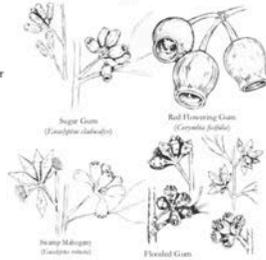


Using Identification Keys for Eucalypts



Key to Commonly Cultivated Eucalypts

1. Leaves lighter green on the underside
2. Bark rough, hard, thin, flaky; fruit 3/4 in. diameter or more—Red Flowering Gum (*Corymbia ficifolia*)
- 2' Bark rough, soft, thick, fibrous; fruit 1/2 in. diameter or less—Swamp Mahogany (*Eucalyptus robusta*)
- 2" Bark smooth
3. Bark with orange blotches; leaves often curved; mature fruit ridged; fruit valves sunken inside fruit—Sugar Gum (*Eucalyptus cladocalyx*)
- 3' Bark bluish gray; leaves straight; mature fruit smooth; valves of fruit exerted,
4. Valves 4 or 5, curved inward; buds and fruit often glaucous—Rose Gum (*Eucalyptus grandis*)
- 4' Valves usually 4, erect; leaves straight; buds and fruit not glaucous—Sydney Blue Gum (*Eucalyptus saligna*)



- 1' Leaves the same color on both sides; AND bark rough, furrowed, retained on trunk and limbs
(NOTE: there is a 1" option on the backside)
5. Leaves silver or bluish silver in color
6. Leaves attached oppositely; flower buds and fruit grouped in threes—Argyle Apple (*Eucalyptus cinerea*)
- 6' Leaves attached alternately, mostly less than 1/2 in. wide at widest point—Narrow-Leaf Peppermint (*Eucalyptus nicholii*)
- 6" Leaves attached alternately, mostly 3/4 in. wide or wider
7. Bark dark brown to black, very rough and deeply furrowed—Red Iron Bark (*Eucalyptus sideroxylon*)
- 7' Bark light brown or gray, and scraggly; leaves round or only slightly longer than wide; flowers white—Silver Dollar Gum (*Eucalyptus polyanthemos*)
- 7" Bark light brown or gray, and scraggly; leaves 3 to 4 times longer than broad; flowers pink—Coral Gum (*Eucalyptus torquata*)



- 5' Leaves green
8. Leaves mostly less than 1/2 in. wide at widest point—Narrow Leaf Peppermint (*Eucalyptus nicholii*)
- 8' Leaves mostly 3/4 in. wide or wider; bark gray, finely furrowed; all stamens with anthers—Flooded Gum (*Eucalyptus rudis*)
- 8" Leaves mostly 3/4 in. wide or wider; bark dark brown to black, very rough and deeply furrowed; some stamens without anthers—Red Iron Bark (*Eucalyptus sideroxylon*)

How Identification Keys Work

1. Leaves purple—Purple Leaf Plum (*Prunus cerasifera*)
- 1' Leaves green
 2. Leaf underside white—Olive (*Olea europaea*)
 - 2' Leaf underside green—Sweetgum (*Liquidambar styraciflua*)



1. Leaves purple—Purple Leaf Plum (*Prunus cerasifera*)
- 1' Leaves green
 2. Leaf underside white—Olive (*Olea europaea*)
 - 2' Leaf underside green—Sweetgum (*Liquidambar styraciflua*)



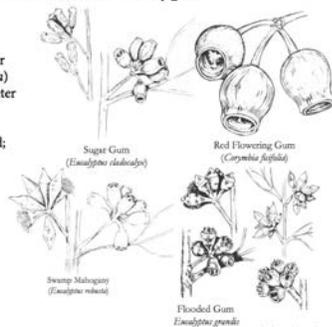
1. Leaves opposite (two per attachment)—**Jacaranda**
- 1' Leaves alternate (one per attachment)
 2. Leaf edges smooth
 3. Leaf undersides rust colored—**Southern Magnolia**
 - 3' Leaf undersides green—**Crepe Myrtle**
 - 2' Leaf edge toothed
 4. Leaves star-shaped—**Sweetgum**
 - 4' Leaves egg shaped
 5. Leaf undersides white—**Holly Oak**
 - 5' Leaf undersides green—**Chinese Elm**



