988)	<i>Hura crepitans</i>	Weaver and Francis (n.d.)
<i>Bucida buceras</i>	Francis (1984–present)	<i>Hymenaea courbaril</i>	Francis (1984–present)
<i>Bursera simaruba</i>	Francis (1984–present)	<i>Khaya</i> spp.	Francis (1984–present)
<i>Calophyllum calaba</i>	Burns and Mosquera (1988) Weaver (1990a)		Anon. (1959g)
<i>Casuarina equisetifolia</i>	Anon. (1961c) Burns and Mosquera (1988) Parrotta (1993)	<i>Laguncularia racemosa</i> <i>Leucaena leucocephala</i>	Burns and Mosquera (1988) Bokkestijn and Francis (n.d.)
<i>Cedrela odorata</i>	Bascope and others (1957b) Anon. (1962b) Burns and Mosquera (1988) Lamb (1968d)	<i>Lophira procera</i> <i>Maesopsis eminii</i> <i>Manilkara bidentata</i> <i>Mitragyna ciliata</i> <i>Musanga cecropioides</i> <i>Nauclea diderichii</i> <i>Ochroma pyramidalis</i>	Jimenez (n.d.) Anon. (1977c) Parrotta (1992b)
<i>Ceiba pentandra</i>	Anon. (1975d) Chinea-Rivera (1990)	<i>Paulownia</i> spp.	Anon. (1976c) Francis (1984–present) Weaver (1990b)
<i>Chlorophora excelsa</i>	Anon. (1973c)		Anon. (1976d) Doat (1971)
<i>Cordia alliodora</i>	Johnson and Morales (1972)		Anon. (1975a) Anon. (1961f)
<i>Cunninghamia lanceolata</i>	Burns and Mosquera (1988)		Francis (1984–present)
<i>Cupressus</i> spp.	Liegel and Stead (1990)		Moraes Victor and others (1974)
<i>Dalbergia sissoo</i>	Anon. (1961d) Anon. (1960d)	<i>Pinus</i> spp.	Anon. (1974d) Critchfield and Little (1966)
<i>Entandrophragma cylindricum</i>	Anon. (1962c)		Mirov (1967)
<i>E. utile</i>	Parrotta (1989)	<i>P. caribaea</i>	Palmer (1977)
<i>Entrolobium cyclocarpum</i>			Anon. (1958f)
<i>Eucalyptus</i> spp.	Francis (1984–present) de la Lama Gutierrez (1976–77)	<i>P. kesiya</i>	Lamb (1973)
<i>E. camaldulensis</i>	Jacobs (1981)		Francis (1984–present)
<i>E. deglupta</i>	Anon. (1963b)	<i>P. merkusii</i>	Anon. (1960f)
<i>E. grandis</i>	Eldridge (1975)	<i>P. oocarpa</i>	Armitage and Burley (1980)
<i>E. robusta</i>	Grijpma (1969)	<i>P. patula</i>	Gueneau (1970)
<i>E. saligna</i>	Francis (1984–present)		Anon. (1959i)
<i>E. tereticornis</i>	Anon. (1959a)		Cooling (1968)
<i>Gliricidia sepium</i>	Burns and Mosquera (1988)		Burns and Mosquera (1988)
<i>Gmelina arborea</i>	Gueneau (1969)		Anon. (1959j)
	Burns and Mosquera (1988)		Gueneau (1970)
	Anon. (1959a)		Wormald (1975)
	Burns and Mosquera (1988)		Gillespie (1992)
	Anon. (1963b)	<i>Pithecellobium saman</i>	Burns and Mosquera (1988)
	Parrotta (1992a)	<i>Podocarpus respligiosii</i>	Lamprecht (1954)
	Lamb (1968c)	<i>Prosopis juliflora</i>	Anon. (1962f)
	Boulet-Gercourt (1977)		Burns and Mosquera (1988)
	Greaves (1981a)	<i>Rhizophora mangle</i>	Jimenez (1985)
	Burns and Mosquera (1988)	<i>Schefflera morototoni</i>	Liege (1990)
		<i>Senna siamea</i>	Anon. (1960b)
			Parrotta and Francis (1990)

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<i>Swietenia</i> spp.	Bascope and others (1957a) Anon. (1959) Lamb, F. B., (1966) Francis (1984–present)	<i>Terminalia catappa</i> <i>T. ivorensis</i>	Francis (1984–present) Lamb and Ntima (1971) Anon. (1974b) Francis (1984–present)
<i>Tabebuia donnell-smithii</i>	Lamb (1951) Francis (1984–present)	<i>T. superba</i>	Anon. (1974c) Tariel and Groulez (1958)
<i>Tectona grandis</i>	Horne (1966) Wood (1968) Weaver (1993)	<i>Toona ciliata</i> <i>Triplochiton scleroxylon</i> <i>Vochysia</i> spp.	Anon. (1962b) Anon. (1976i) Normand (1966–67)

### Species Information

<i>Abies guatemalensis</i> Rehd. <b>Common Name:</b> Guatemala fir <b>Elevation:</b> 1,800–3,200 (1,300–2,700) <b>Rainfall:</b> <b>Soil:</b> <b>Resistance:</b>	<b>Synonym:</b> Utility: .9dbh/35ht <b>MAI:</b> Growth: 2/6 Planting: Source: Mexico to Guatemala, 20° to 14° N.	<i>Acacia melanoxylon</i> R. Br. <b>Common Name:</b> Blackwood <b>Elevation:</b> 1,500–2,500 (1,000–2,500) <b>Rainfall:</b> 90–270 (0–2) <b>Soil:</b> Deep, free-draining—tolerates sand and acidity <b>Resistance:</b> Fr (~10 °C)	<b>Synonym :</b> Utility: 1.2dbh/18–30ht/6–7g FC, Po, Fu <b>MAI:</b> 5–12 c <b>Growth:</b> 12/6, 22/16 <b>Planting:</b> Stu, C <b>Source:</b> Queensland to Tasmania, Australia, 34° to 43° S.
<i>Acacia auriculiformis</i> A Cunn. ex Benth <b>Common Name:</b> Tan wattle <b>Elevation:</b> 0–500 <b>Rainfall:</b> 130–170 (3–6 W) <b>Soil:</b> Heavy—tolerates shallow, calcareous, sandy soils; acidity; alkalinity; and impeded drainage <b>Resistance:</b> W	<b>Synonym:</b> Utility: .6dbh/30ht/5–8g Pu, Po, Fu, R <b>MAI:</b> 6–20 c Growth: 6/2, 14/5, 17/8 Planting: S, C, U Source: Papua New Guinea to Queensland, Australia, 7° to 20° S.	<i>Acacia senegal</i> Willd. <b>Common Name:</b> Goma, gum arabic <b>Elevation:</b> 0–500 <b>Rainfall:</b> 20–50 (6–11 W) <b>Soil:</b> Free-draining—tolerates acidity and poor, heavy, and sandy soils <b>Resistance:</b> Fr, W	<b>Synonym:</b> <i>A. verek</i> Guill. and Perr. Utility: .6dbh/2–10ht Fu, A, Po, R, gum <b>MAI:</b> 4–7 c <b>Growth:</b> 1/3 <b>Planting:</b> S, C <b>Source:</b> Senegal to the Red Sea, 11° to 18° N.
<i>Acacia mangium</i> Wild. <b>Common Name:</b> <b>Elevation:</b> 500–1,200 (0–700) <b>Rainfall:</b> >160 <b>Soil:</b> Sandy loam—tolerates poor acid soils and impeded drainage <b>Resistance:</b>	<b>Synonym:</b> Utility: 30ht/4–6g F, C, Pu, Po, Fu <b>MAI:</b> 20–46 c Growth: 18/4, 23/9 Planting: S, B, C, Stu Source: Queensland, Australia, 11° to 19° S.	<i>Acrocarpus fraxinifolius</i> Wight <b>Common Name:</b> Indian ash, pink cedar <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> 110–160 (0–4 W) <b>Soil:</b> Deep, free-draining—tolerates acidity but not impeded drainage <b>Resistance:</b>	<b>Synonym:</b> Utility: 3.0dbh/30–50ht F, C, Fu, A <b>MAI:</b> 10 <b>Growth:</b> 8/3, 11/4 <b>Planting:</b> C <b>Source:</b> Myanmar to India, 17° to 23° N.
<i>Acacia mearnsii</i> de Wild. <b>Common Name:</b> Acacia negra, black wattle <b>Elevation:</b> 1,500–2,500 (1,000–2,000) <b>Rainfall:</b> 90–160 (2–3 W) <b>Soil:</b> Deep, free-draining—tolerates poor or heavy soil but not calcareous ones <b>Resistance:</b> Fr (moderate), W	<b>Synonym:</b> <i>A. decurrens</i> var. <i>mallis</i> Lindl. Utility: 7–20ht/5–8g Pu, Po, Fu, tanning, R, A <b>MAI:</b> 14–25 Growth: 10/5, 15/9, 20/12 Planting: S, B Source: Queensland to Tasmania, Australia, 25° to 43° S.	<i>Agathis dammara</i> L. C. Richard <b>Common Name:</b> Damar <b>Elevation:</b> 100–1,600 (0–1,100) <b>Rainfall:</b> 200–400 (0–2) <b>Soil:</b> Free-draining—tolerates heavy soil and acidity but not impeded drainage <b>Resistance:</b> W	<b>Synonym:</b> <i>A. loranthifolia</i> R.A. Salisbury Utility: .6dbh/45–60ht/4–5g C, Pu <b>MAI:</b> 20–30 (20 t) <b>Growth:</b> 8/6 <b>Planting:</b> C, Cu, u <b>Source:</b> Southeast Asia and the Pacific, 11° to 20° N.

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<b><i>Agathis robusta</i> (C. Moore ex F. Muell.) F.M. Bailey</b> <b>Common Name:</b> Queensland kauri <b>Elevation:</b> 100–900 (0–1,100) <b>Rainfall:</b> 110–500 (0–2) <b>Soil:</b> Free-draining—tolerates heavy soil and acidity but not impeded drainage <b>Resistance:</b> W (old trees only), Fr	<b>Synonym:</b> Utility: 4dbh/45–60ht/4–5g F, C, V, Pu MAI: 20–35 (20 t) Growth: 8/6, 14/20, 27/50 Planting: C, Cu - u Source: Papua New Guinea to Australia, 5° to 28° S.	<b><i>Andira inermis</i> (W. Wright) D.C.</b> <b>Common Name:</b> Moca, maquilla, acapúrana <b>Elevation:</b> 0–900 <b>Rainfall:</b> 100–400 <b>Soil:</b> From sandy soils to poorly drained clays <b>Resistance:</b> W	<b>Synonym:</b> <i>A. jamaicensis</i> (W. Wright) <b>Utility:</b> 1.5dbh/35ht/6g F, T, C <b>MAI:</b> <b>Growth:</b> 2/9 <b>Planting:</b> S <b>Source:</b> Mexico and the West Indies to Brazil, 23° N. to 20° S.
<b><i>Albizia lebbek</i> (L.) Benth</b> <b>Common Name:</b> Acacia amarilla, siris <b>Elevation:</b> 0–1,400 (0–900) <b>Rainfall:</b> 50–250 (2–6 W) <b>Soil:</b> Free-draining—tolerates acidity, alkalinity, and heavy and eroded soils <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>Mimosa lebbek</i> L. <b>Utility:</b> 1.5dbh/25–30ht/4–6g F, Fu, Po, A MAI: 5–18 Growth: 2/1, 5/3, 18/10 Planting: S, B, Stu, Cu Source: India to Myanmar, 27° to 11° N.	<b><i>Aniba</i> spp.</b> <b>Common Name:</b> Silvervalli, pao rosa <b>Elevation:</b> <b>Rainfall:</b> <b>Soil:</b> <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .8dbh/30ht/5–6g F, T, C <b>MAI:</b> <b>Growth:</b> 7/8 <b>Planting:</b> <b>Source:</b> Amazonia-Colombia to Guyana, 10° N. to 5° S.
<b><i>Albizia procera</i> (Roxb.) Benth</b> <b>Common Name:</b> Albizia, white siris <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> 100–500 (0–3 W) <b>Soil:</b> Deep, free-draining—tolerates shallow soils and acidity <b>Resistance:</b> W	<b>Synonym:</b> Utility: .6dbh/25ht/6–9g F, Pu, Fu, A, R MAI: 10 c Growth: 12/6, 23/13 Planting: B, Stu Source: India to Papua New Guinea, 15° N. to 10° S.	<b><i>Anogeissus latifolia</i> Wall.</b> <b>Common Name:</b> Damas <b>Elevation:</b> 0–800 (0–300) <b>Rainfall:</b> 25–60 (6–8 W) <b>Soil:</b> Sandy, alkaline—tolerates salinity and impeded drainage <b>Resistance:</b> Fi	<b>Synonym:</b> <i>Conocarpus latifolius</i> Engler <b>Utility:</b> 1.0dbh/20ht/8–9g C, Po, Fu, Po MAI: 5–10 c Growth: 6/11 Planting: Str, Stu, C <b>Source:</b> Somalia, 10° to 11° N.
<b><i>Alnus acuminata</i> O. Ktze</b> <b>Common Name:</b> Jaul, aliso <b>Elevation:</b> 1,200–3,200 (700–2,700) <b>Rainfall:</b> >100 <b>Soil:</b> Deep, sandy, free-draining <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>A. jorullensis</i> H.B.K. <b>Utility:</b> .4dbh/25ht/5–6g F, C, Fu, R, A MAI: 10–15 Growth: 16/11 Planting: B, Cu Source: Mexico to Argentina, 18° N. to 23° S.	<b><i>Anthocephalus chinensis</i> (Lamk) Rich.</b> <b>Common Name:</b> Kadamba, bengkal, kadam, laran <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> >160 (0–3) <b>Soil:</b> Light, free-draining—tolerates acidity and impeded drainage but not degraded soils <b>Resistance:</b> Fr (slight), W	<b>Synonym:</b> <i>A. cadamba</i> (Roxb.) Miq. <i>Neolamarckia cadamba</i> Bosser <b>Utility:</b> 1.0dbh/45ht/3–7g V, C, Pu, R, matches MAI: 10–30 c (young) Growth: 3/1, 7/4, 10–25/9 Planting: S, B, C, layering, u <b>Source:</b> India to Papua New Guinea, 17° N. to 9° S.
<b><i>Anacardium excelsum</i> (Bert. &amp; Balb.) Skels</b> <b>Common Name:</b> Espave, cajú assú <sup>1</sup> <b>Elevation:</b> <b>Rainfall:</b> 150–200 (W) <b>Soil:</b> <b>Resistance:</b>	<b>Synonym:</b> Utility: 1.5dbh/45ht/4–6g F, V, C, Pu MAI: Growth: Planting: Source: Honduras to Ecuador, 16° N. to 5° S.	<b><i>Araucaria angustifolia</i> (Bert.) O. Kuntze</b> <b>Common Name:</b> Pino brasileiro, pino paraná, parana pine <b>Elevation:</b> 1,500–2,200 (1,000–1,700) <b>Rainfall:</b> 125–220 (0–2 W) <b>Soil:</b> Deep, fertile, free-draining acid clays—does not tolerate salinity <b>Resistance:</b> Fr (-7 °C), Fi, W	<b>Synonym:</b> <i>A. brasiliiana</i> A. Rich. <b>Utility:</b> 2.0dbh/60ht/5–6g F, C, Pu, Po, seeds MAI: 8–24 Growth: 4–7/5, 9–16/10, 11–21/15 Planting: S, C, u <b>Source:</b> Brazil to Argentina, 10° to 30° S.
<b><i>Anacardium occidentale</i> L.</b> <b>Common Name:</b> Maranon, cajú pajuill, cashew <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 160–400 (3–6 W) <b>Soil:</b> Free-draining—tolerates shallow, poor, or sandy soils <b>Resistance:</b> Fi	<b>Synonym:</b> Utility: .3dbh/8ht/5g A, nuts, fruit, resin MAI: 250 kg/ha fruits c Growth: Planting: S Source: The West Indies to Brazil, 24° N. to 10° S.	<b><i>Araucaria cunninghamii</i> Sweet</b> <b>Common Name:</b> Hoop pine <b>Elevation:</b> 0–2,000 (0–1,500) <b>Rainfall:</b> 100–180 (2–4 W) <b>Soil:</b> Deep, fertile, free-draining—tolerates acidity, heavy soils, and gravelly sands <b>Resistance:</b> Fr (slight), W	<b>Synonym:</b> <b>Utility:</b> 1.2dbh/35–45ht/5–6g F, V, C, Pu, Po MAI: 10–18 Growth: 5–12/6, 19/9, 26/12 Planting: C, Cu, u <b>Source:</b> Papua New Guinea to Australia, 8° to 32° S.

