NATIVE EUCALYPTS OF SOUTH AUSTRALIA

SECOND EDITION

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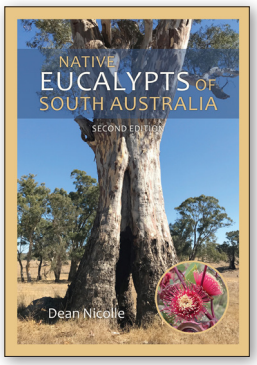

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Two choices are given at each step in the key. Choose the most valid choice at each step, followed by the next pair of choices below, until a species name is reached. The key should not be used alone for the identification of species; consultation should be made with the main text and images of the identified species (page number in brackets), and of closely related taxa.

1. Buds, flowers and fruits in groups of 3
- **2.** Buds and immature fruits waxy white (pruinose)
  - **3.** Buds and fruits prominently longitudinally winged ..... ***E. alatissima*** (p. 192)
  - **3:** Buds and fruits not longitudinally winged
    - **4.** Opercula (bud caps) warty and with a distinct central knob..... ***E. bicostata*** (p. 214)
    - **4:** Opercula (bud caps) smooth
      - **5.** Tree; mature crown primarily composed of petiolate adult leaves..... ***E. leucoxylon* subsp. *pruinosa*** (p. 138)
      - **5:** Mallee; Mature crown primarily composed of sessile juvenile and intermediate leaves ..... ***E. gamophylla*** (p. 32)
- **2:** Buds and immature fruits not waxy white (pruinose)
  - **6.** Buds and fruits with multiple prominent ribs
    - **7.** Fruits 35–70 mm wide; adult leaves dull and blue-green ..... ***E. youngiana*** (p. 190)
    - **7:** Fruits 12–25 mm wide; adult leaves glossy and green ..... ***E. angulosa*** (p. 58)
  - **6:** Buds and fruits smooth or with two opposing ribs only
    - **8.** Fruit valves at rim level or exserted above rim
      - **9.** Fruits 10–22 mm wide; leaves dull, very firm..... ***E. cosmophylla*** (p. 206)
      - **9:** Fruits 5–9 mm wide; leaves glossy, relatively thin
        - **10.** Juvenile leaves lance-shaped, green; bark often rough on lower trunk (*E. viminalis*)
          - **11.** Bark mostly smooth; buds and fruits in groups of 3 ..... ***E. viminalis* subsp. *viminalis*** (p. 222)
          - **11:** Bark rough on trunk and major branches; buds and fruits in groups of 3 and/or 7..... ***E. viminalis* subsp. *cygnetensis*** (p. 224)
        - **10:** Juvenile leaves round, grey-green; bark completely smooth..... ***E. dalrympleana* subsp. *dalrympleana*** (p. 220)
    - **8:** Fruit valves below rim level (*E. leucoxylon*)
      - **12.** Juvenile leaves sessile (lacking stalks); east of Spencer Gulf and on Kangaroo Island
        - **13.** Juvenile leaves pruinose; branchlets, buds and fruits often pruinose ..... ***E. leucoxylon* subsp. *pruinosa*** (p. 138)
        - **13:** Juvenile leaves not pruinose; branchlets, buds and fruits not pruinose
          - **14.** Fruit pedicels (individual stalks) shorter than fruit length..... ***E. leucoxylon* subsp. *stephaniae*** (p. 136)
          - **14:** Fruit pedicels (individual stalks) equal or longer than fruit length
            - **15.** Adult leaves mostly <25 mm wide; fruits 7–12 mm wide; widespread..... ***E. leucoxylon* subsp. *leucoxylon*** (p. 134)
            - **15:** Adult leaves 15–45 mm wide; fruits 10–15 mm wide; coastal from Robe south-eastwards ... ***E. leucoxylon* subsp. *megalocarpa*** (p. 140)
      - **12:** Juvenile leaves petiolate (having stalks); Eyre Peninsula only ..... ***E. leucoxylon* subsp. *petiolaris*** (p. 142)

1: Buds, flowers and fruits in groups of 7 or more
- **16.** Adult leaves strongly discolorous (*E. cladocalyx*)
  - **17.** Fruits 6.5–10 mm long, 4–7 mm wide; peduncles 8–14 mm long; South Flinders Ranges only ..... ***E. cladocalyx* subsp. *petila*** (p. 148)
  - **17:** Fruits 8–16 mm long, 6–11 mm wide; peduncles 11–22 mm long
    - **18.** Small, irregularly-formed tree, 2–18 m tall; Eyre Peninsula only ..... ***E. cladocalyx* subsp. *cladocalyx*** (p. 144)