Keying Eucalyptus #1 Together

Key to Commonly Cultivated Eucalypts

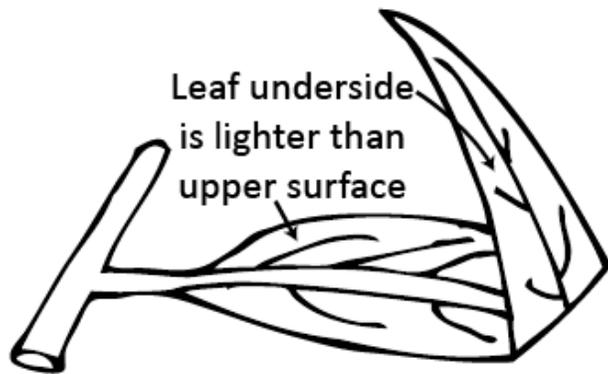
1. Leaves lighter green on the underside
2. Bark rough, hard, thin, flaky; fruit 3/4 in. diameter or more—Red Flowering Gum (*Corymbia ficifolia*)
- 2' Bark rough, soft, thick, fibrous; fruit 1/2 in. diameter or less—Swamp Mahogany (*Eucalyptus robusta*)
- 2'' Bark smooth
3. Bark with orange blotches; mature fruit ridged; fruit valves sunken inside fruit—Sugar Gum (*Eucalyptus cladocalyx*)
- 3' Bark bluish gray; mature fruit smooth; valves of fruit exerted.
4. Valves 4 or 5, curved inward; buds and fruit often glaucous—Rose Gum (*Eucalyptus grandis*)
- 4' Valves usually 4, erect; buds and fruit not glaucous—Sydney Blue Gum (*Eucalyptus saligna*)



Plant number: _____	Plant number: _____
Name of the plant: _____	Name of the plant: _____
Keying path: _____	Keying path: _____
Important characters: _____	Important characters: _____
circle one: red/black white intermediate	circle one: red/black white intermediate
Notes/drawings	Notes/drawings



1. Leaves lighter green on the underside
- 1' Leaves the same color on both sides; **and bark rough, furrowed, retained on trunk and limbs (there is a 1" option on the backside)**
- 1" Leaves the same color on both sides; **and bark smooth, shedding (sometimes with imperfectly shed rough bark on the basal area of trunk)**



9. Buds and fruit produced singly; leaves over 8 in. long—**Blue Gum** (*Eucalyptus globulus*)
- 9' Buds and fruit clustered in threes or more; leaves less than 6 in. long, smelling like lemon when crushed—**Lemon Scented Gum** (*Corymbia citriodora*)
- 9" Buds and fruit clustered in threes or more; leaves less than 6 in. long, smelling medicinal or spicy when crushed (but not like lemon)



Eucalyptus globulus



Plant #1

10. Leaves silver, bluish silver, or bluish-gray in color (covered with wax)

10' Leaves green, olive green, or dark green (not waxy)



Eucalyptus polyanthemos

12. Leaves egg-shaped or round, barely twice as long as wide; buds and fruit fused into a spherical cluster the size of a small fist—
Spider Gum (*Eucalyptus conferruminata*)

12' Leaves shaped like a long spearhead, 3 to 4 times longer than wide; buds and fruit not fused



Eucalyptus conferruminata

- 13. Buds and fruit in clusters of five or more (usually seven)
- 13' Buds and fruit always in clusters of three



Eucalyptus camaldulensis



Plant #1

- 15. Bark shed in long slender ribbons; buds with a short stalk; all stamens with anthers—**Ribbon Gum (*Eucalyptus viminalis*)**
- 15' Bark shed in plates or patches; buds borne on a long slender stalk; some stamens without anthers—**White Iron Bark (*Eucalyptus leucoxylon*)**



Eucalyptus leucoxylon



Plant #1



Eucalyptus viminalis (Ribbon Gum)

- Flowers in 3s
- Bark shed in long ribbons



Keying Exercise

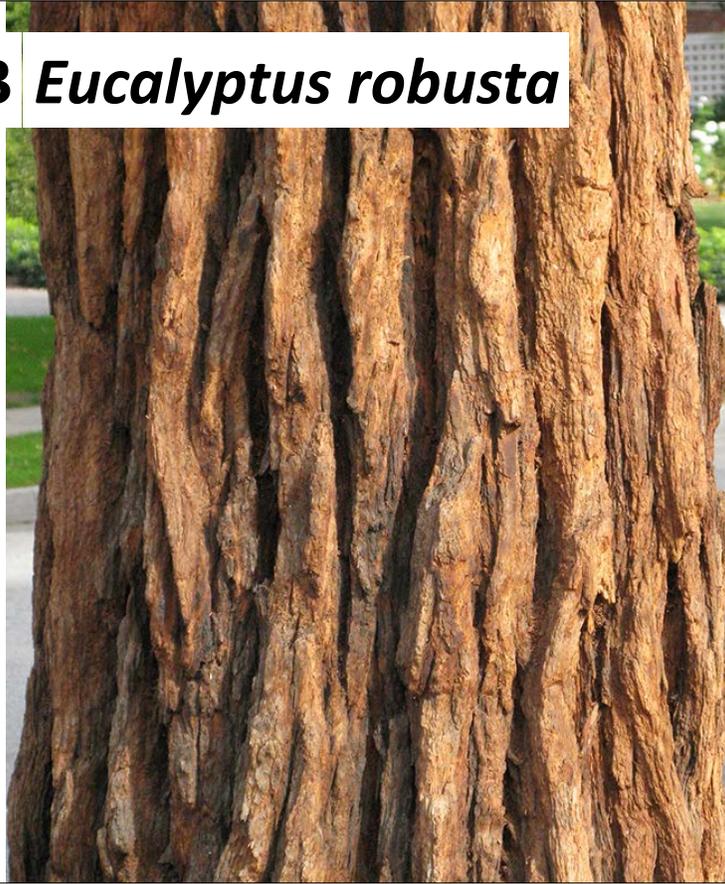
- Partner exercise
- Fill the form out as you key