## Appendix F

### Species Information

<i>Araucaria hunsteinii</i> K. Schumann <b>Common Name:</b> Klinki pine <b>Elevation:</b> 200–2,900 (0–2,400) <b>Rainfall:</b> 160–400 (0–2 W) <b>Soil:</b> Deep, free-draining, fertile—tolerates heavy soils but not impeded drainage <b>Resistance:</b>	<b>Synonym:</b> <i>A. klinkii</i> Lauterbach <b>Utility:</b> 1.0dbh/40–80ht/4–5g F, V, C, Pu, Po <b>MAI:</b> 20–30 <b>Growth:</b> 3/2, 9/6 <b>Planting:</b> C, u <b>Source:</b> Papua New Guinea, 8° to 9° S.	<i>Bertholletia excelsa</i> Bopl. <b>Common Name:</b> Castanha do Para, Brazil nut <b>Elevation:</b> 0–600 <b>Rainfall:</b> 150–250 (0–2) <b>Soil:</b> Deep, free-draining <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 3dbh/50ht/6g F, C, nuts <b>MAI:</b> <b>Growth:</b> 8/8 <b>Planting:</b> <b>Source:</b> Venezuela to Brazil, 10° N. to 12° S.
<i>Aucoumea klaineana</i> Peirre <b>Common Name:</b> Gaboon, okoumé <b>Elevation:</b> 0–500 <b>Rainfall:</b> 160–300 (0–2) <b>Soil:</b> Free-draining—tolerates acidity and heavy soils but not impeded drainage <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 2.4dbh/30–40ht/4–5g F, V, C, Pu <b>MAI:</b> 15–30 (5–10) <b>Growth:</b> 3/2 <b>Planting:</b> S, Str, u <b>Source:</b> Gabon to Zaire, 2° N to 2° S.	<i>Bombacopsis quinatum</i> (Jacq.) Dugand <b>Common Name:</b> Pochote, amapá doce <b>Elevation:</b> 0–800 (0–300) <b>Rainfall:</b> 80–120 (3–5 W) <b>Soil:</b> Free-draining—tolerates heavy soils, acidity, and impeded drainage <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.8dbh/30–40ht/4–5g F, V, C, Pu <b>MAI:</b> <b>Growth:</b> 4/3 <b>Planting:</b> Stu, Cu <b>Source:</b> Nicaragua to Venezuela, 14° to 6° N.
<i>Avicennia germinans</i> L. <b>Common Name:</b> Mangle negro, black mangrove <b>Elevation:</b> 0 <b>Rainfall:</b> >100 <b>Soil:</b> Tidal muck—tolerates flooding and high salinity <b>Resistance:</b>	<b>Synonym:</b> <i>A. nitida</i> Jacq. <b>Utility:</b> .3dbh/30ht/9–10g Pu, Po, Fu, tannin <b>MAI:</b> c <b>Growth:</b> 5/5 <b>Planting:</b> S, B <b>Source:</b> Tropical America and Africa, 30° N to 30° S.	<i>Brosimum alicastrum</i> <b>Common Name:</b> Ramón, capomo <b>Elevation:</b> 0–1,000 <b>Rainfall:</b> 60–400 <b>Soil:</b> Tolerates shallow karst <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/40ht/5–7g F, V, C, Pu, Po, A <b>MAI:</b> 3 <b>Growth:</b> 8/10 <b>Planting:</b> C <b>Source:</b> Southern Mexico to the Peruvian Amazon, 20° to 12° N.
<i>Azadirachta indica</i> A. Juss <b>Common Name:</b> Neem, lilaila, paraíso <b>Elevation:</b> 0–500 <b>Rainfall:</b> 25–100 (5–7) <b>Soil:</b> Deep, free-draining—tolerates shallow, infertile, or heavy soils, and alkalinity; pH 5.0 to 8.5; species increases alkalinity <b>Resistance:</b> Fr (old trees)	<b>Synonym:</b> <i>Melia azadirachta</i> L., <i>M. indica</i> Braud <b>Utility:</b> .6dbh/20–25ht/5.8g F, V, C, Po, Fu, R, A <b>MAI:</b> 5–18 (13 t) c <b>Growth:</b> 3/1, 8/8, 12/20 <b>Planting:</b> S, B, C, cuttings, Stu <b>Source:</b> India to Myanmar and Sri Lanka, 34° to 6° N.	<i>Bucida buceras</i> L. <b>Common Name:</b> Gregre, úcar <b>Elevation:</b> 0–200 <b>Rainfall:</b> 80–140 (0–2) W <b>Soil:</b> Grows best on deep, well-drained soils; tolerates temporary flooding and rocky hills <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/20ht/9g C, Po, tanning <b>MAI:</b> C <b>Growth:</b> 13/40 <b>Planting:</b> B, u <b>Source:</b> Mexico, the West Indies, and the Guianas, 25° to 5° N.
<i>Bagassa guianensis</i> Aubl. <b>Common Name:</b> Bagasse, bagaceira, kauhoeoe <b>Elevation:</b> 0–500 <b>Rainfall:</b> >160 (0–3) <b>Soil:</b> Fertile, free-draining—tolerates sandy soils and Latosols <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.2dbh/30ht/7–8g F, C <b>MAI:</b> <b>Growth:</b> 2/3, 15/5 <b>Planting:</b> Stu, Cs <b>Source:</b> The Guianas to Brazil, 9° N. to 5° S.	<i>Bursera simaruba</i> (L.) Sarq. <b>Common Name:</b> Gumbo limbo, almácigo <b>Elevation:</b> 0–1,800 <b>Rainfall:</b> 50–140 (1–6 W) <b>Soil:</b> Usually calcareous <b>Resistance:</b> Salinity, Fr (old trees)	<b>Synonym:</b> <i>Elaphrium simaruba</i> (L.) Rose <b>Utility:</b> 1.0dbh/30ht/3–4g C, V, fencing, Fu <b>MAI:</b> C <b>Growth:</b> <b>Planting:</b> C <b>Source:</b> Florida to northern South America, 27° to 7° N.
<i>Bambusa vulgaris</i> Schrad. <b>Common Name:</b> Bambu, bamboo <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> >100 (0–3) <b>Soil:</b> Deep, fertile, and free-draining <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .2dbh/20ht/7g Pu, Fu, A, R <b>MAI:</b> 2–9 t/ha c <b>Growth:</b> 20/1 <b>Planting:</b> Cu, offsets <b>Source:</b> Tropical Asia, latitude range unknown	<i>Calliandra calothyrsus</i> Meissn. <b>Common Name:</b> Calliandra <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> >100 (0–3 W) <b>Soil:</b> Tolerates infertile heavy clays <b>Resistance:</b> Fi	<b>Synonym:</b> <i>C. confusa</i> Sprague and Riley <b>Utility:</b> .2dbh/10ht/5–8g Fu, Po, A, R <b>MAI:</b> 5–65 c <b>Growth:</b> 3/1 <b>Planting:</b> S, B <b>Source:</b> Central America, 18° to 8° N.