    - **18:** Large, widely-branching tree, 10–45 m tall; Kangaroo Island only..... ***E. cladocalyx* subsp. *crassa*** (p. 146)
- **16:** Adult leaves concolorous
  - **19.** Buds and fruits in terminal panicles
    - **20.** Intramarginal leaf vein confluent with leaf edge; fruits 11–35 mm wide; far north of SA only
      - **21.** Adult leaves narrow-lanceolate to lanceolate; fruits ± equidimensional ..... ***E. eremaea* subsp. *eremaea*** (p. 24)
      - **21:** Adult leaves lanceolate; fruits longer than wide
        - **22.** Inflorescence branchlets and pedicels thickened; far north-east of SA ..... ***E. terminalis*** (p. 28)
        - **22:** Inflorescence branchlets and pedicels not thickened; far north-west of SA..... ***E. opaca*** (p. 26)

20: Intramarginal leaf vein distinct from leaf edge; fruits 3–10 mm wide; widespread
23. Outer stamens lacking anthers (staminodes); bark wholly smooth, or rough on sapling-stage individuals.....***E. fasciculosa*** (p. 130)
23: All stamens fertile; bark rough on lower stems
24. Adult leaves glossy, green
25. Buds and fruits on pedicels (individual stalks) 2–6 mm long; north-west of SA only..... ***E. sparsa*** (p. 108)
25: Buds and fruits lacking pedicels (individual stalks) or to 2 mm long; southern half of SA only..... ***E. behriana*** (p. 110)
24: Adult leaves dull, bluish to green
26. Fruit valves exserted above rim.....***E. coolabah*** (p. 104)
26: Fruit valves deeply enclosed in fruit
27. Rough bark shaggy, on trunk and sometimes larger branches only.....***E. intertexta*** (p. 112)
27: Rough bark tightly held, extending to medium to small branches
28. Juvenile leaves linear; fruits 3–5 mm long ..... ***E. largiflorens*** (p. 106)
28: Juvenile leaves narrow-lanceolate to ovate; fruits 4–14 mm long
29. Branchlets, buds and immature fruits pruinose..... ***E. albens*** (p. 116)
29: Branchlets, buds and immature fruits not pruinose (*E. microcarpa*)
30. Flinders Ranges, mid north and south-east of SA ..... ***E. microcarpa*** (p. 118)
30: Adelaide Plains and Adelaide Hills..... ***E. microcarpa* 'Adelaide variant'** (p. 120)
19: Buds and fruits axillary (single umbels within leaf axils)
31. Branchlet pith glands present
32. Tree
33. Bark decorticating (shedding) in flakes; stamens bundled into four quadrants..... ***E. gongylocarpa*** (p. 30)
33: Bark decorticating (shedding) in strips and ribbons; stamens forming a uniform ring
34. Seeds glossy, red-brown; fruits cone-shaped to cup-shaped.....***E. calcareana*** (p. 78)
34: Seeds dull, dark grey to brown; fruits barrel-shaped to cup-shaped..... ***E. albopurpurea*** (p. 122)
32: Mallee
35. Flowers yellow; tertiary leaf venation completely obscured by oil glands..... ***E. pimpiniana*** (p. 54)
35: Flowers white to pink or purple (not yellow); tertiary leaf venation visible with transmitted light
36. Seeds glossy and red-brown
37. Bark rough on lower half of stems, fibrous; Great Victoria Desert only
38. Fruit 6–10 mm long, 6–11 mm wide; adult leaves predominantly lanceolate.....***E. gypsophila*** (p. 88)
38: Fruit 10–16 mm long, 9–14 mm wide; adult leaves broad-lanceolate to ovate (*E. canescens*)
39. Branchlets, buds and fruits strongly waxy (pruinose); adult leaves greyish..... ***E. canescens* subsp. *canescens*** (p. 92)
39: Branchlets, buds and fruits not waxy (pruinose); adult leaves green ..... ***E. canescens* subsp. *beadellii*** (p. 94)
37: Bark smooth throughout, or ribbony-rough on lower stems and not fibrous; not in Great Victoria Desert
40. Branchlets and/or buds pruinose
41. Branchlets, buds and fruits strongly pruinose; Eyre Peninsula only.....***E. cretata*** (p. 86)
41: Branchlets, buds and fruits weakly or variably pruinose; far north-west of SA only..... ***E. repullulans*** (p. 90)
