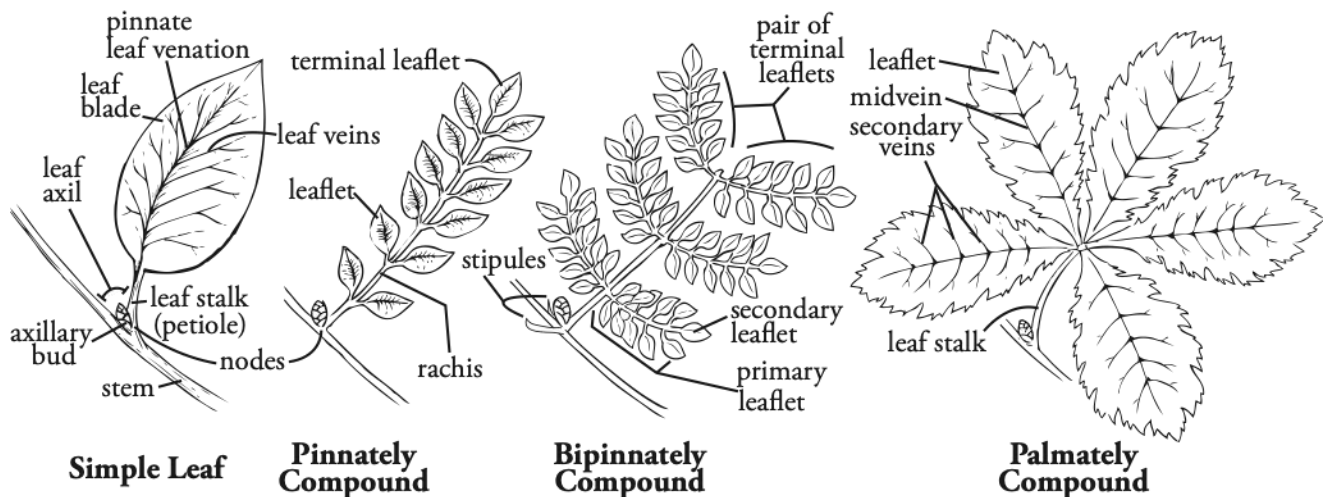
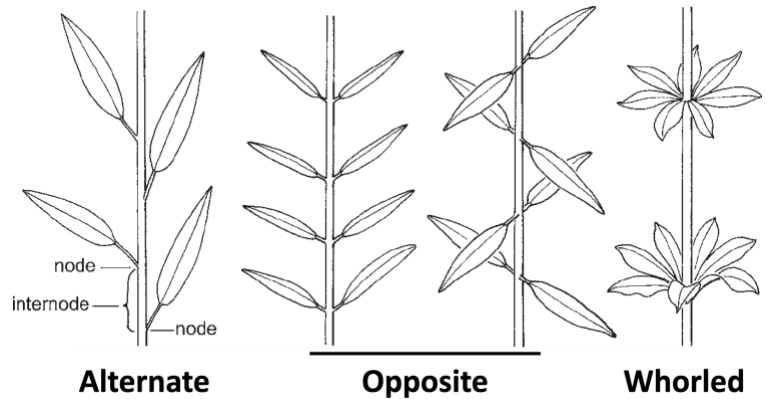


Key to Cultivated Trees and Shrubs of Hawaii

Drs. Matt Ritter and Jenn Yost

Key to Groups

1. Palm or palm-like tree with unbranched trunk and cluster of large leaves at tip.....Group 1
- 1' Tree or large shrub with branched trunk(s)
 2. Leaves scale-like or needle-like, without flattened blades (conifers and conifer like trees).....Group 2
 - 2' Leaves with flattened blades (not a conifer or palm)
 3. Leaves *opposite* and/or *whorled*
 4. Leaves *simple*.....Group 3
 - 4' Leaves *compound*.....Group 4
 - 3' Leaves *alternate*
 5. Leaves compound (or so deeply lobed as to appear compound)
 6. Leaves *palmately compound*.....Group 5
 - 6' Leaves *pinnately, bipinnately, or tripinnately compound* (leaves with 2 or 3 leaflets key as pinnately compound)
 7. Leaves *pinnately compound* (once divided).....Group 6
 - 7' Leaves *bipinnately or tripinnately compound* (two or three times divided).....Group 7
 - 5' Leaves *simple*
 8. Leaves <1 inch wide.....Group 8
 - 8' Leaves >1 inch wide
 9. Leaves >12 inches wide.....Group 9
 - 9' Leaves < 10 inches wide
 10. Leaves and stems *bleeding milky white* or yellow sap when damaged.....Group 10
 - 10' Leaves and stems not bleeding milky white or yellow sap when damaged.....Group 11