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<b><i>Callitris glauca</i> R. Br x R.T. Bak et H.G. Sim.</b> <b>Common Name:</b> Cypress-pine <b>Elevation:</b> 500–1,500 (0–1,000) <b>Rainfall:</b> 25–80 (4–6 W) <b>Soil:</b> Light, free-draining—tolerates poor, acid sands <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>C. columellaris</i> F.V.M. <b>Utility:</b> .9dbh/18–30ht/5–7g F, C, Po <b>MAI:</b> 2–10 c <b>Growth:</b> 1/1, 5/9 <b>Planting:</b> S, C <b>Source:</b> Australia, 20° to 35° S.	<b><i>Cecropia schreberiana</i> (Miq.)</b> <b>Common Name:</b> Yagrumo, trumpet-wood, bois canon <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> >160 (0–3 W) <b>Soil:</b> Fertile, free-draining—tolerates impeded drainage but not extremely infertile soils <b>Resistance:</b> W	<b>Synonym:</b> <i>C. peltata</i> L. <b>Utility:</b> .7dbh/20ht/3g V, C, Pu, R, matches <b>MAI:</b> c <b>Growth:</b> 7/3 <b>Planting:</b> B <b>Source:</b> Mexico to the Guianas, 20° to 5° N.
<b><i>Calophyllum calaba</i> L.</b> <b>Common Name:</b> Santa María, jacareuba <b>Elevation:</b> 0–500 <b>Rainfall:</b> 125–500 <b>Soil:</b> Deep alluvium—tolerates poor soils and impeded drainage <b>Resistance:</b> W	<b>Synonym:</b> <i>C. brasiliense</i> Camb. <b>Utility:</b> 1.5dbh/45ht/5–7g F, C, Po, R <b>MAI:</b> 1–7 c <b>Growth:</b> 6/5, 8/8 <b>Planting:</b> S, C <b>Source:</b> Mexico to Brazil, 20° N. to 10° S.	<b><i>Cedrela odorata</i> L.</b> <b>Common Name:</b> Cedro, Spanish cedar <b>Elevation:</b> 0–1,200 (0–700) <b>Rainfall:</b> 160–250 (2–4 W) <b>Soil:</b> Fertile, free-draining, calcareous, not strongly acid—tolerates heavy soils <b>Resistance:</b>	<b>Synonym:</b> <i>C. mexicana</i> M.J. Roem <b>Utility:</b> 2.0dbh/30–40ht/3–6g F, V, A <b>MAI:</b> 5–10 c <b>Growth:</b> 6/3, 15/5, 22/10, 27/20 <b>Planting:</b> Str, C, u <b>Source:</b> Mexico to Argentina, 24 to 27 S.
<b><i>Carapa guianensis</i> Aubl.</b> <b>Common Name:</b> Andiroba, carapa <b>Elevation:</b> 0–500 <b>Rainfall:</b> 16–300 <b>Soil:</b> Deep alluvium or sand—tolerates impeded drainage <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/30ht/5–7g F, V, C, T <b>MAI:</b> c <b>Growth:</b> 3/2, 8/5, 7–11/7 <b>Planting:</b> B, Str, C, u <b>Source:</b> Honduras and Cuba to Brazil, 15° N. to 5° S.	<b><i>Cedrela catenaeformis</i> Ducke</b> <b>Common Name:</b> Tornillo, cedrorana, iaciaca <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> 160–350 <b>Soil:</b> Free-draining <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 3.0dbh/50ht/4–6g F, C <b>MAI:</b> <b>Growth:</b> 9/8 <b>Planting:</b> <b>Source:</b> Brazil to Peru, 0° to 10° S.
<b><i>Cariniana pyriformis</i> Miers</b> <b>Common Name:</b> Abarco, jequitibá amarilla <b>Elevation:</b> 0–600 (0–100) <b>Rainfall:</b> 200–400 (0–2) <b>Soil:</b> Free-draining—tolerates acidity <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.8dbh/40–50ht/4–6g F, V, T, C <b>MAI:</b> 10–20 <b>Growth:</b> <b>Planting:</b> B, Str, C, u <b>Source:</b> Venezuela to Colombia 9° to 1° N.	<b><i>Ceiba pentandra</i> (L.) Gaertn.</b> <b>Common Name:</b> Ceiba, sumaumá <b>Elevation:</b> 0–1,200 (0–700) <b>Rainfall:</b> 75–570 (3–6) <b>Soil:</b> Deep, free-draining—tolerates shallow soils and alkalinity <b>Resistance:</b> Fr (-7 °C)	<b>Synonym:</b> <i>Bombax pentandrum</i> L. <b>Utility:</b> 2.0dbh/50ht/2–4g F, V, C, Pu, Fu, kapok <b>MAI:</b> 7–10 t/ha pods c <b>Growth:</b> 5/5 <b>Planting:</b> S, Cu, grafts <b>Source:</b> Turkey to Syria, 40° to 32° S.
<b><i>Caryocar villosum</i> Pers.</b> <b>Common Name:</b> Almendrillo, piquíá <b>Elevation:</b> <b>Rainfall:</b> <b>Soil:</b> <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 2.1dbh/45ht/6–9g C <b>MAI:</b> <b>Growth:</b> 12/11 <b>Planting:</b> <b>Source:</b> Costa Rica to Suriname to Brazil, 10° N. to 5° S.	<b><i>Chlorophora excelsa</i> (Welw.) Benth &amp; Hook</b> <b>Common Name:</b> Iroko, mvule <b>Elevation:</b> 0–1,200 (0–700) <b>Rainfall:</b> 100–180 (0–3) <b>Soil:</b> Deep, free-draining—tolerates acidity <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 35–40ht/5–6g F, V, C, A <b>MAI:</b> 5–8 c <b>Growth:</b> 3/3, 9/10, 12/12 <b>Planting:</b> Str, Stu <b>Source:</b> Tropical Africa, 10° N. to 5° S.
<b><i>Casuarina equisetifolia</i> L. ex J.R. &amp; G. Forst.</b> <b>Common Name:</b> Casuarina, she-oak <b>Elevation:</b> 0–1,750 (0–900) <b>Rainfall:</b> 70–500 (3–6) <b>Soil:</b> Sandy, free-draining—tolerates poor, calcareous, alkaline, or saline soils and impeded drainage <b>Resistance:</b> W, Fr	<b>Synonym:</b> <i>C. littoralis</i> Salisb. <b>Utility:</b> .5dbh/20–40ht/6–12g C, Pu, Fu, R, tannin <b>MAI:</b> 6–20 (6–20 t) <b>Growth:</b> 5/2, 15/6, 20–32/12 <b>Planting:</b> B, C <b>Source:</b> Southeast Asia and Pacific Islands, 22° N. to 32° S.	<b><i>Cordia alliodora</i> Cham.</b> <b>Common Name:</b> Laurel, cypre, capá prieto <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> 100–500 (0–4 W) <b>Soil:</b> Free-draining—tolerates shallow soils, heavy clays, alkalinity <b>Resistance:</b> W	<b>Synonym:</b> <i>Cerdana alliodora</i> R. & P. <b>Utility:</b> .9dbh/25–30ht/4–6g F, V, C, A <b>MAI:</b> 10–20 c <b>Growth:</b> 6/3, 17/10, 21/15, 29/24 <b>Planting:</b> S, Stu, u <b>Source:</b> Mexico to Argentina, 20° N. to 25° S.

## Appendix F

Species Information			
<i>Cryptomeria japonica</i> Don. <b>Common Name:</b> Sugi <b>Elevation:</b> 1,500–2,400 (1,000–1,900) <b>Rainfall:</b> 150–250 (0–2) <b>Soil:</b> Deep, fertile, free-draining—tolerates heavy clays and acidity <b>Resistance:</b> Fr, W	<b>Synonym:</b> <b>Utility:</b> 2.4dbh/30–50ht/2–4g V, C <b>MAI:</b> 10–33 c <b>Growth:</b> 5–9/5, 9–17/10, 12–22/15 <b>Planting:</b> C, Cu <b>Source:</b> China to Japan, 40° to 30° N.	<i>Cybistax donnell-smithii</i> Rose <b>Common Name:</b> Primavera, san juan <b>Elevation:</b> 0–1,000 (0–300) <b>Rainfall:</b> 100–300 (2–3 W) <b>Soil:</b> Deep, light, free-draining—tolerates acidity <b>Resistance:</b>	<b>Synonym:</b> <i>Tabebuia donnell-smithii</i> Rose <b>Utility:</b> 1.0dbh/25–35ht/3–5g F, V <b>MAI:</b> 20–30 c <b>Growth:</b> 9/4, 14/10, 31/36 <b>Planting:</b> B, Stu, C <b>Source:</b> Mexico to Honduras, 21° to 13° N.
<i>Cunninghamia lanceolata</i> (Lamb.) Hooker <b>Common Name:</b> Chinese fir, cungamia <b>Elevation:</b> 800–1,300 (300–800) <b>Rainfall:</b> 125–190 <b>Soil:</b> Sandy <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>C. sinensis</i> Rich. <b>Utility:</b> 1.7dbh/50ht C <b>MAI:</b> 14–36 <b>Growth:</b> 3–6/5, 8–15/10, 11–21/15 <b>Planting:</b> C, Cu <b>Source:</b> Central and South China, 27° to 22° N.	<i>Dacrydium cupressinum</i> Solander <b>Common Name:</b> Rimu <b>Elevation:</b> 500–1,200 (0–700) <b>Rainfall:</b> 150–330 <b>Soil:</b> <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.4dbh/40ht/4–5g F, V, C, tannin <b>MAI:</b> <b>Growth:</b> <b>Planting:</b> <b>Source:</b> Malaysia to New Zealand, 3° N. to 45° S.
<i>Cupressus arizonica</i> Greene <b>Common Name:</b> Arizona cypress <b>Elevation:</b> 1,500–2,800 (1,000–2,300) <b>Rainfall:</b> 25–75 (4–7 S) <b>Soil:</b> Light, free-draining—tolerates alkalinity <b>Resistance:</b> Fr (W)	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/10–20ht/4–6g C, Po, windbreaks <b>MAI:</b> 3–5 <b>Growth:</b> 2/2 <b>Planting:</b> B, C <b>Source:</b> Southwestern United States to Mexico, 35° to 25° N.	<i>Dalbergia sissoo</i> Roxb. <b>Common Name:</b> Shisham, sissoo, Indian rosewood <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> 50–400 (3–6 W) <b>Soil:</b> Deep, free-draining—tolerates sandy soils and salinity but not shallow soils <b>Resistance:</b> Fr, W	<b>Synonym:</b> <b>Utility:</b> 1.6dbh/30ht/7–8g F, V, C, Fu, R, A <b>MAI:</b> 5–8 (c9–12) <b>Growth:</b> 5/3, 11/5, 15/10 <b>Planting:</b> S, Str, Stu, Cu <b>Source:</b> Himalayas to Bangladesh, 33° to 24° N.
<i>Cupressus lusitanica</i> Mill. <b>Common Name:</b> Ciprés, Mexican cypress <b>Elevation:</b> 1,300–3,300 (800–2,800) <b>Rainfall:</b> 100–150 (2–3 W) <b>Soil:</b> Deep, fertile, free-draining—tolerates acidity <b>Resistance:</b> Fr, W	<b>Synonym:</b> <i>C. benthamii</i> Endl. <b>Utility:</b> 1.1dbh/25–30ht/4–5g V, C, Pu, Po, R <b>MAI:</b> 8–40 <b>Growth:</b> 8/5, 12/10, 23/16, 27/25 <b>Planting:</b> B, C <b>Source:</b> Mexico to Honduras, 27° to 13° N.	<i>Entandrophragma utile</i> (Dawe & Sprague) <b>Common Name:</b> Utile, sipo <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 150–250 <b>Soil:</b> <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 2.6dbh/60ht/5g F, V, C, A <b>MAI:</b> <b>Growth:</b> 2/3, 10/10, 15/15 <b>Planting:</b> Str, u <b>Source:</b> Ivory Coast to Uganda, 10° N. to 2° S.
<i>Cupressus macrocarpa</i> Hartweg <b>Common Name:</b> Monterey cypress <b>Elevation:</b> 1,200–3,500 (700–3,000) <b>Rainfall:</b> 70–160 (2–4 S) <b>Soil:</b> Fertile, free-draining, loams—tolerates alkalinity and moderate salinity <b>Resistance:</b> Fr (-3 °C), W	<b>Synonym:</b> <i>C. hartwegii</i> Carrière <b>Utility:</b> 2.0dbh/15–25ht/5g C, Po, R <b>MAI:</b> 11–25 <b>Growth:</b> 8/7, 12/14, 17/35 <b>Planting:</b> B, C <b>Source:</b> California, 36° N.	<i>Enterolobium cyclocarpum</i> (Jacq.) Gris <b>Common Name:</b> Guanacaste, dormilón, carocaro <b>Elevation:</b> 0–900 (0–100) <b>Rainfall:</b> 75–250 (1–6 W) <b>Soil:</b> Deep, free-draining—tolerates alkalinity and calcareous soils <b>Resistance:</b> Fr	<b>Synonym:</b> <b>Utility:</b> 3.0dbh/20–40ht/3–6g F, V, C, Po, Fu, tannin, A <b>MAI:</b> 20–28 c <b>Growth:</b> 13/8, 25/12 <b>Planting:</b> B, u <b>Source:</b> Mexico to Brazil, 23° N. to 10° S.
<i>Cupressus tolurosa</i> Don. <b>Common Name:</b> Bhutan cypress <b>Elevation:</b> 1,500–2,800 (1,000–2,300) <b>Rainfall:</b> 65–240 (3–4 W) <b>Soil:</b> Light, free-draining, calcareous—tolerates acidity <b>Resistance:</b> Fr (-10 °C), W	<b>Synonym:</b> <b>Utility:</b> .8dbh/30–45ht/5g C, Po <b>MAI:</b> 12–17 <b>Growth:</b> 13/22, 20/27 <b>Planting:</b> B, C <b>Source:</b> The Himalayas, 32° to 28° N	<i>Eucalyptus camaldulensis</i> Dehn. <b>Common Name:</b> Red river gum (northern provenances) <b>Elevation:</b> 0–1,400 (0–900) <b>Rainfall:</b> 25–125 (4–8 W) <b>Soil:</b> Tolerates poor, heavy soils, acidity, alkalinity, moderate salinity, impeded drainage, but not calcareous soils <b>Resistance:</b>	<b>Synonym:</b> <i>E. rostrata</i> Schlecht <b>Utility:</b> 2dbh/30–50ht/6–9g C, Pu, Po, Fu, R <b>MAI:</b> 15–30 c <b>Growth:</b> 3/1, 9/10, 36/28 <b>Planting:</b> C, Cu <b>Source:</b> Tropical and subtropical Australia, 15° to 32° S.