Plant number: _____	Plant number: _____
Name of the plant: _____	Name of the plant: _____
Keying path: _____	Keying path: _____
Important characters:	Important characters:
circle one: red/black white intermediate	circle one: red/black white intermediate
Notes/drawings	Notes/drawings

Tree #2 *Corymbia ficifolia*



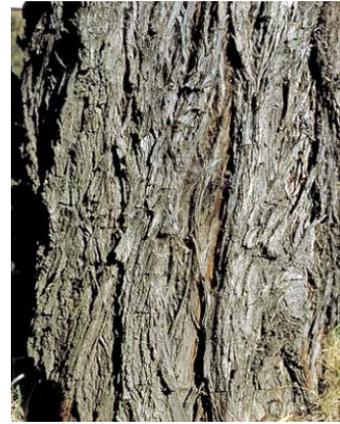
Tree #3 *Eucalyptus robusta*



Tree #4 *Eucalyptus cinerea*



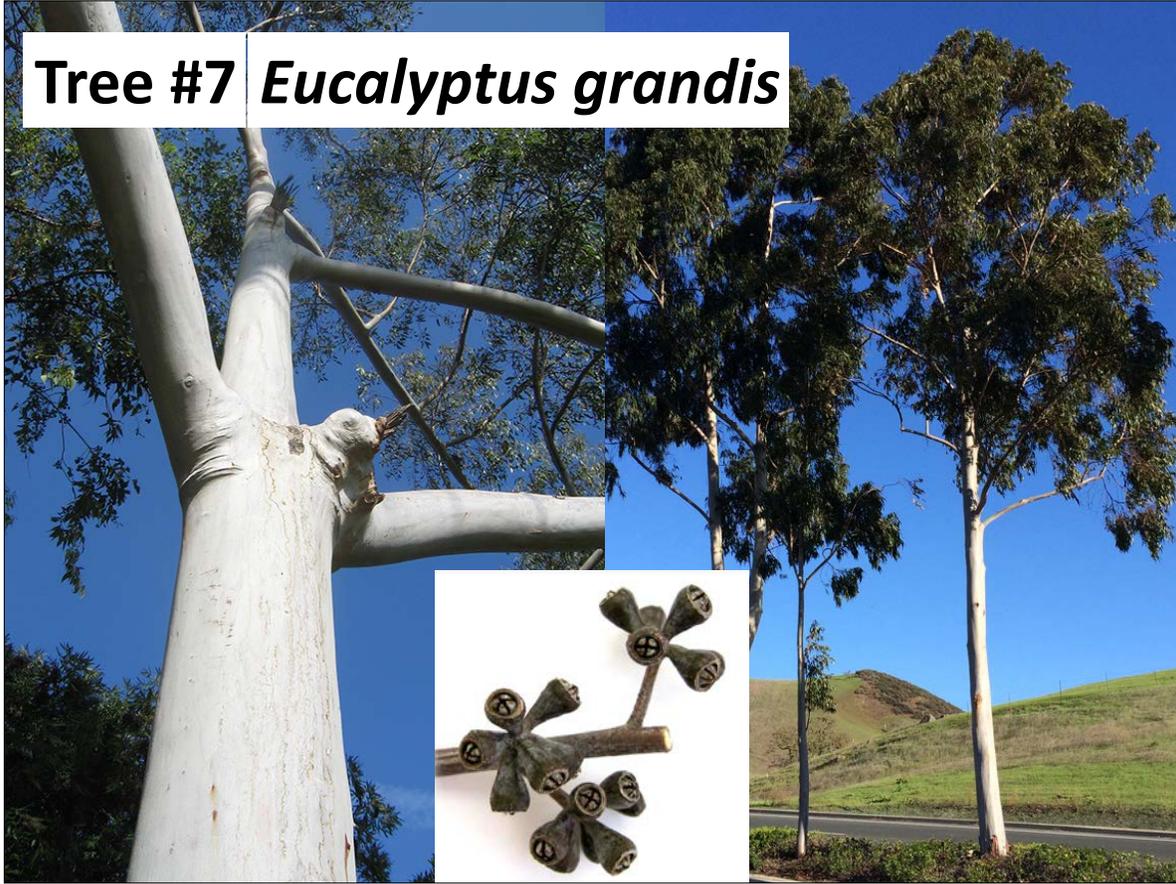
Tree #5 *Eucalyptus nicholii*



Tree #6 *Eucalyptus conferruminata*



Tree #7 *Eucalyptus grandis*



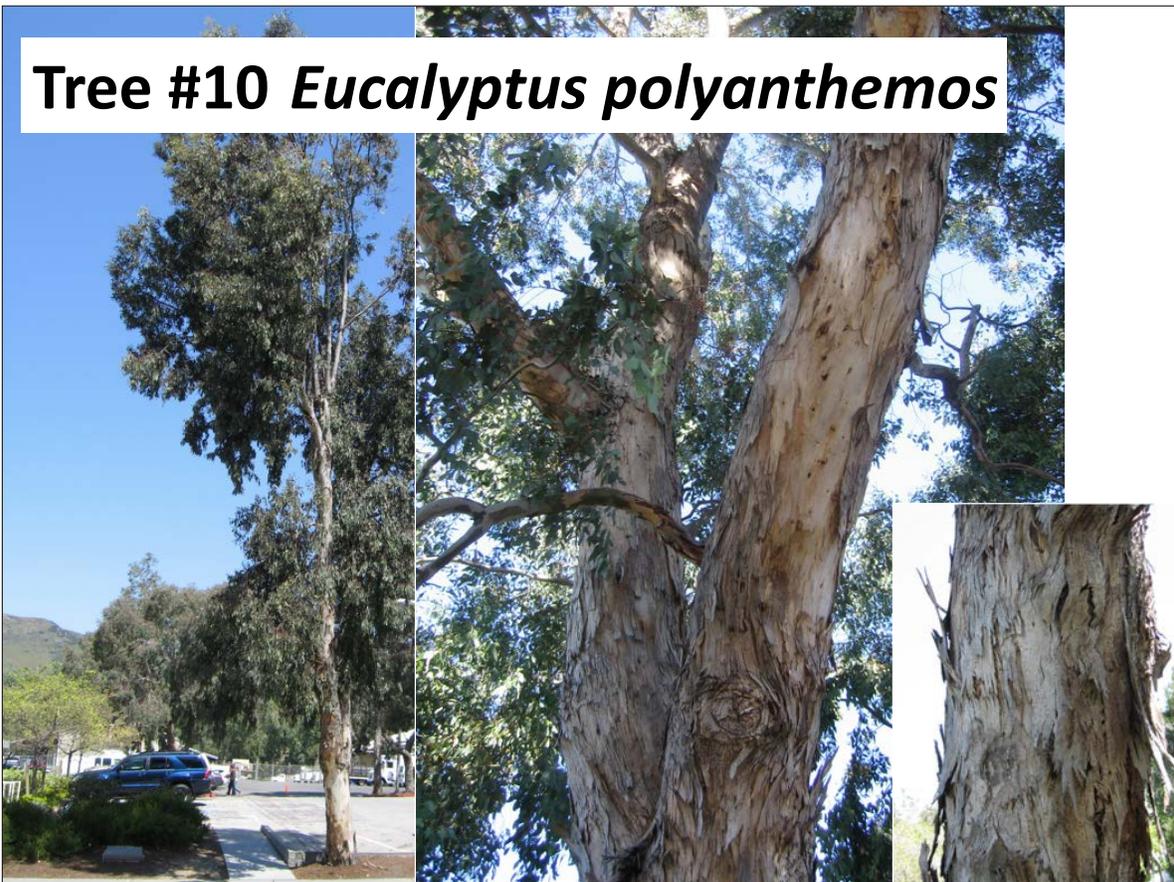
Tree #8 *Eucalyptus globulus*