40: Branchlets and buds not pruinose
42. Mature adult leaves glossy, dark green to olive green
43. Fruits wider than long, 7–12 mm wide; peduncles (bud and fruit group stalks) absent or to 6 mm long.....
.....***E. conglobata* subsp. *conglobata*** (p. 76)
43: Fruits equal to or longer than wide, 5–10 mm wide; peduncles (bud and fruit group stalks) 3–16 mm long
44. Opercula (bud caps) prominently ribbed, wider than hypanthia (bud bases) at join..... ***E. pileata*** (p. 68)
44: Opercula (bud caps) weakly ribbed, ± flush with hypanthia (bud bases) at join
45. Tree or mallee; pedicels (individual bud and fruit stalks) 1–6 mm long.....***E. calcareana*** (p. 78)
45: Mallee; pedicels (individual bud and fruit stalks) absent or to 3 mm long (*E. phenax*)
46. Peduncles 8–16 mm long; fruit equal in length and width or wider than long;
Kangaroo Island and lower Fleurieu Peninsula ..... ***E. phenax* subsp. *compressa*** (p. 74)
46: Peduncles 3–10 mm long; fruit longer than wide; mainland only (*E. phenax* subsp. *phenax*)
47. Crown of leaves not distinctively fine and erect-held; widespread .....***E. phenax* subsp. *phenax*** (p. 70)
47: Crown of fine, erect-held leaves; hills on northern Eyre Peninsula and Gawler Ranges.....
..... ***E. phenax* subsp. *phenax* 'hills variant'** (p. 72)
42: Mature adult leaves dull to slightly glossy, blue-green to greyish
48. Adult leaves greyish, 22–40 mm wide .....***E. cyanophylla*** (p. 84)
48: Adult leaves green to blue-grey, 10–25 mm wide
49. Operculum (bud cap) wider than hypanthium (bud base) at join, ribs on opercula > 0.8 mm high..... ***E. percostata*** (p. 82)
49: Operculum (bud cap) ± flush with hypanthium (bud base) at join, ribs on opercula < 0.5 mm high.....***E. dumosa*** (p. 80)
36: Seeds brown, grey or black
50. Adult leaves dull and blue-green to greyish, at least when young; buds, fruits and opercula smooth
51. Adult leaves dull and blue-green to greyish at all stages; inland regions..... ***E. trivalva*** (p. 52)
51: Adult leaves maturing glossy and green; lower Eyre Peninsula and Kangaroo Island..... ***E. albopurpurea*** (p. 122)

50: Adult leaves glossy and green at all stages; buds and/or fruits and/or opercula usually ribbed
52. Fruits barrel-shaped to cylinder-shaped to urn-shaped
53. Fruits smooth or ribbed, 7–12 mm wide; from Gawler Ranges eastwards in SA ..... ***E. incrassata*** (p. 60)
53: Fruits distinctly ribbed, 12–15 mm wide; southern fringe of Great Victoria Desert only ..... ***E. capitanea*** (p. 56)
52: Fruits cup-shaped to cone-shaped
54. Bark usually smooth throughout, peduncles strongly flattened, fruits coarsely-angled or ribbed ..... ***E. rugosa*** (p. 64)
54: Bark usually rough on lower stems, peduncles terete to slightly flattened, fruits smooth or lightly ribbed
55. Operculum (bud cap) narrower than hypanthium (bud base) at join; coastal and wheatbelt areas..... ***E. brachycalyx*** (p. 62)
55: Operculum (bud cap) wider than hypanthium (bud base) at join; Great Victoria Desert..... ***E. concinna*** (p. 66)
31: Branchlet pith glands absent
56. Bark fibrous and stringy throughout
57. Fruit disc descending, valves below rim level ..... ***E. obliqua*** (p. 38)
57: Fruit disc level to ascending, valves at rim level or exserted above rim
58. Opercula (bud caps) beaked, smooth ..... ***E. macrorhyncha* subsp. *macrorhyncha*** (p. 40)
58: Opercula (bud caps) rounded, smooth or warty
59. Buds warty; fruit disc steeply ascending ..... ***E. baxteri*** (p. 44)
59: Buds not warty; fruit disc slightly ascending ..... ***E. arenacea*** (p. 42)
56: Bark not fibrous and stringy throughout
60. Fruit disc prominently ascending, valves strongly exserted
61. Bark 'minniritchi' type (peeling into thin longitudinal strips that curl backwards and remain partly attached to the stem) throughout ..... ***E. minniritchi*** (p. 194)
61: Bark not 'minniritchi' type
62. Smooth bark decorticating (peeling) in ribbons
63. Fruits 10–20 mm wide; arid regions in north-west of SA
64. Opercula (bud caps) rounded; bark rough on lower stems ..... ***E. glomerosa*** (p. 186)