- 17. Leaves typically grayish green, covered with wax, rarely nearly white.....*Pritchardia hillebrandii* (**LOULU PALM**)
- 17' Leaves lacking waxy glaucous covering, typically mostly green
 - 18. Leaf blades diamond-shaped in outline, divided to half the blade length or more.....*Pritchardia maideniana* (**KONA PALM**)
 - 18' Leaf blades rounded, divided less than half the blade length.....*Pritchardia pacifica* (**FIJI FAN PALM**)
- 7' Leaves pinnately compound (feather palms)
 - 19. Basal leaflets modified into spines; leaflets induplicate (V-shaped instead of A-shaped)
 - 20. Trunks clustering.....*Phoenix dactylifera* (**DATE PALM**)
 - 20' Trunks solitary
 - 21. Trunk large, robust, typically 2 feet or more in diameter.....*Phoenix canariensis* (**CANARY ISLAND DATE PALM**)
 - 21' Trunk small to medium, typically 1 foot or less in diameter
 - 22. Trunk 6 inches or less in diameter, usually with persistent diamond-shaped leaf stalk stubs; leaflets in one plane.....*Phoenix roebelenii* (**PYGMY DATE PALM**)
 - 22' Trunk 12 inches or more in diameter, not with persistent diamond-shaped leaf stalk stubs; leaflets in multiple planes
 - 23. Leaf stalks > 20 inches long; fruits 2 inches long or more.....*Phoenix dactylifera* (**DATE PALM**)
 - 23' Leaf stalks to 20 inches long; fruits 1 inch long or less.....*Phoenix sylvestris* (**SILVER DATE PALM**)
 - 19' Basal leaflets same as rest of leaflets, not modified into spines; leaflets reduplicate (A-shaped instead of V-shaped)
 - 24. Crownshaft absent
 - 25. Trunk markedly ringed, grayish, abruptly swollen basally; fruits large, 8 inches or more in diameter.....*Cocos nucifera* (**COCONUT PALM**)
 - 25' Trunk smooth, whitish, not abruptly swollen basally; fruits small, less than ½ inches in diameter.....*Ravenea rivularis* (**MAJESTY PALM**)
 - 24' Leaf bases tubular, clasping around upper trunk, forming a crownshaft
 - 26. Crownshaft red or orange.....*Cyrtostachys renda* (**SEALING WAX PALM**)
 - 26' Crownshaft not red or orange but gray, grayish-white, brown, or green
 - 27. Trunks clustering; multi-branched from the base
 - 28. Leaflet tips pointed, narrowing to 1 or 2 points.....*Dypsis lutescens* (**ARECA PALM**)
 - 28' Leaflet tips jaggedly toothed, usually >2 inches wide at tip.....*Ptychosperma macarthurii* (**MACARTHUR PALM**)
 - 27' Trunk solitary
 - 29. Leaves bluish-gray, arranged in 3 ranks (triangular).....*Dypsis decaryi* (**TRIANGLE PALM**)
 - 29' Leaves green or grayish-green, not arranged in 3 ranks
 - 30. Leaflets arranged in multiple planes, making a feather duster-like leaf
 - 31. Leaflets in all planes; trunk usually < 1.5 feet in diameter.....*Wodyetia bifurcata* (**FOXTAIL PALM**)
 - 31' Leaflets mostly in two planes; trunk usually > 2 feet in diameter
 - 32. Leaves held above the horizontal; trunk uniform in diameter throughout.....*Roystonea oleracea* (**CARIBBEAN ROYAL PALM**)

- 32' Leaves held above and below the horizontal; trunk not uniform in diameter throughout.....*Roystonea regia* (**ROYAL PALM**)
- 30' Leaflets arranged in a single plane, making a feather-like leaf
- 34. Mature trees usually < 15 feet tall; trunk conspicuously swollen at base; leaves stiffly curved; leaflets forming v-shaped blade.....*Hyophorbe lagenicaulis* (**BOTTLE PALM**)
- 34' Mature trees usually > 20 feet tall; not conspicuously swollen; leaves not stiffly curved; leaflets flat, drooping or in several planes but not forming a v-shaped blade
- 35. Crownshaft white or grayish-white with rust colored hairs at the top.....*Veitchia arecina* (**MONTGOMERY PALM**)
- 35' Crownshaft brown or green with variously colored hairs or hairless
- 36. Mature trunk usually 6 inches or less in diameter; leaflets wide and jagged at tips..... *Ptychosperma elegans* (**SOLITAIRE PALM**)
- 36' Mature trunk > 6" in diameter; leaflets narrowing to a point at tip
- 37. Leaves arching; leaflets held upright in a V-shape.....*Adonidia merrillii* (**MANILA PALM**)
- 37' Leaves not arching; leaves held in a flat plane.....*Archontophoenix alexandrae* (**ALEXANDRA PALM**)

GROUP 2 – TREES WITH SCALE-LIKE OR NEEDLE-LIKE LEAVES

- 1. Leaves minute or seemingly absent—needle-like structures are actually jointed, ribbed branches with minute, whorled, scale-like leaves (see *Casuarina* shoot photos)
- 2. Shrub.....*Platycladus orientalis* (**ORIENTAL ARBORVITAE**)
- 2' Tree
- 3. Tree common; branches somewhat weeping, gray green; minute leaves 7–8 in whorls.....*Casuarina equisetifolia* (**IRONWOOD**)
- 3' Tree uncommon; branches erect, dark green; minute leaves 8–17 in whorls.....*Casuarina cunninghamiana* (**RIVER SHE-OAK**)
- 1' Leaves obvious
- 4. Leaves scale-like, opposite.....*Platycladus orientalis* (**ORIENTAL ARBORVITAE**)
- 4' Leaves needle-like or linear, alternate
- 5. Leaves over 2 inches long.....*Afrocarpus falcatus* (**AFRICAN FERN PINE**)
- 5' Leaves 1.5 inches long or shorter
- 6. Tree leaning off center; common.....*Araucaria columnaris* (**COOK PINE**)
- 6' Tree upright and plumb; rarely grown
- 7. Bark reddish-brown to brown or gray, fibrous; cones < 1/2 inch wide.....*Cryptomeria japonica* (**JAPANESE CRYPTOMERIA**)
- 7' Bark gray, smooth, peeling, warty; cones > 3 inches wide
- 8. Mature leaves keeled; foliage found toward the end of branches on mature trees.....*Araucaria cunninghamii* (**HOOP PINE**)

8' Mature leaves flattened, scale-like; foliage found throughout branches on mature trees.....*Araucaria heterophylla* (**NORFOLK ISLAND PINE**)