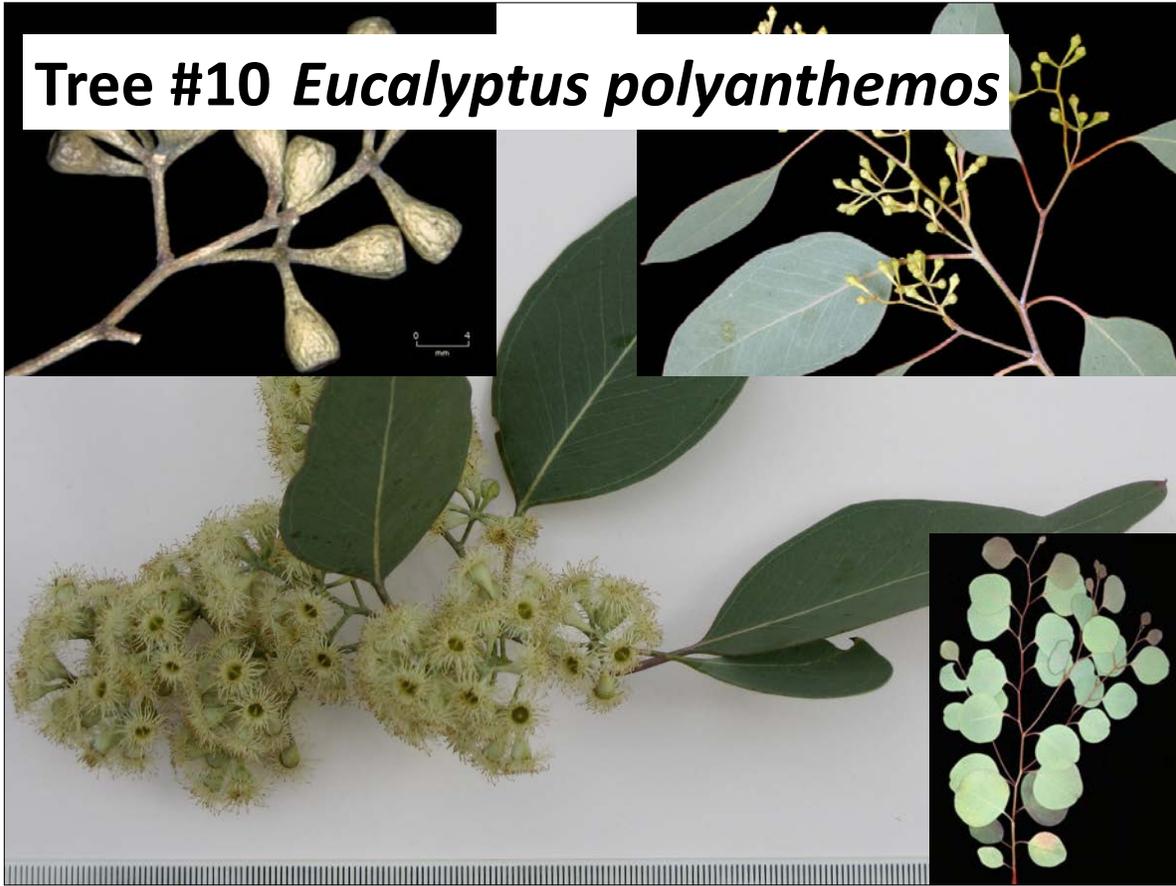
Tree #9 *Eucalyptus sideroxylon*



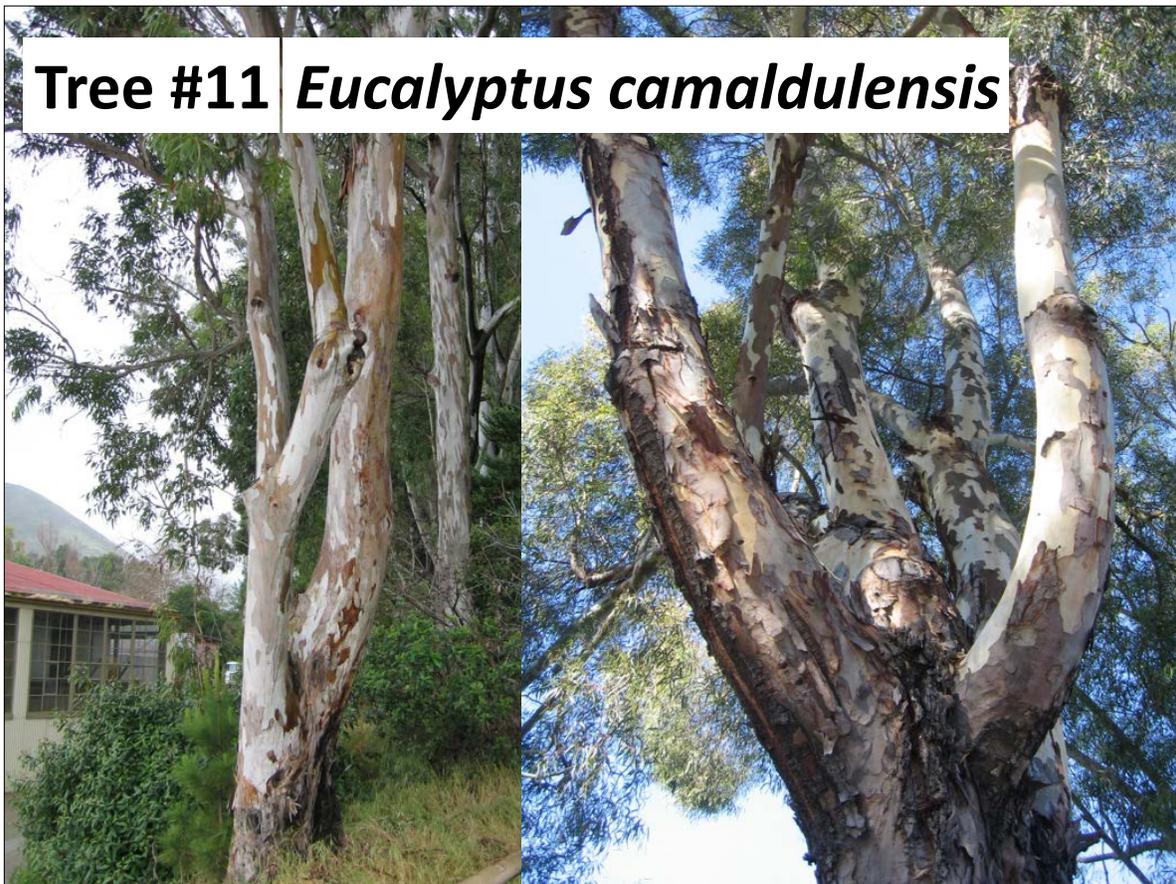
Tree #10 *Eucalyptus polyanthemus*

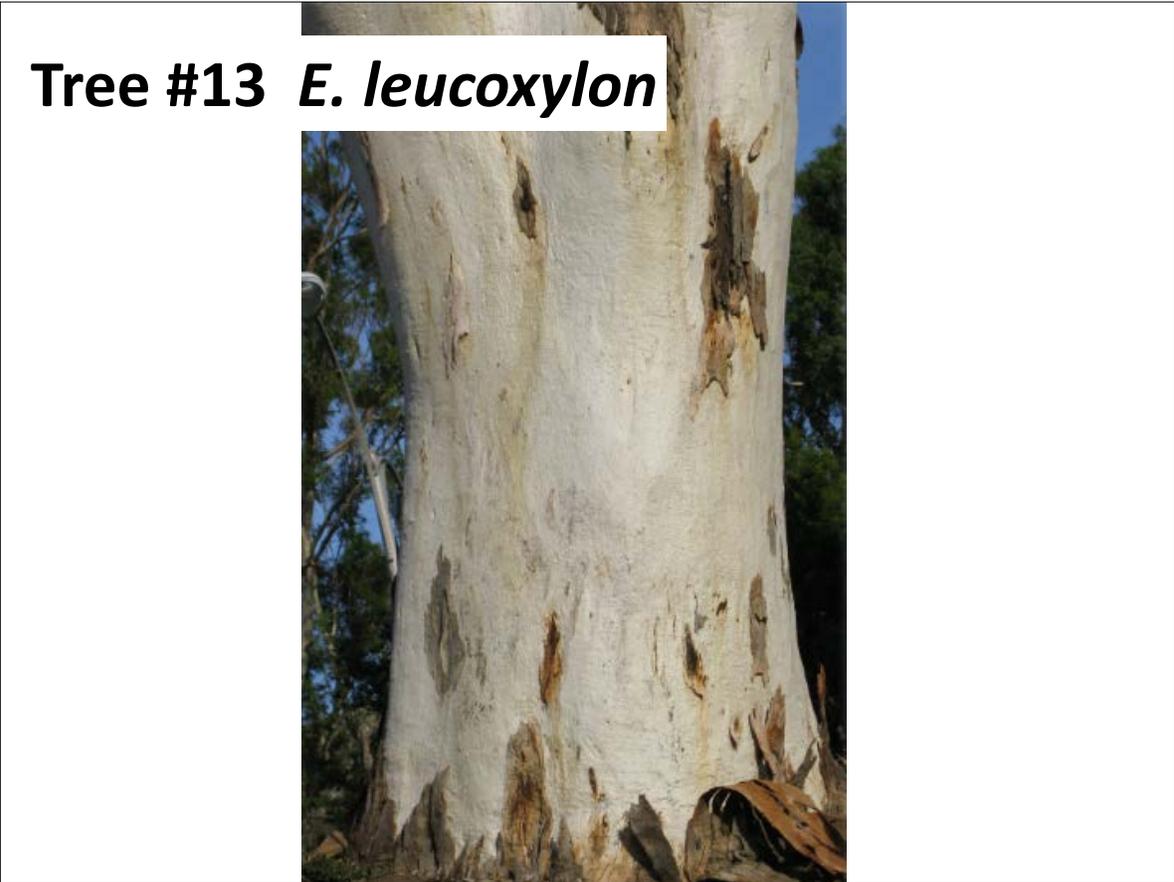
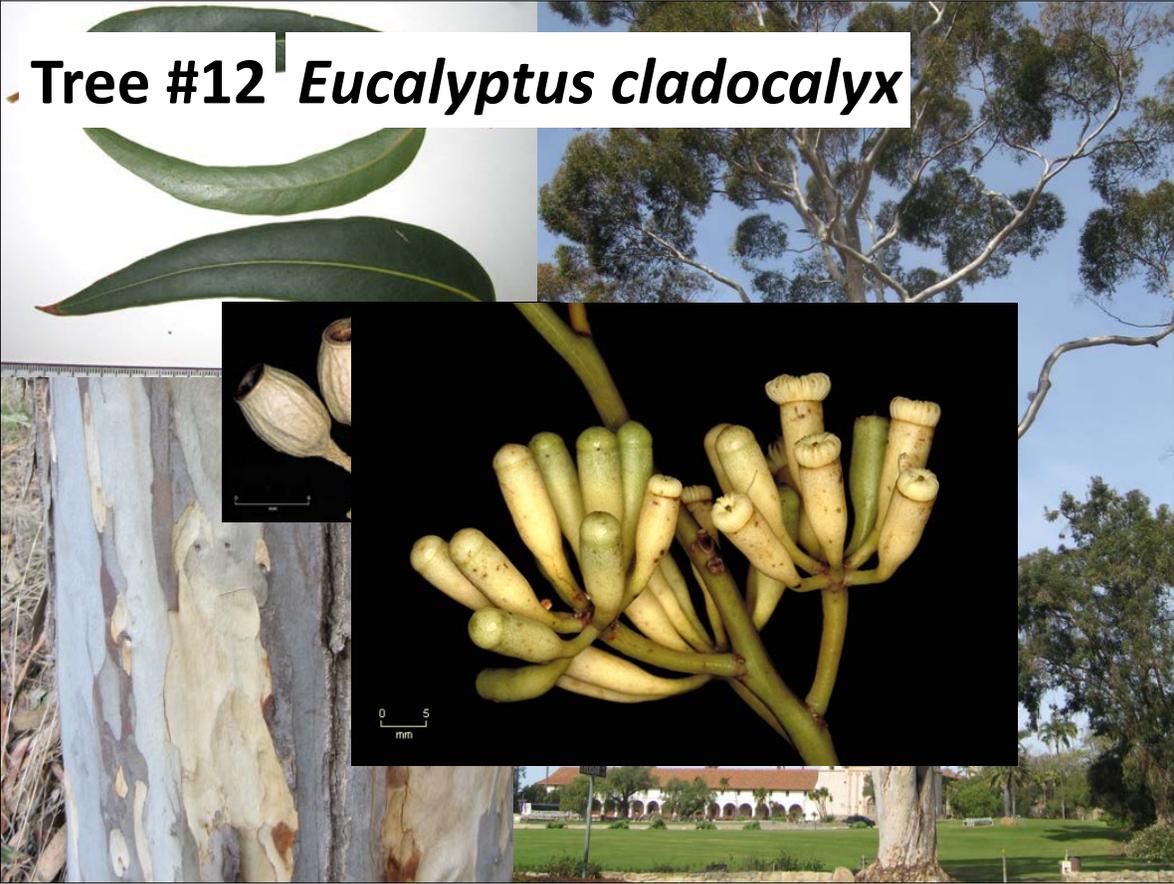