64: Opercula (bud caps) sharply pointed; bark smooth throughout ..... ***E. oxymitra*** (p. 188)
63: Fruits 5–9 mm wide; wetter, southern parts of SA
65. Juvenile leaves tapering to base (not amplexicaul), slightly crenulate; Carpenter Rocks area ..... ***E. arcana*** (p. 226)
65: Juvenile leaves amplexicaul (stem-clasping), not crenulate ..... ***E. viminalis* subsp. *cygnetensis*** (p. 224)
62: Smooth bark decorticating (peeling) in plates or strips
66. Tree; seeds yellow (*E. camaldulensis*)
67. Opercula (bud caps) distinctly beaked; southern regions..... ***E. camaldulensis* subsp. *camaldulensis*** (p. 200)
67: Opercula (bud caps) rounded to cone-shaped to slightly beaked; northern regions
68. Opercula (bud caps) rounded to bluntly cone-shaped; fruits 4–9 mm wide..... ***E. camaldulensis* subsp. *arida*** (p. 202)
68: Opercula (bud caps) cone-shaped to slightly beaked; fruits 3–6 mm wide .... ***E. camaldulensis* subsp. *minima*** (p. 204)
66: Mallee; seeds black
69. Juvenile leaves ovate to orbicular; Flinders Ranges and Olary Spur ..... ***E. flindersii*** (p. 198)
69: Juvenile leaves lanceolate; far north-west of SA..... ***E. gillenii*** (p. 196)
60: Fruit disc level to descending or very slightly ascending, valves enclosed in fruit or near rim level
70. Outer stamens of flower lacking anthers (staminodes), twisted and longer than inner fertile anthers
71. Flowers crimson-red; Gawler Ranges only ..... ***E. lansdowneana*** (p. 114)
71: Flowers white or pink
72. Buds and fruits 4-sided and square in cross-section (*E. calycogona*)
73. Adult leaves 13–24 mm wide; fruit 6–9 mm wide, ribs prominent ..... ***E. calycogona* subsp. *spaffordii*** (p. 102)
73: Adult leaves 7–15 mm wide; fruit 4–7 mm wide, ribs less prominent
74. Bark smooth or rough only at base; Eyre Peninsula and Waitpinga to Monarto ..... ***E. calycogona* subsp. *calycogona*** (p. 98)
74: Bark rough and tessellated on lower stems; eastwards from Spencer Gulf..... ***E. calycogona* subsp. *trachybasis*** (p. 100)
72: Buds and fruits round in in cross-section
75. Adult leaves 4–15 mm wide; widespread on mainland and eastern half of Kangaroo Island ..... ***E. gracilis*** (p. 96)
75: Adult leaves 20–40 mm wide; western half of Kangaroo Island only ..... ***E. remota*** (p. 50)
70: All stamens of flower fertile
76. Adult leaves with secondary veins (side veins) nearly parallel with primary vein (midrib)..... ***E. pauciflora* subsp. *pauciflora*** (p. 48)
76: Adult leaves with secondary veins (side veins) at an angle from the primary vein (midrib)
77. Mallees; fruits usually with valve tips fused at tip (persistent style remnants), especially when fruits immature
78. Crown composed of opposite or sub-opposite, sessile, ovate to orbicular juvenile leaves
79. Leaves 38–61 mm long; fruit 6–9 mm long, 6–8.5 mm wide; eastern parts of SA ..... ***E. gillii*** (p. 176)
79: Leaves 55–85 mm long; fruit 9–11 mm long, 9–10.5 mm wide; far western part of SA ..... ***E. wyolensis*** (p. 178)
78: Crown composed of disjunct, petiolate, linear to ovate (adult) leaves
80. Whole plant strongly waxy white (pruinose); adult leaves waxy, 20–54 mm wide..... ***E. vokesensis*** (p. 180)
80: Adult leaves not waxy pruinose, 4–46 mm wide
81. Seedling leaves crowded (1–12 mm apart), spiralled around a 5- or 7-sided stem (*E. oleosa*)

82. Seedling leaves linear, 4–20 times longer than wide ..... ***E. oleosa* subsp. *oleosa*** (p. 158)
82: Seedling leaves elliptical, 1.8–5 times longer than wide..... ***E. oleosa* subsp. *ampliata*** (p. 160)
81: Seedling leaves less crowded (generally >10 mm apart), decussate around a 4-sided stem
83. Opercula (bud caps) round to cone-shaped, about equal in length to hypanthia (bud bases)
84. Juvenile leaves elliptical to orbicular, often pruinose; adult leaves light green
85. Juvenile leaves elliptical, weakly or not pruinose; mature crown entirely of adult leaves.....
.....***E. leptophylla*** (p. 154)
85: Juvenile leaves ovate to orbicular, pruinose; mature crown often composed of some juvenile leaves .....