GROUP 3 – BROADLEAVED TREES WITH OPPOSITE OR WHORLED, SIMPLE LEAVES

1. Leaves always whorled (rarely opposite)
2. Leaves and stems bleeding milky white or yellow sap when damaged
3. Leaf tips rounded, sometimes notched; flowers white.....*Plumeria obtusa* (**WHITE PLUMERIA**)
- 3' Leaf tips tapering to a point; flowers variously colored including white.....*Plumeria rubra* (**PLUMERIA**)
- 2' Leaves and stems not bleeding milky white or yellow sap when damaged
4. Largest leaves > 4 inches wide.....*Terminalia catappa* (**FALSE KAMANI**)
- 4' Largest leaves < 2 inches wide
5. Leaf edges spiny and wavy.....*Macadamia integrifolia* (**MACADAMIA NUT**)
- 5' Leaf edges smooth and flat.....*Terminalia buceras* (**GEOMETRY TREE**)
- 1' Leaves always opposite (rarely whorled)
6. Leaves and stems bleeding milky sap when damaged
7. Sap yellow; leaves obovate (widest at the tip).....*Clusia rosea* (**AUTOGRAPH TREE**)
- 7' Sap white; leaves widest in the middle
8. Stems thin, <1/2 inch in diameter.....*Tabernaemontana litoralis* (**LECHOSO**)
- 8' Stems succulent and thick, >3/4 inches in diameter
9. Leaf tips tapering to a point; flowers variously colored including white.....*Plumeria rubra* (**PLUMERIA**)
- 9' Leaf tips rounded, sometimes notched; flowers white.....*Plumeria obtusa* (**WHITE PLUMERIA**)
- 6' Leaves and stems not bleeding milky sap when damaged
10. Largest leaves > 8 inches wide
11. Leaf undersides green, bright, shiny.....*Morinda citrifolia* (**NONI**)
- 11' Leaf undersides white, pale, dull green.....*Tectona grandis* (**TEAK**)
- 10' Largest leaves < 6 inches wide
12. Leaves densely hairy and/or white on the undersides
13. Leaves < 3/4 inches wide; tips pointed.....*Olea europaea* (**OLIVE**)
- 13' Leaves > 1 inch wide; tips rounded
14. Shrub to large tree; leaf blade bases often lobed; petals inconspicuous; fruits woody, brown and cup-shaped.....*Metrosideros polymorpha* (**OHIA**)
- 14' Shrub or small tree; leaf blade bases rounded; petals large, succulent; fruits fleshy, green, large and egg-shaped.....*Feijoa sellowiana* (**PINEAPPLE GUAVA**)
- 12' Leaf hairless or only sparsely hairy on the undersides
15. Bark smooth, thin, flaking, shedding in plates and/or ribbons; leaves with translucent dots when held to the light
16. Leaves fragrant when crushed, smelling of allspice, cinnamon, nutmeg, and cloves.....*Pimenta dioica* (**ALLSPICE**)
- 16' Leaves fragrant, but not smelling strongly of spice when crushed
17. Tall tree with rainbow-colored bark, shedding in strips.....*Eucalyptus deglupta* (**RAINBOW EUCALYPTUS**)
- 17' Small tree or shrub with cinnamon, tan, or beige bark shedding in plates
18. Leaves sickle-shaped.....*Angophora costata* (**SYDNEY RED GUM**)
- 18' Leaves egg-shaped

- 19. Young stems square in cross-section with winged ridges; leaf side veins raised above lower surface; largest leaves >2 inches wide.....*Psidium guajava* (**COMMON GUAVA**)
- 19' Young stems round in cross-section; leaf side veins not raised; largest leaves <1.5 inches wide.....*Psidium cattleianum* (**STRAWBERRY GUAVA**)
- 15' Bark rough, thick, fibrous, or scaly, not smooth, thin and flaking off, sometimes gray and smooth, but not shedding in plates or ribbons; leaves with or without translucent dots when held to the light
- 20. Leaf edges with rounded teeth.....*Elaeodendron orientale* (**FALSE OLIVE**)
- 20' Leaf edges smooth
 - 21. Leaves < 3 inches long
 - 22. Leaves spear-shaped (lanceolate) or narrowly elliptic.....*Olea europaea* (**OLIVE**)
 - 22' Leaves egg-shaped (ovate)
 - 23. Leaves with translucent dots when held to the light; fruits red and ridged.....*Eugenia uniflora* (**SURINAM CHERRY**)
 - 23' Leaves without translucent dots; fruits dark green to black and smooth.....*Psydrax odorata* (**ALAH'E**)
 - 21' Leaves > 3 inches long
 - 24. Leaves < 1 inch wide.....*Olea europaea* (**OLIVE**)
 - 24' Leaves > 1.5 inches wide
 - 25. Raised glands present at the intersection of the secondary veins and mid leaf vein.....*Gardenia taitensis* (**TAHITIAN GARDENIA**)
 - 25' Raised glands on leaf veins absent
 - 26. Leaf stalks clasping around the stem with fused, swollen appendages just above the attachment point.....*Fagraea berteriana* (**PUA KENIKENI**)
 - 26' Leaf stalks not clasping around the stem at the attachment point and without swollen appendages
 - 27. Secondary veins numerous and parallel (more than 50 and often obscure)
 - 28. Leaves widest at middle; leaf tips rounded.....*Calophyllum inophyllum* (**KAMANI**)
 - 28' Leaves widest at base; leaf tips pointed.....*Syzygium cumini* (**JAVA PLUM**)
 - 27' Secondary veins fewer than 50 and obvious, sometimes parallel or not
 - 29. Raised glands present where the leaf blade meets the leaf stalk.....*Citharexylum caudatum* (**FIDDLEWOOD**)
 - 29' No raised glands present on leaf stalk
 - 30. Leaf edges rolled under; leaf tips notched.....*Noronhia emarginata* (**MADAGASCAR OLIVE**)
 - 30' Leaf edges flat; tips pointed or rounded
 - 31. Leaves without translucent dots when held to the light; bark stringy
 - 32. Leaf blade distinct from an obvious leaf stalk (>1/2 inch long); leaves always