Tree #10 *Eucalyptus polyanthemos*



Tree #11 *Eucalyptus camaldulensis*





Key to Commonly Cultivated Eucalypts

1. Leaves lighter green on the underside
2. Bark rough, bark thin, flaky; fruit 3/4 in. diameter or more—Red Flowering Gum (*Corymbia ficifolia*)
2. Bark rough, with thick, fibrous, fruit 1/2 in. diameter or less—Swamp Mahoe (*Eucalyptus robusta*)
2. Bark smooth
3. Bark with orange lenticles, leaves often curved, mature fruit ridged, fruit valves seldom inside fruit—Sugar Gum (*Eucalyptus cladocalyx*)
3. Bark blackish grey, leaves straight, mature fruit smooth, valves of fruit erect
4. Voles 4 or 5, curved inward, buds and fruit often glaucous—Rose Gum (*Eucalyptus gunnii*)
4. Voles usually 4, erect; leaves straight buds and fruit not glaucous—Sydney Blue Gum (*Eucalyptus saligna*)
1. Leaves the same color on both sides, AND bark rough, furrowed, retained on trunk and limbs (NOTE: there is a 1" option on the backside)
5. Leaves silver or bluish silver in color
6. Leaves attached opposite; flower buds and fruit grouped in threes—Apple Apple (*Eucalyptus crassa*)
6. Leaves attached alternately, mostly less than 1/2 in. wide at widest point—Narrow Leaf Peppermint (*Eucalyptus nicholii*)
6. Leaves attached alternately, mostly 3/4 in. wide or wider
7. Bark dark brown to black, very rough and deeply furrowed—Red Iron Bark (*Eucalyptus sideroxylon*)
7. Bark light brown to black, very rough and deeply furrowed, but only slightly longer than wide; flowers white—Silver Dollar Gum (*Eucalyptus poliochloa*)
7. Bark light brown to grey, and scraggly; leaves 3 to 4 times longer than broad; flowers pink—Coral Gum (*Eucalyptus torquata*)
5. Leaves green
8. Leaves mostly less than 1/2 in. wide at widest point—Narrow Leaf Peppermint (*Eucalyptus nicholii*)
8. Leaves mostly 3/4 in. wide or wider; bark green finely furrowed, all stems with anthers—Flashed Gum (*Eucalyptus radii*)
8. Leaves mostly 3/4 in. wide or wider; bark dark brown to black, very rough and deeply furrowed, some stems without anthers—Red Iron Bark (*Eucalyptus sideroxylon*)

The most common species

Documents for Keying

FIELD GUIDE TO THE CULTIVATED EUCALYPTS (MYRTACEAE) AND HOW TO IDENTIFY THEM!

*Max Riese**

Abstract
This paper provides identification keys that are based entirely on morphological features to commonly and widely cultivated eucalypts, encompassing Eucalyptus L'Her., Acacia Gray, and Grevillea R. & S. Hill & A. S. Johnson in the Myrtaceae. The key includes 173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia. Eucalyptus for cultivation was determined by accessions in the herbaria, herbarium personal communications, and observations of living trees in cultivation in Europe, North America, Africa, and Australia. The locations, prevalence of cultivation, and substitution of several eucalypt species are discussed.

Key words: Acacia, Grevillea, Eucalyptus, Myrtaceae.

In 1774, at the Royal Botanic Gardens at Kew, England, the monotype (*Eucalyptus obliqua* L'Her.) became the first cultivated eucalypt. Since that time, hundreds of species have been introduced into cultivation in temperate, tropical, and subtropical countries worldwide. Eucalypts are now second only to the grasses as the most extensively planted trees in the world. They are grown for lumber, paper pulp, pulp and gums, fuel wood, medicinal products, ornamentals, oils, and as windbreaks and ornamentals. More than 150 of the approximately 900 eucalypts are rapidly and widely grown (McCluskey, 1982; Boland et al., 1998; Wright & Fagg, 2010). In many countries, where cultivated eucalypts have become prominent features of the landscape, they are almost by their name used and indicate color white at the same time denominated as foreign invaders, and over 300 species have been observed spreading on their own outside cultivation (Bosser et al., 1992; Fausch et al., 2004; Riese & Vost, 2009; Rajaniack & Richardson, 2014).