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<i>Eucalyptus camaldulensis</i> Dehn. <b>Common Name:</b> Red river gum (southern provenances) <b>Elevation:</b> 500–2,000 (0–1,500) <b>Rainfall:</b> 20–100 (4–6 S) <b>Soil:</b> Free-draining—tolerates shallow soils, heavy soils, alkalinity, and impeded drainage <b>Resistance:</b> Fr (−8 °C)	<b>Synonym:</b> <i>E. rostrata</i> Schlect <b>Utility:</b> 2.0dbh/35–45ht/7–10g <b>MAI:</b> 5–35 (20 t) c <b>Growth:</b> 5/2, 16/10 <b>Planting:</b> C <b>Source:</b> Temperate Australia, 32° to 38° S.	<i>Eucalyptus paniculata</i> Sm. <b>Common Name:</b> Grey ironbark <b>Elevation:</b> 500–1,500 (0–1,000) <b>Rainfall:</b> 75–130 (2–3 W) <b>Soil:</b> Light, free-draining—tolerates shallow soils and acidity <b>Resistance:</b> Fr (−2 °C)	<b>Synonym:</b> <i>E. terminalis</i> Sieb. ex Benth. <b>Utility:</b> 1.2dbh/30–35ht/9–12g <b>MAI:</b> 9–18 c <b>Growth:</b> 5/2, 15/9, 29/22 <b>Planting:</b> C <b>Source:</b> New South Wales, Australia, 30° to 37° S.
<i>Eucalyptus citriodora</i> Hook. <b>Common Name:</b> Spotted gum <b>Elevation:</b> 0–1,800 (0–1,300) <b>Rainfall:</b> 65–160 (5–7 W) <b>Soil:</b> Deep, light, free-draining—tolerates poor soils and acidity <b>Resistance:</b> Fr (−2 °C)	<b>Synonym:</b> <i>E. maculata</i> var. <i>citriodora</i> F. Muell. <b>Utility:</b> 1.3dbh/30–45ht/7–11g <b>MAI:</b> 5–20 c (weak) <b>Growth:</b> 3/1, 15/8 <b>Planting:</b> C <b>Source:</b> Queensland, Australia, 17° to 26° S.	<i>Eucalyptus pilularis</i> Sm. <b>Common Name:</b> Blackbutt <b>Elevation:</b> 500–2,000 (0–1,500) <b>Rainfall:</b> 60–120 (3–4 W) <b>Soil:</b> Sandy or clay, tolerates poor soils <b>Resistance:</b> Fr (−15 °C)	<b>Synonym:</b> <i>E. semicorticata</i> F. Muell. <b>Utility:</b> 2.0dbh/60–70ht/6–10g <b>MAI:</b> 10–20 c <b>Growth:</b> 6/2, 14/9, 27/13 <b>Planting:</b> C, u <b>Source:</b> Queensland to New South Wales, Australia, 25° to 38° S.
<i>Eucalyptus deglupta</i> Blume <b>Common Name:</b> Mindanao gum, bagras, kamarere <b>Elevation:</b> 0–1,800 <b>Rainfall:</b> 200–500 (0–1 W) <b>Soil:</b> Light, fertile, free-draining—tolerates acidity and impeded drainage <b>Resistance:</b>	<b>Synonym:</b> <i>E. naudiniana</i> F. Muell. <b>Utility:</b> 2.4dbh/35–80ht/3–7g <b>MAI:</b> 14–50 (23 t) <b>Growth:</b> 6/3, 15–24/5, 30–37/10, 34–45/15 <b>Planting:</b> C, u <b>Source:</b> Mindanao, Philippines, to New Britain, Papua New Guinea, 4° N. to 11° S.	<i>Eucalyptus resinifera</i> Sm. <b>Common Name:</b> Red mahogany <b>Elevation:</b> 900–2,000 (400–1,500) <b>Rainfall:</b> 100–300 (4 W) <b>Soil:</b> Light, free-draining <b>Resistance:</b> Fr (−9 °C)	<b>Synonym:</b> <i>E. hemilampra</i> F. Muell. <b>Utility:</b> 1.5dbh/30–45ht/6–10g <b>MAI:</b> 15–25 c <b>Growth:</b> 3/1, 10/2, 23/15 <b>Planting:</b> C <b>Source:</b> Australia, 17° to 34° S.
<i>Eucalyptus globulus</i> Labill. <b>Common Name:</b> Tasmanian blue gum <b>Elevation:</b> 1,500–3,000 (1,000–2,500) <b>Rainfall:</b> 50–180 (2–3 S) <b>Soil:</b> Deep, sandy, free-draining—tolerates heavy soils and acidity but not salinity <b>Resistance:</b> Fr (−8 °C) W	<b>Synonym:</b> <i>E. cordata</i> Miq. <b>Utility:</b> 2.0dbh/40–65ht/6–8g <b>MAI:</b> 10–40 c <b>Growth:</b> 6–15/3, 14–18/8, 18–24/12 <b>Planting:</b> S, B, C <b>Source:</b> Tasmania, Australia, 37° to 44° S.	<i>Eucalyptus robusta</i> Sm. <b>Common Name:</b> Swamp mahogany, robusta <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> 100–170 (1–4 W) <b>Soil:</b> Deep, acidic—tolerates poor, heavy soils and impeded drainage <b>Resistance:</b> Fr (−3 °C) W	<b>Synonym:</b> <i>E. multiflora</i> Poir. <b>Utility:</b> 2.5dbh/25–50ht/6–9g <b>MAI:</b> 10–40 c <b>Growth:</b> 4/2, 17/6, 22/13 <b>Planting:</b> B, C <b>Source:</b> Queensland to New South Wales, Australia, 23° to 36° S.
<i>Eucalyptus grandis</i> Hill ex Maiden <b>Common Name:</b> Flooded gum <b>Elevation:</b> 0–2,100 (0–1,600) <b>Rainfall:</b> 100–400 (0–3 W) <b>Soil:</b> Deep, free-draining—tolerates sandy soils and acidity <b>Resistance:</b> Fr (−5 °C)	<b>Synonym:</b> <i>E. saligna</i> Sm var. <i>pallidivalvis</i> Baker & Smith <b>Utility:</b> 2.0dbh/40–60ht/4–7g <b>MAI:</b> 15–50 (20–40 t) c <b>Growth:</b> 4/2, 14/6, 24/10 <b>Planting:</b> C, Cu <b>Source:</b> Queensland to New South Wales, Australia, 17° to 32° S.	<i>Eucalyptus saligna</i> Sm. <b>Common Name:</b> Sydney blue gum, saligna <b>Elevation:</b> 0–1,000 <b>Rainfall:</b> 100–400 (0–4 W) <b>Soil:</b> Light, free-draining—tolerates acidity <b>Resistance:</b> Fr (−7 °C) Fl W	<b>Synonym:</b> <b>Utility:</b> 1.8dbh/35–55ht/5–10g <b>MAI:</b> 10–55 (25–40 t) c <b>Growth:</b> 3–6/2, 12–18/5, 20–28/10 <b>Planting:</b> C, Cu <b>Source:</b> Queensland to New South Wales, Australia, 26° to 36° S.

## Appendix F

Species Information			
<i>Eucalyptus tereticornis</i> Sm. <b>Common Name:</b> Mysore gum, Zanzibar C, forest reef gum (northern provenances) <b>Elevation:</b> 0–1,800 (0–1,300) <b>Rainfall:</b> 50–100 (4–7 W) <b>Soil:</b> Deep, free-draining, sandy loam—tolerates heavy acids, impeded drainage, but not high acidity <b>Resistance:</b> Fr (−5 °C)	<b>Synonym:</b> <i>E. umbellata</i> (Gaertn) Domin. <b>Utility:</b> 2.0dbh/35–45ht/4–10g C, Pu, Po, R <b>MAI:</b> 12–25 (20 t) c <b>Growth:</b> 6/2, 8/5, 13–19/7 <b>Planting:</b> C <b>Source:</b> Papua New Guinea to Queensland, Australia, 15° to 38° S.	<b>Gouania glabra</b> Aubl. <b>Common Name:</b> Kopie, cupiuba, kabukalli <b>Elevation:</b> <b>Rainfall:</b> <b>Soil:</b> Sandy <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/40ht/6–9g F, C <b>MAI:</b> <b>Growth:</b> 7/8 <b>Planting:</b> u <b>Source:</b> Colombia, the Guianas, and Brazil, 8° N. to 5° S.
<i>Eucalyptus urophylla</i> S.T. Blake <b>Common Name:</b> Timor white gum <b>Elevation:</b> 200–1,500 (0–1,000) <b>Rainfall:</b> 110–200 (2–6 W) <b>Soil:</b> Free-draining—tolerates heavy soils and acidity <b>Resistance:</b> Fi	<b>Synonym:</b> <i>E. decaisneana</i> Bl. <b>Utility:</b> 1.2dbh/35–50ht <b>MAI:</b> 20–60 c <b>Growth:</b> 8/2, 15/5, 27/7 <b>Planting:</b> C, Cu <b>Source:</b> Timor and nearby islands, 8° to 10° S.	<b>Grevillea robusta</b> A. Cunn. <b>Common Name:</b> Grevillea, roble de seda, silky oak <b>Elevation:</b> 800–2,100 (300–1,600) <b>Rainfall:</b> 70–150 (2–8 W) <b>Soil:</b> Sandy, free-draining loam—tolerates acidity <b>Resistance:</b> Fr (−10 °C), Fi	<b>Synonym:</b> <i>Grevillea umbricata</i> A. Cunn. <b>Utility:</b> 1.2dbh/25–50ht/5–7g F, V, T, C, A <b>MAI:</b> 5–17 <b>Growth:</b> 5/3, 19/14 <b>Planting:</b> B, C, Cu <b>Source:</b> Australia, 25° to 30° S.
<i>Eucalyptus viminalis</i> Labill. <b>Common Name:</b> Manna gum <b>Elevation:</b> 2,000–3,000 (1,500–2,500) <b>Rainfall:</b> 75–250 (0–4) <b>Soil:</b> Deep, fertile, free-draining—tolerates poor, heavy acids and acidity <b>Resistance:</b> Fr (−12 °C) W	<b>Synonym:</b> <i>E. saccharifera</i> F. Muell ex Miq. <b>Utility:</b> 1.6dbh/25–45ht/6–9g C, Pu, Po <b>MAI:</b> 10–40 c <b>Growth:</b> 7/5, 35/22 <b>Planting:</b> C <b>Source:</b> Chiefly New South Wales, Australia, 28° to 44° S.	<b>Guaiacum officinale</b> <b>Common Names:</b> Guayacan, lignum vitae <b>Elevation:</b> 0–400 <b>Rainfall:</b> 30–100 <b>Soil:</b> Prefers deep alluvium but tolerates rocky limestone with pH range from 5.0 to 8.5; does not tolerate salinity <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .8dbh/10ht/10–13g bearings, ornamental <b>MAI:</b> <b>Growth:</b> 3/7, 4.5/15 <b>Planting:</b> C, u <b>Source:</b> Bahamas to Guyana, 24° to 6° N.
<i>Flindersia brayleana</i> F.v.M. <b>Common Name:</b> Queensland maple <b>Elevation:</b> 500–1,000 <b>Rainfall:</b> 130–200 <b>Soil:</b> Deep, free-draining loams—tolerates gravelly ridges <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> 1.2dbh/30ht/4–5g F, V, MAI: 10–14 <b>Growth:</b> 2/1, 10/5, 14/10, 21/10 <b>Planting:</b> <b>Source:</b> Papua New Guinea to north Queensland, Australia, 15° to 18° S.	<b>Guazuma ulmifolia</b> Lam. <b>Common Name:</b> Guácimo, West Indies elm <b>Elevation:</b> 0–1,000 (0–500) <b>Rainfall:</b> 65–160 (4–7 W) <b>Soil:</b> Tolerates sands to clays, including poor drainage but not salinity <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>G. guazuma</i> (L.) Cockerell <b>Utility:</b> .8dbh/20ht/5–6g F, C, Po, Fu, Fo, A <b>MAI:</b> c <b>Growth:</b> 2/1, 7/3, 6 t/ha/yr <b>Planting:</b> Stu, c <b>Source:</b> Mexico to Argentina, 25° N. to 27° S.
<i>Gliricidia sepium</i> (Jacq.) Stend <b>Common Name:</b> Madre de cacao, mata ratón <b>Elevation:</b> 0–1,200 F, C, <b>Rainfall:</b> 150–230 (2–5 W) <b>Soil:</b> Deep, free-draining—tolerates calcareous soils but not waterlogging <b>Resistance:</b>	<b>Synonym:</b> <i>G. maculata</i> Kunth. <b>Utility:</b> .4dbh/20ht Fu, Po, A, fences MAI: 20–40 c 45–55t/ha <b>Growth:</b> 8/2 <b>Planting:</b> S, Cu <b>Source:</b> Mexico to the Guianas, 25° to 5° N.	<b>Hibiscus elatus</b> Sw <b>Common Name:</b> Majo, mahoe, majagua <b>Elevation:</b> 0–1,200 (0–700) <b>Rainfall:</b> 100–380 (2–3 W) <b>Soil:</b> Deep, free-draining—does not tolerate ridges but tolerates acid clays <b>Resistance:</b>	<b>Synonym:</b> <i>Paritium elatum</i> (Sw.) G. Don. <b>Utility:</b> .5dbh/25ht/5–8g F, C, T <b>MAI:</b> 14–36 c <b>Growth:</b> 8/5, 14/10, 21/17, 25/27 <b>Planting:</b> B, C, u <b>Source:</b> Cuba and Jamaica, 22° to 18° N.
<i>Gmelina arborea</i> L. <b>Common Name:</b> Yemane, melina <b>Elevation:</b> 0–800 (0–300) <b>Rainfall:</b> 100–250 (2–7 W) <b>Soil:</b> Deep, fertile, free-draining—tolerates shallow, sandy, or heavy soils and acidity but not impeded drainage <b>Resistance:</b> Fi	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/30ht/4–6g F, V, C, Pu, Po, A, matches MAI: 12–50 (5–14 t) c <b>Growth:</b> 3–6/3, 7–14/6, 25/20 <b>Planting:</b> S, Stu, C, Cu <b>Source:</b> India to Vietnam, 36° N. to 5° N.	<b>Hura crepitans</b> L. <b>Common Name:</b> Hura, sandbox, molinillo <b>Elevation:</b> 0–100 <b>Rainfall:</b> >150 <b>Soil:</b> Best on sandy loams—tolerates poor drainage <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 2–3 dbh/40–60ht/3–4g F, V, C, Po <b>MAI:</b> <b>Growth:</b> <b>Planting:</b> C, Cu <b>Source:</b> Costa Rica to Brazil, 24° N. to 19° S.