- opposite.....*Citharexylum spinosum*
(FIDDLEWOOD)
- 32' Leaf blade tapers to the leaf stalk (<1/2 inch long);
leaves nearly opposite or occasionally
alternate.....*Lagerstroemia speciosa* (**GIANT
CRAPE MYRTLE**)
- 31' Leaves with translucent dots when held to the light;
bark smooth and shed in plates
- 33. Flowers born along the trunk, and from the bark of
larger branches; fruits pear-shaped.....*Syzygium
malaccense* (**MOUNTAIN APPLE**)
- 33' Flowers born on branch ends; fruits guava-
shaped.....*Syzygium jambos* (**'OHI'A LOKE**)

GROUP 4 – BROADLEAVED TREES WITH OPPOSITE, COMPOUND LEAVES

- 1. Leaves pinnately or bipinnately compound
- 2. Leaves bipinnately compound (twice divided).....*Jacaranda mimosifolia* (**JACARANDA**)
- 2' Leaves pinnately compound (once divided)
 - 3. Leaflets 6 or fewer; bark smooth.....*Guaiacum officinale* (**LIGNUM VITAE**)
 - 3' Leaflets 7 or more; bark rough
 - 4. Leaflets often more than 12; flowers red, orange, or yellow; fruits upright, brown
capsules.....*Spathodea campanulata* (**AFRICAN TULIP TREE**)
 - 4' Leaflets often fewer than 12; flowers maroon or burgundy; fruits large, hanging, sausage-
like.....*Kigelia africana* (**SAUSAGE TREE**)
- 1' Leaves palmately compound
 - 5. Leaflets < 2 inches long; underside of leaflets densely white, scaly; flowers white or pinkish-
white.....*Tabebuia berteroi* (**HISPANIOLAN ROSY TRUMPET TREE**)
 - 5' Leaflets > 3 inches long; underside of leaflets green, not white, hairy or scaly; flowers yellow
or pink
 - 6. Leaflets > 2 inches wide; bark scaly, yellowish-gray; flowers bright yellow or
golden.....*Roseodendron donnell-smithii* (**GOLD TREE**)
 - 6' Leaflets < 2 inches wide; bark hard, furrowed, not scaly; flowers pink, yellow, or golden
 - 7. Leaflet edges toothed.....*Handroanthus heptaphyllus* (**PINK TRUMPET TREE**)
 - 7' Leaflet edges smooth
 - 8. Leaves bluish-green; bark dark brown to black, hard and furrowed; flowers yellow or
golden.....*Tabebuia aurea* (**SILVER TRUMPET TREE**)
 - 8' Leaves green or dark green; bark light brown to gray, plated and striped; flowers pink to
purple.....*Tabebuia heterophylla* (**PINK TECOMA**)

GROUP 5 – BROADLEAVED TREES WITH ALTERNATE, PALMATELY COMPOUND LEAVES

1. Leaflets deeply lobed.....*Carica papaya* (**PAPAYA**)
- 1' Leaflets not lobed
 2. Leaf undersides silvery; leaf edges wavy; ring scars around at leaf attachment points.....*Cecropia obtusifolia* (**CECROPIA**)
 - 2' Leaf undersides green; leaf edges flat or wavy; ring scars absent
 3. Leaflets > 10; flowers red, < 1 inch wide.....*Heptapleurum actinophyllum* (**OCTOPUS TREE**)
 - 3' Leaflets < 10; flower red, green, white or yellow, > 1 inch wide
 4. Leaf stalks more than twice as long as longest leaflet; leaflets without a stalk.....*Sterculia foetida* (**SKUNK TREE**)
 - 4' Leaf stalks less than twice as long as longest leaflet; leaflets stalked, sometimes shortly so
 5. Flowers and fruits hanging on long stalks; trunk conspicuously swollen.....*Adansonia digitata* (**BAOBAB**)
 - 5' Flowers and fruits on short stalks; trunk only somewhat swollen
 6. Tree evergreen; flowers greenish-white; fruits often > 5 inches long.....*Pachira aquatica* (**GUIANA CHESTNUT**)
 - 6' Tree deciduous; flowers red, orange, pink, or white; fruits < 5 inches long
 7. Leaf edges wavy; leaflets jointed at leaf stalk; flowers red or orange; petals ovate, straight.....*Bombax ceiba* (**RED SILK COTTON TREE**)
 - 7' Leaf edges flat; leaflets fused to leaf stalk; flowers pink or white; petals strap-like, curving.....*Pseudobombax ellipticum* (**SHAVING BRUSH TREE**)