In the context, most widely accepted classification, the eucalyptus constitute three genera: *Eucalyptus* Gray with 10 species, *Grevillea* R. & Hill & A. S. Johnson with 91 species, and *Acacia* L'Her. with approximately 700 species (Riese et al., 2006). *Eucalyptus* was segregated from *Acacia* by Caradoc (1970) on the basis of the opposite adult leaves, presence of stipules, and absence of an operculum (leaf cap or leaf sheath). Nearly 200

years later, two Australian botanists, Kenneth Hill and Lawrence Johnson, combined two *Eucalyptus* subgenera, *Blakelya* L. D. Pryor & L. A. S. Johnson ex. Bunker and Grevillea R. & Hill & A. S. Johnson's *Bunker* (blackwoods), ghost gums, and spotted gums, and described the new genus *Grevillea* (Pryor & Johnson, 1971; Hill & Johnson, 1990). This taxonomy was corroborated by molecular phylogenetic work, revealing that *Grevillea* is more closely related to *Acacia* than to *Eucalyptus* (Jalilov et al., 1995; Collette et al., 1996; Bremer et al., 2002; Nishiyasu, Bunker (2009) proposed a few widely accepted taxonomic schemes with one genus, *Eucalyptus*, divided into seven subgenera, including *Grevillea* and *Acacia*. In general, *Grevillea* can be distinguished from *Eucalyptus* by the presence of divaricate leaves (usually lighter, terminal inflorescence), and large, urn-shaped fruits. Unfortunately, these are species of *Grevillea* that lack one or more of these easily recognized characteristics and several species of *Eucalyptus* that exhibit them.

Eucalyptus are cultivated in all tropical, subtropical, and Mediterranean climate areas of the world. Although they were initially grown as horticultural oddities, farmers quickly discovered their potential as commercial plantation trees. Social engineers, planners, and entrepreneurs have promoted worldwide eucalypt planting for the last 150 years because of their many valuable characteristics—they are

*I thank Ian Brooker, Jane Vost, Dean Neill, David Kell, Nasser Patel, Taylor Carr, Nadia Brumagioni, Dan Brumagioni, Kendall Smith, Adam Bales, and Gus Johnson for reading early versions of the manuscript. David M. Richardson, Muel Beilke, Adam Bales, and Jan Beilke for thoroughly reviewing the manuscript. Peter Ross for encouraging me to publish this work, and Jan Beilke for financial support.
†Botanical Nomenclature, California Polytechnic State University, 3800 San Luis Obispo, California 94920, U.S.A. mriese@calpoly.edu
doi:10.1017/S00268476

Acc. Missouri Bot. Gard. 99: 642-647. Published on 9 October 2014.

Naturalized species

Naturalized Eucalypts of California from The Jepson Manual

MYRTACEAE MYRTLE FAMILY
Max Riese

Detailed check box key for naturalized eucalypts in California. The key lists 173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia. The key includes 173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia. The key includes 173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia.

KEY TO NATURALIZED EUCALYPTS

1. Bark smooth, bark thin, flaky; fruit 3/4 in. diameter or more (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

2. Bark rough, with thick, fibrous, fruit 1/2 in. diameter or less (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

2. Bark smooth (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

3. Bark with orange lenticles, leaves often curved, mature fruit ridged, fruit valves seldom inside fruit (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

3. Bark blackish grey, leaves straight, mature fruit smooth, valves of fruit erect (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

4. Voles 4 or 5, curved inward, buds and fruit often glaucous (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

4. Voles usually 4, erect; leaves straight buds and fruit not glaucous (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

1. Leaves the same color on both sides, AND bark rough, furrowed, retained on trunk and limbs (NOTE: there is a 1" option on the backside) (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

5. Leaves silver or bluish silver in color (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

6. Leaves attached opposite; flower buds and fruit grouped in threes (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

6. Leaves attached alternately, mostly less than 1/2 in. wide at widest point (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

6. Leaves attached alternately, mostly 3/4 in. wide or wider (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

7. Bark dark brown to black, very rough and deeply furrowed (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

7. Bark light brown to black, very rough and deeply furrowed, but only slightly longer than wide; flowers white (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

7. Bark light brown to grey, and scraggly; leaves 3 to 4 times longer than broad; flowers pink (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

5. Leaves green (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

8. Leaves mostly less than 1/2 in. wide at widest point (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

8. Leaves mostly 3/4 in. wide or wider; bark green finely furrowed, all stems with anthers (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

8. Leaves mostly 3/4 in. wide or wider; bark dark brown to black, very rough and deeply furrowed, some stems without anthers (173 taxa and species of Eucalyptus, nine species of Grevillea, and 163 species of Acacia)

250 cultivated species