Species Information			
<i>Hymenaea courbaril</i> (L.)	<b>Synonym:</b> <b>Utility:</b> 2.0 dbh/40ht/7-8g C, T, fruit	<i>Laguncularia racemosa</i> (L.) Gaertn.	<b>Synonym:</b> <b>Utility:</b> .7dbh/25ht/6-8g Po, Fu, tannin
<b>Common Name:</b> Courbaril, locust, jatahy	<b>MAI:</b> C	<b>Common Name:</b> White mangrove, mangle blanco	<b>MAI:</b>
<b>Elevation:</b> 0–900	<b>Growth:</b> 4/8, 11/13, 20/44	<b>Elevation:</b> 0	<b>Growth:</b> 19/22
<b>Rainfall:</b> 120–240 (2–4 W)	<b>Planting:</b> S, C	<b>Rainfall:</b> 80–700	<b>Planting:</b> B, Str
<b>Soil:</b> Best on deep sandy soil with a pH from 4.8 to 6.8; does not tolerate poor drainage	<b>Source:</b> Mexico, the Caribbean Islands to Brazil, 23° N. to 25° S.	<b>Soil:</b> Saline silt and clay deposits—tolerates frequent waterlogging, prefers salinities below 50 parts per thousand	<b>Source:</b> Mexico to Brazil, 28° N. to 29° S.
<b>Resistance:</b>		<b>Resistance:</b>	
<i>Jacaranda copaia</i> (Aubl.) D. Don	<b>Synonym:</b> <i>Bignonia copaia</i> Aubl. <b>Utility:</b> .8dbh/30ht/3-4g F, C, Pu, matches	<i>Leucaena leucocephala</i> (Lam.) de Wit	<b>Synonym:</b> <i>L. glauca</i> (L.) Benth.
<b>Common Name:</b> Coparia, abey, pará pará	<b>MAI:</b> c	<b>Common Name:</b> Laucena, tamarandillo, ipil ipil, tan tan	<b>Utility:</b> .2dbh/5ht/5-6g Po, Fu, R, A
<b>Elevation:</b> 0–1,000	<b>Growth:</b> 22/11	<b>Elevation:</b> 0–800 (0–300)	<b>MAI:</b> 20–25 c
<b>Rainfall:</b> 60–200 (4–6 W)	<b>Planting:</b> C, Cu	<b>Rainfall:</b> 60–100 (2–6 W)	<b>Growth:</b> 3/2, 17/6
<b>Soil:</b> Light to heavy, alkaline to neutral—tolerates poor soils, poor drainage, and salinity	<b>Source:</b> Belize to Brazil, 18° N. to 25° S.	<b>Soil:</b> Free-draining, neutral to alkaline—tolerates shallow and heavy soils	<b>Planting:</b> C, Cu, grafts, u
<b>Resistance:</b>		<b>Resistance:</b> Fr (slight), Fi (after 2 years)	<b>Source:</b> Mexico to Guatemala and the Antilles, 27° to 12° N.
<i>Khaya grandifoliola</i> C. DC.	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/40ht/5-7g F, C, T, A	<i>Leucaena leucocephala</i> (Syn.)	<b>Synonym:</b>
<b>Common Name:</b> Big-leaf mahogany	<b>MAI:</b> 2	<b>Common Name:</b> Giant leucaena	<b>Utility:</b> .6dbh/20ht/4-6g
<b>Elevation:</b> 0–1,400 (0–900)	<b>Growth:</b> 2/1, 7/5	<b>Elevation:</b> 0–1,500 (0–500)	<b>C, Pu, Po, Fu, R, A</b>
<b>Rainfall:</b> 100–180 (0–2)	<b>Planting:</b> B, Str, Stu	<b>Rainfall:</b> 60–200 (2–6 W)	<b>MAI:</b> 30–55 c
<b>Soil:</b>	<b>Source:</b> The Guinean coast of Africa to Sudan, 5° S. to 13° N.	<b>Soil:</b> Free-draining, neutral to alkaline—tolerates heavy soils and moderate salinity but not high acidity (pH of 6.0 or more)	<b>Growth:</b> 9/2, 13/4, 18 t/ha/yr
<b>Resistance:</b>		<b>Resistance:</b> Fr (slight)	<b>Planting:</b> S, B, C, Cu, Stu
<i>Khaya ivorensis</i> A. Chev.	<b>Synonym:</b> <b>Utility:</b> 2.0dbh/60ht/3-5g F, V, C, T	<i>Levoa trichilioides</i>	<b>Source:</b> Mexico to Guatemala, 17° to 15° N.
<b>Common Name:</b> Nigerian mahogany	<b>MAI:</b>	<b>Common Name:</b> Nkoba, Uganda walnut	
<b>Elevation:</b> 0–500	<b>Growth:</b> 8/6, 15/16	<b>Elevation:</b> (0–500)	
<b>Rainfall:</b> >180 (0)	<b>Planting:</b> Str, Stu, u	<b>Rainfall:</b> >180 (0)	
<b>Soil:</b> Deep alluvium near watercourses	<b>Source:</b> Sierra Leone to Uganda, 8° to 3° N.	<b>Soil:</b> Deep, fertile	
<b>Resistance:</b>		<b>Resistance:</b>	
<i>Khaya nyasica</i> Stapf ex Baker	<b>Synonym:</b> <b>Utility:</b> 4.5dbh/60ht/4-6g F, V, C, T, A	<i>Maesopsis eminii</i> Engl.	<b>Synonym:</b>
<b>Common Name:</b> East African mahogany	<b>MAI:</b> 14 c	<b>Common Name:</b> Musizi	<b>Utility:</b> 1.2dbh/45ht/3-5g
<b>Elevation:</b>	<b>Growth:</b> 5/4, 15/16, 20/27, 31/50	<b>Elevation:</b> 100–1,500 (0–200)	<b>C, Pu, Po</b>
<b>Rainfall:</b> 60–160 (3–6 W)	<b>Planting:</b> B, C	<b>Rainfall:</b> 120–300 (0–2 W)	<b>MAI:</b> 8–35 (5–10 t) c
<b>Soil:</b> Moist, well-drained alluvium; margins of flood plains	<b>Source:</b> Tanzania to Mozambique, 5° N. to 23° S.	<b>Soil:</b> Deep, fertile, free-draining—tolerates infertile, sandy soils and acidity	<b>Growth:</b> 3/1, 8/5, 11/10
<b>Resistance:</b>		<b>Resistance:</b> W (moderate)	<b>Planting:</b> S, Str, Stu, C, u
<i>Khaya senegalensis</i> (Desv.) A. Juss.	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/40ht/6-8g F, V, C, A, Pu	<i>Manilkara bidentata</i> (A. DC.) Chev	<b>Source:</b> Liberia to Tanzania, 8° N. to 2° S.
<b>Common Name:</b> Dry-zone mahogany, African mahogany	<b>MAI:</b>	<b>Common Name:</b> Balata, ausubo, bullet	
<b>Elevation:</b> 900–1,800 (400–1,000)	<b>Growth:</b> 5/3, 25/25	<b>Elevation:</b> 0–600	
<b>Rainfall:</b> 75–175 (3–6)	<b>Planting:</b> B, C, Str, Stu, u	<b>Rainfall:</b> 150–400	
<b>Soil:</b> Riverine—tolerates poorly drained, acid soils	<b>Source:</b> Senegal to Sudan, 14° N. to 10° S.	<b>Soil:</b> Acid clays over igneous or calcareous rocks on lower slopes	
<b>Resistance:</b>		<b>Resistance:</b>	
			<b>Synonym:</b> <i>M. nitida</i> (Sesse & Moc) Dubard
			<b>Utility:</b> 1.3dbh/50ht/8-9g
			<b>C, T, latex</b>
			<b>MAI:</b> 3
			<b>Growth:</b> 4.5/5
			<b>Planting:</b> S, C, u
			<b>Source:</b> Mexico to northern Brazil, 20° N. to 15° S.

## Appendix F

### Species Information

<i>Melaleuca leucodendron</i> (L.) L.	<b>Synonym:</b> <i>M. leucodendron</i> (Cav.) S. T. Blake <b>Utility:</b> .6dbh/10-30ht/6-7g <b>Elevation:</b> 0-800 (0-300) <b>Rainfall:</b> 80-160 (0-4 W) <b>Soil:</b> Tolerates heavy, poor soils, impeded drainage, alkalinity, and salinity <b>Resistance:</b> Fi, W	<i>Paraserianthes falcataria</i> (L.) Nielsen <b>Common Name:</b> Batai, white albizia <b>Elevation:</b> 0-1,200 (0-700) <b>Rainfall:</b> 200-400 (0-2) <b>Soil:</b> Deep, free-draining—tolerates acidity and heavy soils <b>Resistance:</b> W	<b>Synonym:</b> <i>Albizia falcata</i> (L) Back <b>Utility:</b> .6dbh/25-45ht/3-5g V, Pu, matches <b>MAI:</b> 20-50 (29 t/ha) c <b>Growth:</b> 13/2, 15-27/6, 30/11 <b>Planting:</b> S, Stu, C, u <b>Source:</b> Malaysia to Indonesia, 3° N. to 20° S.
<i>Melia azedarach</i> L.	<b>Synonym:</b> <b>Utility:</b> .6dbh/30/5-7g <b>Elevation:</b> 700-1,400 (200-900) <b>Rainfall:</b> <75 <b>Soil:</b> Well-drained sandy loams <b>Resistance:</b> Fr (slight)	<i>Parkinsonia aculeata</i> L. <b>Common Name:</b> Palo de rayo, horsebean <b>Elevation:</b> 0-1,400 (0-900) <b>Rainfall:</b> 25-40 (6-9) <b>Soil:</b> Free-draining—tolerates poor soils, alkalinity, salinity, but not impeded drainage <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <b>Utility:</b> .4dbh/10ht/6g Fu, Po, A, R <b>MAI:</b> <b>Growth:</b> 1/1 <b>Planting:</b> C, Cu <b>Source:</b> Texas and Arizona to Mexico, 30° to 15° N.
<i>Mimosa scabrella</i> Benth.	<b>Synonym:</b> <i>M. bracatinga</i> Hoehne. <b>Utility:</b> .4dbh/15ht <b>Elevation:</b> <b>Rainfall:</b> <b>Soil:</b> Free-draining <b>Resistance:</b>	<b>Synonym:</b> <i>M. bracatinga</i> Hoehne. <b>Utility:</b> .4dbh/15ht Fu <b>MAI:</b> c <b>Growth:</b> 5/1, 9/2, 15/3 <b>Planting:</b> S <b>Source:</b> Southern Brazil, 15° to 25° S.	<i>Paulownia tormentosa</i> Stend. <b>Common Name:</b> Kiri, piropó <b>Elevation:</b> 500-1,200 (0-700) <b>Rainfall:</b> 120-180 (0-2 W) <b>Soil:</b> Deep, fertile, free-draining—tolerates acidity <b>Resistance:</b> Fr (slight), W
<i>Mitragyna stipulosa</i> O. Kuntze	<b>Synonym:</b> <i>M. ciliata</i> Andrew & Pellgr. <b>Utility:</b> 1.5dbh/30ht/3-5g F, C <b>MAI:</b> <b>Growth:</b> <b>Planting:</b> B, Stu, Cu <b>Source:</b> Uganda to Sierra Leone to Zambia, 10° N. to 15° S.	<i>Pinus ayacahuite</i> Ehrenb. <b>Common Name:</b> Pino ayacahuite, Mexican white pine <b>Elevation:</b> 1,800-3,200 (1,300-2,700) <b>Rainfall:</b> 120-250 (0-2 W) <b>Soil:</b> Deep, fertile, free-draining—tolerates light soils, acidity <b>Resistance:</b> Fr	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/30-40ht/4-5g F, V, C, Pu, resin <b>MAI:</b> 8-15 <b>Growth:</b> 20/19 <b>Planting:</b> C <b>Source:</b> Mexico to El Salvador, 19° to 14° N.
<i>Nuclea didericii</i> Merrill	<b>Synonym:</b> <i>Sarcocephalus trillesii</i> A. Chev. <b>Utility:</b> 1.8dbh/30-40ht/6-8g F, C, T, Po <b>MAI:</b> 3-10 (3-8 t) <b>Growth:</b> 2/3, 4/4 <b>Planting:</b> St, Stu, C <b>Source:</b> Sierra Leone to Uganda, 10° N. to 5° S.	<i>Pinus canariensis</i> C. Smith <b>Common Name:</b> Canary Island pine <b>Elevation:</b> 1,000-2,500 (500-2,000) <b>Rainfall:</b> 65-175 (2-8 S) <b>Soil:</b> Deep, free-draining—tolerates light soils <b>Resistance:</b> Fr (-8 C), Fi	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/20-30ht/-6g C, Po, resin <b>MAI:</b> 8-18 c (poorly) <b>Growth:</b> 7/5, 12/10 <b>Planting:</b> S, C <b>Source:</b> Canary Islands, 29° to 28° N.
<i>Ochroma pyramidalis</i> Cav.	<b>Synonym:</b> <i>O. lagopus</i> Sw. <b>Utility:</b> 1.2dbh/20-25ht/1-4g Insulation, rafts, toys, specialities <b>MAI:</b> 17-65 (11 t) <b>Growth:</b> 2-8/1, 7-20/3, 32/6 <b>Planting:</b> S, C <b>Source:</b> Mexico and the West Indies to Bolivia, 23° N. to 15° S.	<i>Pinus caribaea</i> Morelet var. <i>bahamensis</i> Barr. & Golf. <b>Common Name:</b> Caribbean pine, pichipen <b>Elevation:</b> 0-1,000 (0-500) <b>Rainfall:</b> 75-150 (6-7 W) <b>Soil:</b> Light, free-draining—tolerates coral limestone and alkalinity (pH 7.5 to 8.5) <b>Resistance:</b> Fr (-8 °C), Fi (when old), W	<b>Synonym:</b> <i>P. bahamensis</i> Griseb. <b>Utility:</b> .5dbh/15-20ht/3-5g C, Pu, Po, resin <b>MAI:</b> 10-28 <b>Growth:</b> 3/5, 20/23 <b>Planting:</b> C <b>Source:</b> Grand Bahama to Caicos Islands, 27° to 21° N.