GROUP 6 – BROADLEAVED TREES WITH ALTERNATE, PINNATELY COMPOUND (ONCE DIVIDED) LEAVES

1. Leaves with 5 or fewer leaflets
 2. Leaflets 2.....*Lysiphyllum hookeri* (**MOUNTAIN EBONY**)
 - 2' Leaflets 3 or 4
 3. Leaflets generally 4, in opposite pairs; flowers white.....*Pithecellobium dulce* (**OPIUMA**)
 - 3' Leaflets generally 3; flowers variously colored
 4. Flowers green, yellow, or orange; leaflets triangular.....*Erythrina sandwicensis* (**WILIWILI**)
 - 4' Flowers red; leaflets oval.....*Erythrina crista-galli* (**COCKSPUR CORAL TREE**)
- 1' Leaves with 6 or more leaflets
 5. Leaves with 18 or more leaflets
 6. Leaf undersides white; leaflets lobed.....*Grevillea robusta* (**SILK OAK TREE**)
 - 6' Leaf undersides green; leaflets not lobed
 7. Leaflets < 1 inch long, notched at the tip.....*Tamarindus indica* (**TAMARIND**)
 - 7' Leaflets > 1 inch long, rounded or pointed at the tip
 8. Leaflets < 1/2 inch wide; > 30 leaflets per leaf.....*Senna spectabilis* (**SENNA SPECTABILIS**)
 - 8' Leaflets > 1/2 inch wide; < 15–25 leaflets per leaf
 9. Leaflets generally < 2 inches wide; flowers pink.....*Cassia javanica* (**PINK SHOWER TREE**)
 - 9' Leaflets generally > 2 inches wide; flowers pink, yellow, or cream.....*Cassia × nealiae* (**RAINBOW SHOWER TREE**)
 - 5' Leaves usually with 15 or fewer leaflets
 10. Leaflets distinctly alternate on rachis
 11. Leaves (whole leaf) > 12 inches long; large tree; bark scaly.....*Pterocarpus indicus* (**NARRA**)
 - 11' Leaves (whole leaf) < 10 inches long; small to medium-sized tree, shrub, or hedge; bark stringy or smooth
 12. Leaflets < 2 inches long.....*Murraya paniculata* (**MOCK ORANGE**)
 - 12' Leaflets > 2 inches long.....*Harpullia pendula* (**TULIPWOOD**)
 - 10' Leaflets opposite or nearly so on rachis
 13. Rachis winged
 14. Leaves terminating in a single leaflet.....*Schinus terebinthifolia* (**BRAZILIAN PEPPER OR CHRISTMAS BERRY**)
 - 14' Leaves terminating in a pair of leaflets.....*Filicium decipiens* (**FERN TREE**)
 - 13' Rachis not winged
 15. Leaflets curved, asymmetrical; bark scaly.....*Swietenia mahagoni* (**WEST INDIAN MAHOGANY**)
 - 15' Leaflets symmetrical; bark furrowed or smooth, not scaly
 16. Leaflets > 4 inches long
 17. Leaflets toothed; leaf ending in a terminal leaflet..... *Polyscias guilfoylei* (**PANAX**)
 - 17' Leaflet edges smooth; leaf ending in a pair of leaflets
 18. Leaves with 12–16 leaflets; fruits long, brown, cigar-shaped; flowers yellow, showy.....*Cassia fistula* (**GOLDEN SHOWER TREE**)
 - 18' Leaves with 5–10 leaflets; fruits spherical; flowers white or cream
 19. Leaflet undersides whitish green; leaflets 8–10.....*Dimocarpus longan* (**LONGAN**)

- 19' Leaflet undersides green; leaflets 4–8.....*Litchi chinensis* (**LYCHEE**)
- 16' Leaflet 3 inches long or less
 - 20. Petals absent; fruit on female trees >1/4 inch wide.....*Ceratonia siliqua* (**CAROB TREE**)
 - 20' Petals obvious, > 1/2 inch wide; fruits various
 - 21. Leaflets often convex; fruits orange; seeds black, > 1/2 inch in diameter.....*Harpullia pendula* (**TULIPWOOD**)
 - 21' Leaflets flat; fruits brown or yellow; seeds variously colored, 1/4 inch or less in diameter
 - 22. Fruit fleshy and star-shaped in cross section.....*Averrhoa carambola* (**STAR FRUIT**)
 - 22' Fruit a dry legume
 - 23. Young leaves and stems hairy.....*Sophora chrysophylla* (**MAMANE**)
 - 23' Young leaves and stems hairless
 - 24. Fertile stamens 10; petals overlapping; fruits < 5 inches long.....*Senna surattensis* (**KOLOMONA**)
 - 24' Fertile stamens 7, reduced sterile stamens 3; petals non-overlapping; fruits > 8 inches long.....*Senna siamea* (**PHEASANT WOOD**)

GROUP 7 – BROADLEAVED TREES WITH ALTERNATE, BIPINNATELY, OR TRIPINNATELY COMPOUND (TWO OR THREE TIMES DIVIDED) LEAVES

- 1. Leaves terminating in a single leaflet
 - 2. Leaf undersides white.....*Grevillea robusta* (**SILK OAK TREE**)
 - 2' Leaf undersides green
 - 3. Leaves tripinnately compound; leaflets < 1 inch long, rounded at tip, leaf edges smooth.....*Moringa oleifera* (**HORSERADISH TREE**)
 - 3' Leaves bipinnately compound; leaflets > 1 inch long, pointed at tip, leaf edges toothed.....*Melia azedarach* (**CHINABERRY**)
- 1' Leaves terminating in a pair of leaflets
 - 4. Largest secondary leaflets > 1/2 inch wide
 - 5. Young stems and leaf stalks fuzzy; flowers pink; legumes dark brown to black.....*Samanea saman* (**MONKEYPOD**)
 - 5' Young stems and leaf stalks hairless; flowers yellow or white; legumes light brown.....*Albizia lebbek* (**WHITE MONKEYPOD**)
 - 4' Largest secondary leaflets 1/4 inch wide or less
 - 6. Secondary leaflets < 1/4 inch long.....*Acacia mearnsii* (**BLACK WATTLE**)
 - 6' Secondary leaflets 1/2 inch long or greater
 - 7. Leaves generally with 9 or fewer pairs of primary leaflets
 - 8. Leaves with 4–9 pairs of primary leaflets; branches spineless.....*Leucaena leucocephala* (**HAOLE KOA**)
 - 8' Leaf with 1–4 pairs of primary leaflets; branches often with sharp, rigid, paired spines.....*Prosopis pallida* (**KIAWE**)
 - 7' Leaves with more than 9 pairs of primary leaflets
 - 9. Leaves generally with more than 18 pairs of primary leaflets
 - 10. Flowers > 2 inches wide; petals longer than stamens; appendages present at base of leaf stalk of young leaves; fruits rounded at tip.....*Delonix regia* (**ROYAL POINCIANA**)