Species Information			
<b><i>Pinus caribaea</i> Morelet var. <i>caribaea</i></b> Barr & Golf. <b>Common Name:</b> Pino macho, pino caribaea <b>Elevation:</b> 50–360 <b>Rainfall:</b> 110–180 (4–6 W) <b>Soil:</b> Light, free-draining—tolerates acidity (pH 4.6) and shallow or serpentine soils <b>Resistance:</b> Fr (−8 °C), W	<b>Synonym:</b> <i>P. caribaea</i> Morelet <b>Utility:</b> .7dbh/20–27ht/3–5g <b>MAI:</b> 10–28 <b>Growth:</b> 6/6, 22/26 <b>Planting:</b> B, C <b>Source:</b> Pinar del Rio and Isla Pinos, Cuba, 23° to 21° N.	<b><i>Pinus elliottii</i> Engelm. var. <i>elliottii</i></b> Little & Dorman <b>Common Name:</b> Slash pine <b>Elevation:</b> 500–2,500 (0–2,000) <b>Rainfall:</b> 65–250 (2–4 W) <b>Soil:</b> Free-draining, with calcium and magnesium—tolerates heavy or shallow soils, acidity, and impeded drainage <b>Resistance:</b> Fr, Fi (old)	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/30ht/5–7g <b>C, Pu, Po, resin</b> <b>MAI:</b> 10–22 <b>Growth:</b> 3/3, 6/6, 14/10, 19/16 <b>Planting:</b> C <b>Source:</b> South Carolina to Louisiana, 35° to 27° N.
<b><i>Pinus caribaea</i> Morelet var. <i>hondurensis</i></b> Barr & Golf. <b>Common Name:</b> Pino hondureno, pitch pine <b>Elevation:</b> 0–850 (0–500) <b>Rainfall:</b> 100–350 (2–6 W) <b>Soil:</b> Deep, moderately fertile, free-draining—tolerates sandy soils, acidity (pH 4.0 to 6.5), and impeded drainage <b>Resistance:</b> Fr (−8 °C), Fi (moderate), W	<b>Synonym:</b> <i>P. hondurensis</i> Loock. <b>Utility:</b> 1.0dbh/35–45ht/3–7g <b>C, Pu, Po, resin</b> <b>MAI:</b> 20–50 (8–14 t) <b>Growth:</b> 7/4, 12/9, 22/15, 30/30 <b>Planting:</b> B, C <b>Source:</b> Belize to Nicaragua, 18° to 12° N.	<b><i>Pinus engelmannii</i> Carr.</b> <b>Common Name:</b> Apache pine <b>Elevation:</b> 1,600–2,500 (1,100–2,000) <b>Rainfall:</b> 50–75 <b>Soil:</b> Light—tolerates poor soils <b>Resistance:</b> Fr	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/30ht <b>C</b> <b>MAI:</b> <b>Growth:</b> 7/16, 11/20, 7/16 <b>Planting:</b> C <b>Source:</b> Southwest United States to Zacatecas, Mexico, 33° to 22° N.
<b><i>Pinus chiapensis</i> (Martinez) Andersen</b> <b>Common Name:</b> Chiapas pine, Mexican white pine <b>Elevation:</b> 500–200 (0–1,500) <b>Rainfall:</b> 100–160 (2–3 S) <b>Soil:</b> Deep, free-draining—tolerates sand and acidity <b>Resistance:</b>	<b>Synonym:</b> <i>P. strobus</i> var. <i>chiapensis</i> (Martinez) <b>Utility:</b> 1.0dbh/25–30ht/4–5g <b>F, C, PU, resin</b> <b>MAI:</b> 10–30 <b>Growth:</b> 9/7 <b>Planting:</b> C, u <b>Source:</b> Mexico to Guatemala, 21° to 15° N.	<b><i>Pinus greggii</i> Engelm.</b> <b>Common Name:</b> Gregg's pine <b>Elevation:</b> 1,500–3,100 (1,000–2,600) <b>Rainfall:</b> 65–80 (3–5 W) <b>Soil:</b> Deep, free-draining—tolerates heavy acidity <b>Resistance:</b>	<b>Synonym:</b> <i>P. pseudopatula</i> (Bois.) Hort. <b>Utility:</b> .5dbh/15–20ht/4g <b>C, Pu, Po</b> <b>MAI:</b> 5–13 <b>Growth:</b> 18/13, 23/19 <b>Planting:</b> C <b>Source:</b> Coahuila to San Luis Polisi, Mexico, 26° to 20° N.
<b><i>Pinus douglasiana</i> Martinez</b> <b>Common Name:</b> Douglas pine <b>Elevation:</b> 1,500–2,400 (1,000–1,900) <b>Rainfall:</b> 90–120 <b>Soil:</b> Deep, sandy <b>Resistance:</b> Fr (young)	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/30ht <b>C</b> <b>MAI:</b> <b>Growth:</b> 9/8, 27/32 <b>Planting:</b> C <b>Source:</b> Sinaloa to Guerrero, Mexico, 27° to 17° N.	<b><i>Pinus halepensis</i> Mill.</b> <b>Common Name:</b> Aleppo pine, pino carrasco <b>Elevation:</b> 1,500–2,500 (1,000–2,000) <b>Rainfall:</b> 40–80 (5–8 S) <b>Soil:</b> Free-draining—tolerates sands and shallow, calcareous soils <b>Resistance:</b> Fr (−14 °C), Fi (moderate)	<b>Synonym:</b> <b>Utility:</b> 2.0dbh/15–25ht/5g <b>MAI:</b> 3–12 <b>Growth:</b> 5/5, 8/10 <b>Planting:</b> C <b>Source:</b> Morocco to Israel to southern France, 31° to 45° N.
<b><i>Pinus durangensis</i> Martinez</b> <b>Common Name:</b> Durango pine <b>Elevation:</b> 2,500–2,800 (1,800–2,100) <b>Rainfall:</b> 75–100 <b>Soil:</b> Moist, sandy, well-drained <b>Resistance:</b> Fr	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/40ht <b>c, Fu, resin</b> <b>MAI:</b> <b>Growth:</b> 5/11, 11/25, 21/41 <b>Planting:</b> C <b>Source:</b> Chihuahua to Durango, Mexico, 31° to 22° N.	<b><i>Pinus kesiya</i> Royle ex Gordon</b> <b>Common Name:</b> Khasya pine, Benguet pine <b>Elevation:</b> 1,000–2,000 (500–1,500) <b>Rainfall:</b> 70–180 (2–7 W) <b>Soil:</b> Deep, high, free-draining—tolerates heavy clays but not impeded drainage <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> <i>P. insularis</i> Endl. <b>Utility:</b> 1.0dbh/45ht/4–6g <b>F, V, C, T, Pu, Po, resin</b> <b>MAI:</b> 14–28 <b>Growth:</b> 3/3, 8/6, 10–11/10, 16/20, 24/30 <b>Planting:</b> C <b>Source:</b> India to Philippines, 29° to 12° N.

## Appendix F

Species Information			
<b><i>Pinus leiophylla</i> Schiede &amp; Dieppe</b> <b>Common Name:</b> Smooth-leaved pine <b>Elevation:</b> 1,500–2,400 (1,000–1,900) <b>Rainfall:</b> 100–120 <b>Soil:</b> Deep, sandy loams  <b>Resistance:</b> Fr (moderate)	<b>Synonym:</b> <b>Utility:</b> 1.0dbh/15–30ht/4g C, Fu, resin <b>MAI:</b> C <b>Growth:</b> 6/5, 11/10, 17/15, 27/29 <b>Planting:</b> C <b>Source:</b> Arizona, U.S., to Oaxaca, Mexico, 34° to 17° N.	<b><i>Pinus occidentalis</i> Sw.</b> <b>Common Name:</b> Pino de Sierra Madre, bois pin, West Indies pine <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> 130–150 (2–4 W) <b>Soil:</b> Free-draining—tolerates acidity and poor, heavy, and serpentine soils <b>Resistance:</b> Fr (slight), Fi (old)	<b>Synonym:</b> <i>P. cubensis</i> Griseb. <b>Utility:</b> 1.2dbh/25–35ht C, Pu, Po, resin <b>MAI:</b> 5–10 <b>Growth:</b> 6/5, 12/10, 15/16 <b>Planting:</b> C <b>Source:</b> Cuba and Hispaniola, 19° to 18° N.
<b><i>Pinus merkusiana</i> Jungh &amp; de Vriese</b> <b>Common Name:</b> Tenasserim pine <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 100–280 (2–5 W) <b>Soil:</b> Free-draining—tolerates heavy acidity  <b>Resistance:</b> Fi, W	<b>Synonym:</b> <i>P. merkusii</i> Cooling <b>Utility:</b> .9dbh/30–40ht/4–6g V, C, Pu, Po, resin <b>MAI:</b> 8–18 <b>Growth:</b> <b>Planting:</b> C <b>Source:</b> India to Cambodia, 23° to 12° N.	<b><i>Pinus oocarpa</i> Schiede</b> <b>Common Name:</b> Pino ocote, pino colorado <b>Elevation:</b> 900–2,400 (400–1,900) <b>Rainfall:</b> 75–150 (2–6 W) <b>Soil:</b> Free-draining—tolerates shallow, poor, or heavy soils and acidity  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .9dbh/20–30ht/4–6g C, Pu, Po, resin <b>MAI:</b> 10–40 (var. <i>ochoterenai</i> ) <b>Growth:</b> 7/4, 9/10, 12/13 <b>Planting:</b> C <b>Source:</b> Sonora, Mexico, to Nicaragua, 28° to 13° N.
<b><i>Pinus merkusii</i> Jungh &amp; de Vriese</b> <b>Common Name:</b> Merkus pine <b>Elevation:</b> 800–1,600 (300–1,100) <b>Rainfall:</b> 200–300 (0–2 W)  <b>Soil:</b> Free-draining—tolerates sand and acidity <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 50–60ht/5g V, C, Pu, Po, resin <b>MAI:</b> 12–30 (12–20 t) <b>Growth:</b> 3/4, 11/7, 16/30, 16/20, 24–40/30 <b>Planting:</b> C <b>Source:</b> Sumatra, 6° N. to 3° S.	<b><i>Pinus palustris</i> Mill.</b> <b>Common Name:</b> Longleaf pine <b>Elevation:</b> 0–1,500 (0–1,000) <b>Rainfall:</b> 100–200 (2–3 W) <b>Soil:</b> Deep, free-draining—tolerates sands and acidity  <b>Resistance:</b> Fr, Fi, W	<b>Synonym:</b> <i>P. australis</i> Michx. <b>Utility:</b> 3.0dbh/25–40ht/5–6g C, Pu, Po, resin <b>MAI:</b> 6–12 <b>Growth:</b> 3/2, 6/5, 17/13, grass stage <b>Planting:</b> C <b>Source:</b> Virginia to Texas, 37° to 26° N.
<b><i>Pinus michoacana</i> Martinez</b> <b>Common Name:</b> Michoacan pine <b>Elevation:</b> 1,800–2,400 (1,300–1,900) <b>Rainfall:</b> 90–170 (2–3 W) <b>Soil:</b> Deep, sandy, free-draining—stage tolerates poor, heavy soils and acidity  <b>Resistance:</b> Fr (moderate), Fi (moderate)	<b>Synonym:</b> <b>Utility:</b> .9dbh/20–25ht/5g V, C, Pu, Po, resin <b>MAI:</b> 6–12 <b>Growth:</b> 10/7, 18/21, 21/32, grass <b>Planting:</b> C <b>Source:</b> Nayarit to Chiapas, Mexico, 23° to 14° N.	<b><i>Pinus patula</i> Schiede and Dieppe</b> (includes var. <i>tecunumanii</i> (Schwerdt) Mittak & Styles) <b>Common Name:</b> Pino patula <b>Elevation:</b> 1,000–3,200 (700–2,700) <b>Rainfall:</b> 50–240 (0–6 W) 100–300 (2–4 S) var. <i>tecunumanii</i> <b>Soil:</b> Deep, free-draining—tolerates light soils and acidity, but not alkalinity <b>Resistance:</b> Fr (−10 °C) frost tender (var. <i>tecunumanii</i> )	<b>Synonym:</b> <i>P. oocarpa</i> var. <i>ochoterenai</i> Martinez <b>Utility:</b> 1.2dbh/20–40ht/4–6g C, Pu, Po <b>MAI:</b> 8–40 (14 t) <b>Growth:</b> 6/5, 12/8, 15/10, 21/15  <b>Planting:</b> B, C <b>Source:</b> Tamaulipas, Mexico, to Nicaragua, 24° to 16° N.
<b><i>Pinus montezumae</i> Lamb.</b> <b>Common Name:</b> Montezuma pine <b>Elevation:</b> 1,400–3,000 (900–2,500) <b>Rainfall:</b> 90–160 (2–3 W)  <b>Soil:</b> Deep, fertile, free-draining—tolerates sands, acidity  <b>Resistance:</b> Fr (moderate), Fi (moderate)	<b>Synonym:</b> <b>Utility:</b> .9dbh/20–40ht/4–5g C <b>MAI:</b> 6–12 <b>Growth:</b> 6/5, 10/9, 20/15, 33/41, grass stage <b>Planting:</b> C <b>Source:</b> Coahuila, Mexico, to Guatemala, 27° to 14° N.	<b><i>Pinus ponderosa</i> Dougl. var <i>arizonica</i> Shaw</b> <b>Common Name:</b> Arizona pine <b>Elevation:</b> 2,000–3,000 (1,500–2,500) <b>Rainfall:</b> 65–90 (1–4 W) <b>Soil:</b> Free-draining—tolerates sand, shallow soils, and alkalinity <b>Resistance:</b> Fr, Fi, W	<b>Synonym:</b> <i>P. arizonica</i> Engelm. <b>Utility:</b> 1.0dbh/25–30ht/5g V, C, Pu, Po, resin <b>MAI:</b> 5–20 <b>Growth:</b> <b>Planting:</b> B, C <b>Source:</b> Southwestern U.S. to Mexico, 35° to 23° N.