- 10' Flowers < 1.5 inches wide; petals shorter than stamens; appendages absent from base of leaf stalk on young leaves; fruit pointed at tip.....*Colvillea racemosa* (**COLVILLE'S GLORY**)
- 9' Leaves generally with 15 or fewer pairs of primary leaflets
 - 11. Plant is a shrub; flowers orangish-red.....*Caesalpinia pulcherrima* (**DWARF POINCIANA**)
 - 11' Plant is a tree; flowers variously colored
 - 12. Leaves and young stems hairy.....*Acacia koa* (**KOA**) (Juvenile leaves only)
 - 12' Leaves and stems hairless
 - 13. Bark rough and brown; flowers yellow.....*Peltophorum pterocarpum* (**YELLOW POINCIANA**)
 - 13' Bark smooth and gray; flowers white or pink
 - 14. Leaf stalk < 1 inch long before first leaflets; flowers white.....*Falcataria moluccana* (**ALBIZIA**)
 - 14' Leaf stalk > 2 inches long before first leaflets; flowers white or pink
 - 15. Large tree (> 50'); leaflets asymmetrical; flowers white; pods strongly curled, kidney-shaped.....*Enterolobium cyclocarpum* (**EARPOD**)
 - 15' Small to medium-sized tree (< 30'); leaflets symmetrical; flowers pink; pods straight.....*Albizia julibrissin* (**SILK TREE**)

GROUP 8 – BROADLEAVED TREES WITH ALTERNATE, SIMPLE LEAVES THAT ARE LESS THE 1 INCH WIDE

1. Flower clusters shaped like a bottlebrush; fruits woody, persisting on stem for many years
2. Bark white papery; leaves with 5 parallel main veins.....*Melaleuca quinquenervia* (**CAJEPUT TREE**)
- 2' Bark brown furrowed; leaves with 1 main vein
3. Tree often multi-stemmed; branches erect; leaves lemon-scented when crushed; stamens falling individually.....*Callistemon citrinus* (**LEMON BOTTLEBRUSH**)
- 3' Tree often single stemmed; branches drooping; leaves not smelling of lemon when crushed; stamens falling in a fused ring.....*Callistemon viminalis* (**WEEPING BOTTLEBRUSH**)
- 1' Flowers variously shaped; fruits fleshy or woody, not persisting on stem for many years
4. Leaves smelling of lemon when crushed; large tree with smooth white bark.....*Corymbia citriodora* (**LEMON-SCENTED GUM**)
- 4' Leaves without noticeable lemon scent, with medicinal or spicy odor when crushed; shrub to tree with smooth to rough, gray to brown bark
5. Single midvein of leaf prominent
6. Leaves widest toward tip, blunt, reddish purple or bronze, occasionally sticky.....*Dodonaea viscosa* (**HOP BUSH**)
- 6' Leaves narrowed to tip, pointed
7. Leaves bleeding milky sap when damaged.....*Cascabela thevetia* (**BEESTILL TREE**)
- 7' Leaves not bleeding milky sap when damaged*Podocarpus macrophyllus* (**YEW PINE**)
- 5' Single midvein of leaf not prominent, veins faint or obscure
8. Leaves widened toward rounded tips, generally 1 inch long or shorter.....*Leptospermum laevigatum* (**AUSTRALIAN TEA TREE**)
- 8' Leaves narrowed to pointed tips, 2 inches or longer
9. Leaves with 1 obscure main vein; seed-bearing structure one-seeded, plum-like.....*Afrocarpus falcatus* (**AFRICAN FERN PINE**)
- 9' Leaves with several parallel veins; fruit a legume
10. Leaves < 4 inches long; flowers bright yellow.....*Acacia confusa* (**FORMOSAN KOA**)
- 10' Leaves > 6 inches long; flowers white to cream-colored.....*Acacia koa* (**KOA**)

GROUP 9 – BROADLEAVED TREES WITH ALTERNATE, SIMPLE LEAVES, THAT ARE MORE THE 12 INCHES WIDE

1. Leaf stalks attached to the middle of leaf blades (peltate)
2. Leaves deeply palmately lobed
 3. Leaf undersides silver.....*Cecropia obtusifolia* (**CECROPIA**)
 - 3' Leaf undersides green.....*Ricinus communis* (**CASTOR BEAN**)
- 2' Leaves rounded or heart shaped, not lobed
 4. Leaf blades usually 1–2 feet in diameter.....*Macaranga tanarius* (**PARASOL LEAF TREE**)
 - 4' Leaf blades usually more than 2 feet in diameter.....*Macaranga mappa* (**BINGABING**)
- 1' Leaves stalkless or leaf stalks attached to the base of leaf blades
 5. Leaf stalks longer than or equal to leaf blade length
 6. Tree much-branched; leaves not lobed or shallowly 3- to 5-lobed.....*Aleurites moluccanus* (**KUKUI**)
 - 6' Tree unbranched or few-branched; leaves palmately divided nearly to the base into deeply lobed segments.....*Carica papaya* (**PAPAYA**)
 - 5' Leaf stalks shorter than leaf blade length
 7. Tree bleeding milky white sap when leaf is damaged, broken, or torn off
 8. Leaves deeply lobed.....*Artocarpus altilis* (**BREADFRUIT**)
 - 8' Leaves not lobed or shallowly lobed
 9. Base of leaf blade narrowed to stalk.....*Artocarpus heterophyllus* (**JACKFRUIT**)
 - 9' Base of leaf blade with short lobes around tip of stalk.....*Ficus lyrata* (**FIDDLELEAF FIG**)
 - 7' Tree without milky white sap
 10. Leaf edges toothed.....*Melochia umbellata* (**MELOCHIA**)
 10. Leaf edges smooth
 11. Leaves oblanceolate, widest at tip; fruits almond-shaped.....*Terminalia catappa* (**FALSE KAMANI**)
 - 11' Leaves ovate, widest in the middle; fruits four-sided.....*Barringtonia asiatica* (**BARRINGTONIA**)

GROUP 10 – BROADLEAVED TREES WITH ALTERNATE, SIMPLE LEAVES, LESS THAN 10 INCHES WIDE, BLEEDING MILKY WHITE OR YELLOW SAP WHEN DAMAGED

1. Ring scars present at each leaf attachment point; stems often ending with a point (Moraceae)
 2. Fruit > 6 inches in diameter, covered by small bumps; leaves sometimes shallowly lobed toward tip, especially the juvenile leaves.....*Artocarpus heterophyllus* (**JACKFRUIT**)
 - 2' Fruit < 2 inches diameter, smooth; leaves not lobed (*Ficus*)
 3. Shoot tips covered by 1 (often reddish) sheath, > 6 inches long; leaf stalk shorter than leaf width; leaves often purple.....*Ficus elastica* (**RUBBER TREE**)
 - 3' Shoot tips covered by 2 sheaths, usually 4 inches long or less; leaf stalk shorter or longer than leaf width; leaves green
 4. Leaves covered with very fine rust-colored hairs (at least when young), usually on the undersides
 5. Mature trees with large spreading roots; leaves 2.5 inches to 5 inches wide, figs $\frac{3}{4}$ inches to 1 inch wide.....*Ficus macrophylla* (**MORETON BAY FIG**)
 - 5' Mature trees without large spreading roots, leaves 1.5 inches to 2.5 inches wide, figs $\frac{1}{4}$ inches to $\frac{1}{2}$ inches wide.....*Ficus rubiginosa* (**RUSTY-LEAF FIG**)
 - 4' Leaves hairless
 - 6' Leaves heart-shaped or triangular; leaf tips long and pronounced.....*Ficus religiosa* (**BODHI TREE**)
 6. Leaves oval; leaf tips variable
 7. Largest leaves > 3 inches wide.....*Ficus benghalensis* (**INDIAN BANYAN**)
 - 7' Largest leaves < 2 inches wide
 8. Leaf veins inconspicuous, very numerous; leaves with a long, pointed tip.....*Ficus benjamina* (**WEeping FIG**)
 - 8' Leaf veins conspicuous, usually < 10; leaves without a long tip.....*Ficus microcarpa* (**INDIAN LAUREL FIG**)
 - 1' Ring scar not present where leaves attach; stems not ending with a point
 9. Leaf veins palmate, with 3 or more prominent veins at the base of the leaf blade
 10. Leaves toothed, rough and sandpapery to the touch.....*Broussonetia papyrifera* (**WAUKE**)
 - 10' Leaves lobed or smooth
 11. Flowers white; canopy light green.....*Aleurites moluccanus* (**KUKUI**)
 - 11' Flowers red; canopy dark green.....*Jatropha integerrima* (**SPICY JATROPHA**)
 - 9' Leaf veins pinnate, with 1 main vein
 12. Leaf undersides covered with golden; leaves usually purple or maroon.....*Chrysophyllum oliviforme* (**SATINLEAF**)
 - 12' Leaf undersides hairless; leaves green
 13. Smallest stems thick, succulent, >3/4 inches in diameter; tree partly deciduous
 14. Leaf tips rounded, sometimes notched; flowers white.....*Plumeria obtusa* (**WHITE PLUMERIA**)
 - 14' Leaf tips tapering to a point; flowers variously colored including white.....*Plumeria rubra* (**PLUMERIA**)
 - 13' Smallest stems not succulent, <1/2 inches in diameter; tree evergreen
 15. Leaves 3 inches long or less.....*Manilkara zapota* (**SAPODILLA**)
 - 15' Leaves > 4 inches long
 16. Bark smooth and gray; flowers white, >1 inch in diameter.....*Cerbera manghas* (**SUICIDE TREE**)

16' Bark rough and scaly; flowers white to pink, <1/2 inch in diameter.....*Mangifera indica* (**MANGO**)

GROUP 11 – BROADLEAVED TREES WITH ALTERNATE, SIMPLE LEAVES, LESS THAN 10 INCHES WIDE, NOT BLEEDING MILKY WHITE OR YELLOW SAP WHEN DAMAGED

1. Leaf edges toothed, teeth minute in *Hibiscus tiliaceus* (HAU)
2. Leaf blade bases acute or obtuse, tapering to leaf stalk, not lobed.....*Elaeocarpus angustifolius* (**BLUE MARBLE TREE**)
- 2' Leaf blade bases rounded, often with two distinct lobes
3. Leaves < 3 inches wide; bases asymmetric.....*Trema orientalis* (**GUNPOWDER TREE**)
- 3' Leaves > 5 inches wide; bases usually symmetric
4. Leaves sometimes lobed; leaves sandpapery and rough on upper surface.....*Broussonetia papyrifera* (**WAUKE**)
- 4' Leaves always heart-shaped, not lobed; leaves smooth or soft-feeling, not sandpapery
5. Leaf edges with minute teeth; leaf upper surface hairless; common coastal plant.....*Hibiscus tiliaceus* (HAU)
- 5' Leaf edges conspicuously toothed; leaf upper surface often soft to the touch and hairy; weedy forest tree.....*Melochia umbellata* (**MELOCHIA**)
- 1' Leaf edges not toothed, sometimes lobed
6. Leaves two-lobed
7. Leaf lobes divided to leaf stalk.....*Lysiphyllum hookeri* (**MOUNTAIN EBONY**)
- 7' Leaf lobes shallow, blades divided less than 1/2 their length
8. Flowers reddish-orange, with 3 fertile stamens.....*Bauhinia galpinii* (**RED BAUHINIA**)
- 8' Flowers pink, purple, reddish-purple, violet or white, with 5 fertile stamens
9. Flower buds with 5 ridges; fruits never forming.....*Bauhinia × blakeana* (**HONG KONG ORCHID TREE**)
- 9' Flower buds not ridged; fruits usually present on tree or ground
10. Central petal striped with purple and pink.....*Bauhinia variegata* (**PURPLE ORCHID TREE**)
- 10' Central petal spotted and fringed with yellow.....*Bauhinia monandra* (**PINK BAUHINIA**)
- 6' Leaves not two-lobed
11. Leaf stalk attached to the middle of leaf blade (peltate)
12. Secondary veins extending like rungs of a ladder between main veins.....*Macaranga tanarius* (**PARASOL LEAF TREE**)
- 12' Secondary veins forming networks between main veins.....*Hernandia nymphaeifolia* (**JACK IN THE BOX TREE**)
- 11' Leaf stalk attached to leaf blade base
13. Leaves sickle-shaped; main leaf veins parallel.....*Acacia koa* (**KOA**)
- 13' Leaves straight or variously shaped, not sickle-shaped; leaf veins netted
14. Leaf undersides more or less obscured by silvery to rust-colored hairs or scales
15. Leaf highly lobed, often divided.....*Grevillea robusta* (**SILK OAK TREE**)
- 15' Leaf not lobed
16. Leaf upper surface dark green; leaf underside covered with rust-colored hairs or silvery to golden tan scales