**Species Information**

<i>Pinus pseudostrobus</i> Lindl.	<b>Synonym:</b> <i>Pinus</i>	<i>Pinus tropicalis</i> Morelet	<b>Synonym:</b> <i>Pinus</i>
<b>Common Name:</b> Pino blanco	<b>Utility:</b> 1.5dbh/5–40ht/4–5g C, Pu, resin	<b>Common Name:</b> Tropical pine	<b>Utility:</b> 1.3dbh/20ht C, Fo
<b>Elevation:</b> 2,100–3,000 (1,600–2,500)	<b>MAI:</b> 15–30	<b>Elevation:</b> 0–100	<b>MAI:</b>
<b>Rainfall:</b> 100–150 (0–3 W)	<b>Growth:</b> 9/7, 15/10, 27/20	<b>Rainfall:</b> (2–3 W)	<b>Growth:</b> 1/1, 15/15, grass stage
<b>Soil:</b> Deep, free-draining—tolerates heavy soils and acidity	<b>Planting:</b> C	<b>Soil:</b>	<b>Planting:</b>
<b>Resistance:</b> Fr (moderate)	<b>Source:</b> Chihuahua, Mexico to Nicaragua, 27° to 12° N.	<b>Resistance:</b>	<b>Source:</b> Pinar del Río and Isla Pinos, Cuba, 23° to 21° N.
<i>Pinus radiata</i> D. Don	<b>Synonym:</b> <i>P. insignis</i> Dougl.	<i>Pithecellobium saman</i> Benth	<b>Synonym:</b> <i>Samanea saman</i> (Jacq. Merrill)
<b>Common Name:</b> Pino radiata, pino insignis, Monterey pine	<b>Utility:</b> 1.9dbh/25–35ht/4–5g V, C, Pu, Po	<b>Common Name:</b> Saman, raintree, dormilón	<b>Utility:</b> 2.5dbh/35ht/4–6g F, V, C, Fo, A
<b>Elevation:</b> 1,500–3,000 (1,000–2,500)	<b>MAI:</b> 12–35 (20–30 t)	<b>Elevation:</b> 0–700 (0–200)	<b>MAI:</b> 25–35 c
<b>Rainfall:</b> 65–160 (2–3 S)	<b>Growth:</b> 7–8/5, 14/10, 22/17	<b>Rainfall:</b> 60–300 (2–4 W)	<b>Growth:</b> 3/1
<b>Soil:</b> Free-draining—tolerates sandy soils and acidity	<b>Planting:</b> C	<b>Soil:</b> Free-draining—tolerates heavy, soils, acidity, and impeded drainage	<b>Planting:</b> B, Stu, Cu
<b>Resistance:</b> Fr (~10 °C)	<b>Source:</b> California, U.S., and Guadeloupe Islands, Mexico, 37° to 29° N.	<b>Resistance:</b> W	<b>Source:</b> Mexico to Brazil, 11° N. to 5° S.
<i>Pinus roxburghii</i> Sarg.	<b>Synonym:</b> <i>P. longifolia</i> Roxb.	<i>Podocarpus respligosos</i> Pilger	<b>Synonym:</b>
<b>Common Name:</b> Chir pine	<b>Utility:</b> 3.0dbh/30–35ht/4–5g C, Pu, Po, resin	<b>Common Name:</b> Pino liso	<b>Utility:</b> 1.2dbh/35–40ht/4–6g F, V, C, Pu
<b>Elevation:</b> 1,200–2,500 (700–2,000)	<b>MAI:</b> 7–14	<b>Elevation:</b> 2,000–3,000 (1,500–2,500)	<b>MAI:</b>
<b>Rainfall:</b> 75–110 (2–4 W)	<b>Growth:</b> 4/5, 12/17	<b>Rainfall:</b> 200–260	<b>Growth:</b>
<b>Soil:</b> Free-draining—tolerates shallow or heavy soils and acidity	<b>Planting:</b> C	<b>Soil:</b> Fertile, acidic	<b>Planting:</b> B
<b>Resistance:</b> Fr, Fi	<b>Source:</b> Pakistan to Bhutan, 27° to 35° N.	<b>Resistance:</b>	<b>Source:</b> Venezuela to Peru, 8° N. to 10° S.
<i>Pinus taeda</i> L.	<b>Synonym:</b>	<i>Prosopis alba</i> Griseb	<b>Synonym:</b>
<b>Common Name:</b> Loblolly pine	<b>Utility:</b> 1.0dbh/40–50ht/5g V, C, Pu, Po, resin	<b>Common Name:</b> Algarrobo blanco, ibopé	<b>Utility:</b> 1.0dbh/15ht C, Fu, Fo, food
<b>Elevation:</b> 1,300–2,400 (800–1,900)	<b>MAI:</b> 12–30	<b>Elevation:</b> 0–1,000 (0–500)	<b>MAI:</b> 7
<b>Rainfall:</b> 90–220 (0–2)	<b>Growth:</b> 4/3, 6/5, 9/7, 13/10, 16/16	<b>Rainfall:</b> 10–50	<b>Growth:</b>
<b>Soil:</b> Tolerates heavy soils, acidity, and impeded drainage	<b>Planting:</b> B, C	<b>Soil:</b> Tolerates acidity	<b>Planting:</b> S, B
<b>Resistance:</b> Fr, Fi	<b>Source:</b> New Jersey to Texas, U.S., 40° to 28° N.	<b>Resistance:</b>	<b>Source:</b> Bolivia to Argentina, 17° to 27° S.
<i>Pinus tenuifolia</i> Benth	<b>Synonym:</b>	<i>Prosopis juliflora</i> (Swartz) DC	<b>Synonym:</b> <i>P. glandulosa</i> Torr.
<b>Common Name:</b>	<b>Utility:</b> .9dbh/30ht/4–5g C, resin	<b>Common Name:</b> Mesquite, algarrobo	<b>Utility:</b> .8dbh/5–10ht/7–8g Po, Fu, R, A, honey
<b>Elevation:</b> 1,500–2,400 (1,000–1,900)	<b>MAI:</b>	<b>Elevation:</b> 0–1,500 (0–1,000)	<b>MAI:</b> 3–5 c
<b>Rainfall:</b> 90–120	<b>Growth:</b> 3/2, 10 & 6	<b>Rainfall:</b> 15–75 (6–8 W)	<b>Growth:</b> 4/4
<b>Soil:</b> Deep alluvial—does not tolerate poor soils	<b>Planting:</b>	<b>Soil:</b> Free-draining—tolerates poor, sandy, or heavy soils, alkalinity and salinity	<b>Planting:</b> S, C, root suckers
<b>Resistance:</b>	<b>Source:</b> Sinaloa, Mexico, to Guatemala, 24° to 14° N.	<b>Resistance:</b> Fr (varieties), W	<b>Source:</b> Southern U.S. to Ecuador, 35° N. to 20° S.
<i>Pinus teocote</i> Scheide & Dieppe	<b>Synonym:</b>	<i>Prosopis tamarugo</i> F. Phil	<b>Synonym:</b> <i>P. chilensis</i> (Mol.) Stuntz
<b>Common Name:</b> Pino albacarotte, Aztec pine	<b>Utility:</b> .9dbh/35ht C, Fu, resin	<b>Common Name:</b> Tamarugo, albarrobo de Chile	<b>Utility:</b> .8dbh/15ht/8–9g Fo, Fu, Fo
<b>Elevation:</b> 1,500–3,000 (1,000–2,500)	<b>MAI:</b>	<b>Elevation:</b> 0–1,900 (0–2,400)	<b>MAI:</b> 2–4
<b>Rainfall:</b> 90–100	<b>Growth:</b> 4/4	<b>Rainfall:</b> 20–40 (6–8)	<b>Growth:</b> 10/15 C
<b>Soil:</b> Sandy—tolerates poor, rocky soils	<b>Planting:</b>	<b>Soil:</b> Sandy, rocky—tolerates alkalinity and salinity	<b>Planting:</b> S, C, root suckers
<b>Resistance:</b>	<b>Source:</b> Chihuahua, Mexico, to Guatemala, 28° to 15° N.	<b>Resistance:</b> Fr (~12 °C)	<b>Source:</b> Peru to Argentina, 18° to 27° S.