- 17. Leaf underside covered with rust-colored hairs; flowers > 6 inches wide; fruit a compound structure, often with exposed red seeds.....*Magnolia grandiflora* (**SOUTHERN MAGNOLIA**)
- 17' Leaf underside covered with silvery to golden tan scales; flowers < 1 inch wide; fruit an almond-shaped nut.....*Heritiera littoralis* (**LOOKING GLASS TREE**)
- 16' Leaf upper surface green, light green, bluish green, or silvery green
 - 18. Leaves widest in the middle; canopy silver; flowers and fruits born in small rounded head.....*Conocarpus erectus* (**SILVER BUTTONWOOD**)
 - 18' Leaves widest at the tip; canopy green or bluish-green; flowers and fruits born in coiled clusters.....*Heliotropium arboreum* (**BEACH HELIOTROPE**)
- 14' Leaves undersides green; hairs, if any, not obscuring surface
 - 19. Leaves sandpapery to the touch; fruits green; flowers orange.....*Cordia sebestena* (**HAOLE KOU**)
 - 19' Leaves smooth, leathery, not sandpapery; fruits and flowers variously colored
 - 20. Leaf veins palmate or with 3 main veins
 - 21. Leaves spearhead-shaped, with 3 main veins.....*Cinnamomum burmannii* (**CASSIA**)
 - 21' Leaves heart-shaped or palmately lobed, with 3 or more main veins
 - 22. Leaves heart-shaped.....*Thespesia populnea* (**MILO**)
 - 22' Leaves palmately lobed
 - 23. Young leaves hairless; mature leaves deeply lobed.....*Brachychiton acerifolius* (**FLAME BOTTLE TREE**)
 - 23' Young leaves covered in fine hairs; mature leaves shallowly lobed.....*Aleurites moluccanus* (**KUKUI**)
 - 20' Leaf veins pinnate
 - 24. Largest leaves 5 inches wide or wider
 - 25. Leaves widest in the middle or at the base (elliptic or ovate)
 - 26. Leaf blade based rounded or broadly tapered; leaf stalks > 2 inches; leaves not clasping stem.....*Cordia subcordata* (**KOU**)
 - 26' Leaf blade base lobed; leaf stalks < 1 inch; leaves clasping stem.....*Coccoloba uvifera* (**SEA GRAPE**)
 - 25' Leaves widest toward to tip (oblanceolate or obovate)
 - 27. Leaf midvein green and in plane with upper leaf surface; flowers < 1 inch wide; common coastal tree.....*Terminalia catappa* (**FALSE KAMANI**)
 - 27' Leaf midvein white and rounded above leaf surface; flowers > 2 inches wide; uncommon horticultural tree.....*Barringtonia asiatica* (**BARRINGTONIA**)
 - 24' Largest leaves < 5 inches wide
 - 28. Leaves widest toward to tip; blade tapering to leaf stalk (oblanceolate or obovate)
 - 29. Largest leaves > 5 inches long
 - 30. Leaves born in bundles along stem; midvein yellow or green; flowers and fruits arising from the bark of old stems and trunk.....*Crescentia cujete* (**CALABASH TREE**)

- 30' Leaves arising evenly along stem; midvein white; flowers and fruits born at shoot tips.....*Heliotropium arboreum* (**BEACH HELIOTROPE**)
- 29' Largest leaves < 5 inches long
31. Leaf stalks absent or nearly so.....*Terminalia buceras* (**GEOMETRY TREE**)
- 31' Leaf stalks obvious, usually pink to purple.....*Ardisia elliptica* (**SHOE BUTTON ARDISIA**)
- 28' Leaves widest in the middle or at the base (elliptic, ovate, or lanceolate); blade rounded to leaf stalk
32. Largest leaves 3–5 inches wide; leaf widest in the middle (elliptic)
33. Leaf stalks 1.5–3 inches long.....*Persea americana* (**AVOCADO**)
- 33' Leaf stalks 1 inch long or less
34. Flowers conspicuous, pink or purple, born at shoot tips; fruits woody, <1 inch wide.....*Lagerstroemia speciosa* (**GIANT CRAPE MYRTLE**)
- 34' Flowers inconspicuous, arising from the bark of old stems and trunk; fruits fleshy >2 inches wide..... *Theobroma cacao* (**CACAO TREE**)
- 32' Largest leaves < 2.5 inches wide; leaf widest at the base (lanceolate)
35. Leaf edges strongly and regularly wavy.....*Monoon longifolia* (**FALSE ASHOKA**)
- 35' Leaf edges flat or irregularly wavy
36. Leaves with translucent dots when held up to light; tips of secondary veins not curved upward, joining together to form a marginal vein; bark reddish brown, fibrous, soft; fruit a dry capsule with many small seeds.....*Eucalyptus robusta* (**SWAMP MAHOGANY**)
- 36' Leaves without translucent dots when held up to light; tips of secondary veins curved upward, not joining together to form a marginal vein; bark gray-brown, scaly; fruit large, fleshy, with a large, 1-seeded pit.....*Mangifera indica* (**MANGO**)