## Appendix F

Species Information			
<b>Pterocarpus indicus</b> Willd <b>Common Name:</b> Narra, Burma rosewood <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 100–180 (0–2) <b>Soil:</b> Deep, free-draining  <b>Resistance:</b>	<b>Synonym:</b> Utility: 1.5dbh/40ht/5g F, V, C, Fu, R <b>MAI:</b> <b>Growth:</b> 8/5 <b>Planting:</b> B, C, u <b>Source:</b> Andaman Islands and Philippines, 18° to 10° N.	<b>Sesbania grandiflora</b> (L.) Pers. <b>Common Name:</b> báculo, agate, gallito <b>Elevation:</b> 0–800 (0–300) <b>Rainfall:</b> >100 (0–4) <b>Soil:</b> Tolerates poor, heavy clays and impeded drainage  <b>Resistance:</b>	<b>Synonym:</b> <i>Agati grandiflora</i> (L.) Desv. Utility: 13dbh/10ht/4g Pu, Fu, Fo, R, A, food <b>MAI:</b> 20–25 <b>Growth:</b> 4/1, 8/3 <b>Planting:</b> S, B, Cu <b>Source:</b> India to Philippines, 20° N. to 10° S.
<b>Pterocarpus macrocarpus</b> Kurz <b>Common Name:</b> Burma padauk <b>Elevation:</b> 0–760 <b>Rainfall:</b> 100–200 <b>Soil:</b> Deep loams to dry shallow outcrops, not poorly drained soils  <b>Resistance:</b>	<b>Synonym:</b> Utility: 1.7dbh/40ht/7–8g F, C, T <b>MAI:</b> c <b>Growth:</b> 22/27 <b>Planting:</b> B, C, u <b>Source:</b> Myanmar to Vietnam, 24° to 12° N.	<b>Shorea robusta</b> Gaertn. <b>Common Name:</b> Sal <b>Elevation:</b> 100–1,500 <b>Rainfall:</b> 100–250 <b>Soil:</b> Deep, fertile soils—tolerates poor but not impeded drainage  <b>Resistance:</b> Fr (slight)	<b>Synonym:</b> Utility: 1.2dbh/35ht/8–9g C <b>MAI:</b> 5–9 (3–5 t) <b>Growth:</b> <b>Planting:</b> S <b>Source:</b> Orissa to Assam, India, 27° to 17° N.
<b>Rhizophora mangle</b> L. <b>Common Name:</b> Mangle colorado, mangue vermelho <b>Elevation:</b> 0 <b>Rainfall:</b> >100 (0–6) <b>Soil:</b> Protected tidal mud—tolerates high salinity and impeded drainage  <b>Resistance:</b> W	<b>Synonym:</b> Utility: 1.6dbh/50ht/9–12g C, Fu, R, tannin <b>MAI:</b> 8 t <b>Growth:</b> 6/5 <b>Planting:</b> S, layering <b>Source:</b> Tropical American, west African, and Pacific shores, 30° N. to 30° S.	<b>Simarouba amara</b> Aubl. <b>Common Name:</b> Marupa, bois blanc, pan parahyba <b>Elevation:</b> 0–500 <b>Rainfall:</b> 200–280 (0–2 W) <b>Soil:</b> Sandy, free-draining—tolerates poor drainage, acidity  <b>Resistance:</b>	<b>Synonym:</b> Utility: 1.0dbh/40ht/3–4g F, V, C, matches <b>MAI:</b> 9 <b>Growth:</b> 3/2, 18/11 <b>Planting:</b> C <b>Source:</b> Grenada to Brazil, 12° N. to 5° S.
<b>Schefflera morototoni</b> (Aubl.) Decne. Maguire, Steyermark, & Froden <b>Common Name:</b> Morototo, yagrumo macho, jereton <b>Elevation:</b> 500–1,500 (0–1,000) <b>Rainfall:</b> 150–400 (0–3 W) <b>Soil:</b> Deep, free-draining—tolerates both sand and clay  <b>Resistance:</b>	<b>Synonym:</b> <i>Didymopanax m.</i> (Aubl.) Decne. Utility: .7dbh/25ht/4–5g C, matches  <b>MAI:</b> 10–25 (5–10) c <b>Growth:</b> <b>Planting:</b> B, C, u, Cu <b>Source:</b> Mexico to Argentina, 25° N. to 25° S.	<b>Swietenia macrophylla</b> King <b>Common Name:</b> Caoba, mogno, big-leaf mahogany <b>Elevation:</b> 50–1,400 (0–900) <b>Rainfall:</b> 160–400 (0–4 W) <b>Soil:</b> Free-draining—tolerates heavy clays and alkalinity  <b>Resistance:</b>	<b>Synonym:</b> Utility: 1.9dbh/30–40ht/4–7g F, V, C <b>MAI:</b> 5–19 (10–15 t) c <b>Growth:</b> 2/3, 11/11, 18–24/14, 25/33 <b>Planting:</b> B, Str, C, u <b>Source:</b> Mexico to Brazil, 20° N. to 18° S.
<b>Schinus molle</b> L. <b>Common Name:</b> Molle, terebinto, pepper tree <b>Elevation:</b> 1,000–3,500 (500–3,000) <b>Rainfall:</b> 30–60 (4–8 W) <b>Soil:</b> Sandy, free-draining—tolerates alkalinity and salinity <b>Resistance:</b> Fr (−10 °C)	<b>Synonym:</b> Utility: 1.0dbh/20ht Po, Fu, A <b>MAI:</b> 3–5 C <b>Growth:</b> 3/1 <b>Planting:</b> C <b>Source:</b> Peru to northern Argentina, 7° to 33° S.	<b>Swietenia mahagoni</b> Jacq. <b>Common Name:</b> Caoba, West Indies mahogany <b>Elevation:</b> 0–500 <b>Rainfall:</b> 125–200 (2–4 W) <b>Soil:</b> Deep, free-draining, neutral or alkaline  <b>Resistance:</b> W	<b>Synonym:</b> Utility: 1.4dbh/25ht/7g F, V, C <b>MAI:</b> 8 C <b>Growth:</b> 5/3, 10–16/12 <b>Planting:</b> C <b>Source:</b> Florida, U.S., to Dominican Republic, 25° to 18° N.
<b>Senna siamea</b> Irwin and Barnaby <b>Common Name:</b> Yellow cassia, minjri <b>Elevation:</b> 0–900 (0–500) <b>Rainfall:</b> 50–150 (4–8 W) <b>Soil:</b> Light, deep, free-draining—tolerates acidity, salinity, calcareous soil, and impeded drainage <b>Resistance:</b>	<b>Synonym:</b> <i>Cassia siamea</i> Lam. Utility: .8dbh/20ht/6–8g F, Po, Fu, A, R <b>MAI:</b> 11–30 c 21 tha <b>Growth:</b> 5/3, 15/10, 20/25 <b>Planting:</b> S, B, U <b>Source:</b> Sri Lanka to Indonesia, 20° to 1° N.	<b>Tabebuia pentaphylla</b> (L.) Hemsl. <b>Common Name:</b> Apamate, robe, pink poui <b>Elevation:</b> 100–1,000 (0–500) <b>Rainfall:</b> 125–250 (0–3 W) <b>Soil:</b> Free-draining—tolerates impeded drainage  <b>Resistance:</b> W	<b>Synonym:</b> Utility: .9dbh/25–30ht/5–6g F, V, C <b>MAI:</b> 10–20 C <b>Growth:</b> 3/1, 8/5 <b>Planting:</b> S, B, Str, C, Cu <b>Source:</b> Mexico to Ecuador, 20° N. to 2° S.

Species Information			
<b>Tamarix aphylla</b> (L.) Karst. <b>Common Name:</b> Tamarisk <b>Elevation:</b> 0–1,400 (0–900) <b>Rainfall:</b> 20–50 (6–8) <b>Soil:</b> Light, free-draining—tolerates alkalinity and salinity  <b>Resistance:</b> Fr (−10 °C), Fi	<b>Synonym:</b> <i>T. articulata</i> Vahl. <b>Utility:</b> .6dbh/10–15ht/6–8g F, C, T, Fu, R <b>MAI:</b> 3–5 c <b>Growth:</b> <b>Planting:</b> C, Cu <b>Source:</b> Saudi Arabia to Afghanistan, 25° to 40° N.	<b>Terminalia ivorensis</b> A Chev. <b>Common Name:</b> Idigbo, framire, black afara <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 130–300 (0–2) <b>Soil:</b> Free-draining—tolerates sand, acidity, and impeded drainage  <b>Resistance:</b> W	<b>Synonym:</b> <b>Utility:</b> .9dbh/35–45ht/4–6g F, V, C, Pu, A <b>MAI:</b> 8–17 <b>Growth:</b> 7/3, 19/10, 30/15 <b>Planting:</b> Str, Stu, C <b>Source:</b> Guinea to Cameroon, 11° to 4° N.
<b>Tarrietia utilis</b> Sprague <b>Common Name:</b> Niagon <b>Elevation:</b> 0–500 <b>Rainfall:</b> >180 (0) <b>Soil:</b> Deep, free-draining—tolerates impeded drainage  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .9dbh/40ht/5–6g F, C <b>MAI:</b> <b>Growth:</b> 5/4, 21/20 <b>Planting:</b> Str, u <b>Source:</b> Sierra Leone to Ghana, 10° to 5° N.	<b>Terminalia myriocarpa</b> Henrek <b>Common Name:</b> Hollock <b>Elevation:</b> 1,600 <b>Rainfall:</b> 200–500 <b>Soil:</b> Sandy, neutral  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 5dbh V, C <b>MAI:</b> 5–15 <b>Growth:</b> 5/4, 26/25 <b>Planting:</b> C <b>Source:</b> Nepal to Myanmar, 27° to 20° N.
<b>Tectona grandis</b> L. <b>Common Name:</b> Teak, teca <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 125–250 (3–5 W)  <b>Soil:</b> Deep, fertile, free-draining, neutral—tolerates heavy soils  <b>Resistance:</b> Fi (moderately), W	<b>Synonym:</b> <b>Utility:</b> 2.4dbh/30–40ht/6–7g F, V, C, Po, A <b>MAI:</b> 5–18 (5–16 t) c <b>Growth:</b> 2–3/3, 8/5, 15/10, 19/15, 20–30/30 <b>Planting:</b> Stu, C, Cu, u <b>Source:</b> India to Thailand, 25° to 12° N.	<b>Terminalia superba</b> Engl. & Diels <b>Common Name:</b> White afara, limba <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 130–190 (1–3 W) <b>Soil:</b> Deep, free-draining—tolerates alkalinity  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 2.4dbh/4–60ht/4–7g F, V, C, A <b>MAI:</b> 10–14 c <b>Growth:</b> 5/2, 9/3, 19/9 <b>Planting:</b> Str, Stu, C, u <b>Source:</b> Sierra Leone to Zaire, 10° N. to 6° S.
<b>Terminalia amazonica</b> (J.F. Gmel.) Exell <b>Common Name:</b> Nargusta amarillo, cochun, white olivier <b>Elevation:</b> 700–1,200 <b>Rainfall:</b> 100–400 <b>Soil:</b> Poor sandy soils or clay, not limestone  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/40ht/5–8g F, C, T, tannin <b>MAI:</b> c <b>Growth:</b> 4/3, 12/7 <b>Planting:</b> B <b>Source:</b> Mexico to Brazil, 20° N. to 5° S.	<b>Toona ciliata</b> M.J. Roem var. <i>australis</i> F.v.M. <b>Common Name:</b> Toon, burma cedar <b>Elevation:</b> 0–1,200 (0–700) <b>Rainfall:</b> 85–180 (2–6 W) <b>Soil:</b> Deep, free-draining—tolerates acidity  <b>Resistance:</b> Fr (slight), W	<b>Synonym:</b> <i>Cedrela toona</i> Roxb. <b>Utility:</b> 1.5dbh/30–45ht/4–6g F, V, C <b>MAI:</b> 7–18 c <b>Growth:</b> 5/2, 8/5, 20/12 <b>Planting:</b> Str, C, root suckers, u <b>Source:</b> Australia, 17° to 36° S.
<b>Terminalia arjuna</b> Wight & Arn. <b>Common Name:</b> Arjun, koha <b>Elevation:</b> 0–500 <b>Rainfall:</b> 75–190 <b>Soil:</b> River banks—tolerates alkalinity  <b>Resistance:</b> Fr (tender)	<b>Synonym:</b> <i>T. glabra</i> W. and A. <b>Utility:</b> 3dbh C, tannin, R <b>MAI:</b> 5 c <b>Growth:</b> 3/3, 12/16 <b>Planting:</b> C, u <b>Source:</b> Peninsular India, 20° to 12° N.	<b>Trema micrantha</b> (L.) Blume <b>Common Name:</b> Guacimilla, capulin <b>Elevation:</b> <b>Rainfall:</b> <b>Soil:</b> Tolerates poor soils—a natural pioneer  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> .2dbh/15ht/4g Pu, Po, Fu, R, A <b>MAI:</b> c <b>Growth:</b> <b>Planting:</b> Stu, Cu <b>Source:</b> Florida, U.S. to Argentina, 26° N. to 25° S.
<b>Terminalia catappa</b> L. <b>Common Name:</b> Almendro, chapeu de sol, Malabar almond <b>Elevation:</b> 0–300 <b>Rainfall:</b> 75–200 (0–2) <b>Soil:</b> Sandy, deep—tolerates calcareous soil, salinity, and acidity  <b>Resistance:</b> Fr	<b>Synonym:</b> <i>T. procera</i> Roxb. <b>Utility:</b> 1.2dbh/30ht/4–7g F, V, C, Fu, R, A, food <b>MAI:</b> 4–6 c <b>Growth:</b> 6/3, 16/9 <b>Planting:</b> S, B, u <b>Source:</b> India to Philippines, 23° N. to 20° S.	<b>Triplochiton scleroxylon</b> K. Schum. <b>Common Name:</b> Obeche, wawa <b>Elevation:</b> 0–900 (0–400) <b>Rainfall:</b> 160–300 (0–2) <b>Soil:</b> Deep, free-draining  <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/40–50ht/4g F, V, C, Pu <b>MAI:</b> 5–20 (5–10 t) <b>Growth:</b> 4/2, 9/5 <b>Planting:</b> Stu, C, Cu <b>Source:</b> Sierra Leone to Zaire, 10° N. to 0°

## Appendix F

Species Information			
<i>Tristania conferta</i> R. Br. <b>Common Name:</b> Brush box <b>Elevation:</b> 500–3,500 (0–300) <b>Rainfall:</b> 90–160 (W) <b>Soil:</b> Deep, heavy, fertile—tolerates poor, light soils <b>Resistance:</b> Fr (tender)	<b>Synonym:</b> <b>Utility:</b> 1.8dbh/40ht/7–9g C, Po <b>MAI:</b> <b>Growth:</b> 5/8, 17/10 <b>Planting:</b> C <b>Source:</b> Malaysia to Philippines, 15° N. to 32° S.	<i>Zizyphus mauritania</i> Lam. <b>Common Name:</b> Jujube, aprin <b>Elevation:</b> 0–1,300 (0–800) <b>Rainfall:</b> 30–50 <b>Soil:</b> Sandy—tolerates moderate salinity <b>Resistance:</b> Fr (–6 °C)	<b>Synonym:</b> <i>Z. jujuba</i> Lam. <b>Utility:</b> .3dbh/10ht/9g Fu, Fo, A, food <b>MAI:</b> c <b>Growth:</b> <b>Planting:</b> S, root suckers <b>Source:</b> South Asia, 30° to 25° N.
<i>Virola surinamensis</i> (Rol.) Warb. <b>Common Name:</b> Baboen banak, dalli <b>Elevation:</b> <b>Rainfall:</b> >150 <b>Soil:</b> Deep, free-draining—tolerates poor drainage <b>Resistance:</b>	<b>Synonym:</b> <b>Utility:</b> 1.5dbh/45ht/4–5g F, V, C <b>MAI:</b> 10–15 <b>Growth:</b> 15/8, 18/10 <b>Planting:</b> u <b>Source:</b> Guadeloupe to Brazil, 16° N. to 2° S.		