.....***E. omissa*** (p. 156)
84: Juvenile leaves lanceolate to narrowly elliptical, not pruinose; adult leaves dark green
86. Pedicels (individual bud and fruit stalks) 1–5 mm long; adult leaves 8–20 mm wide;
northern desert areas only .....***E. mannensis* subsp. *mannensis*** (p. 150)
86: Pedicels (individual bud and fruit stalks) absent or to 1 mm long; adult leaves 5–10 mm wide;
Kangaroo Island and Fleurieu Peninsula only ..... ***E. cneorifolia*** (p. 152)
83: Opercula (bud caps) cone-shaped to horn-shaped, longer than hypanthia (bud bases)
87. Opercula (bud caps) cone-shaped
88. Fruit funnel-shaped; coastal regions including Murray mallee .....***E. yalatensis*** (p. 166)
88: Fruit spherical; Great Victoria Desert (*E. eremicola*)
89. Adult leaves highly glossy, green..... ***E. eremicola* subsp. *eremicola*** (p. 162)
89: Adult leaves dull to slightly glossy, blue-green .....***E. eremicola* subsp. *peeneri*** (p. 164)
87: Opercula (bud caps) distinctly horn-shaped
90. Juvenile leaves strongly decurrent; Eyre Peninsula only..... ***E. peninsularis*** (p. 184)
90: Juvenile leaves not decurrent; widespread including Eyre Peninsula
91. Buds >6.5 mm wide; fruits 8.5–11 mm wide.....***E. yumbarrana*** (p. 182)
91: Buds <6.5 mm wide; fruits 4–9.5 mm wide (*E. socialis*)
92. Seedling leaves green; adult leaves maturing glossy, green .....***E. socialis* subsp. *viridans*** (p. 170)
92: Seedling leaves blue-green to greyish; adult leaves dull, blue-green
93. Fruits 7–11 mm long, 6.5–9.5 mm wide; buds 12.5–19 mm long; Great Victoria Desert
..... ***E. socialis* subsp. *victoriensis*** (p. 174)
93: Fruits 4.5–8 mm long, 4.5–7.5 mm wide; buds 8–13 (–17) mm long
94. Branchlets and buds not or scarcely waxy (pruinose); flowers creamy-white; widespread.....
.....***E. socialis* subsp. *socialis*** (p. 168)
94: Branchlets and buds usually waxy (pruinose); flowers cream to pale yellow;
north-west of SA only.....***E. socialis* subsp. *eucentrica*** (p. 172)
77: Trees or mallees; fruits without valve tips fused at tip (persistent style remnants) at all stages
95. Fruit valves at rim level or exserted above rim
96. Adult leaves usually undulate and relatively thin; poorly-drained sites (swamps) in high-rainfall regions
97. New adult leaves slightly blue-green; fruits cylindrical to obconical or slightly campanulate.....
..... ***E.* × *paludicola*** (p. 208)
97: New adult leaves green; fruits consistently obconical (*E. ovata*)
98. Peduncles 3–12 mm long; fruits 4–7.5 mm wide.....***E. ovata* subsp. *ovata*** (p. 216)
98: Peduncles 10–20 mm long; fruits 7.5–12 mm wide, often flared at rim .....***E. ovata* subsp. *grandiflora*** (p. 218)
96: Adult leaves flat and firm; well-drained sites (hills and/or sandy soils) in high- to low-rainfall regions
99. Juvenile leaves strongly pruinose; fruit sessile (lacking individual stalks) (*E. goniocalyx*)
100. Adult leaves glossy, dark green; adult branchlets not pruinose.....***E. goniocalyx* subsp. *goniocalyx*** (p. 210)
100: Adult leaves dull, green to bluish; adult branchlets often slightly pruinose .....***E. goniocalyx* subsp. *exposa*** (p. 212)
99: Juvenile leaves not pruinose; fruit sessile (lacking individual stalks) or pedicellate (with individual stalks)
101. Fruits barrel-shaped to cylinder-shaped to urn-shaped
102. Fruits smooth or ribbed, 7–12 mm wide; from Gawler Ranges eastwards in SA.....***E. incrassata*** (p. 60)
102: Fruits distinctly ribbed, 12–15 mm wide; southern fringe of Great Victoria Desert only.....***E. capitanea*** (p. 56)
101: Fruits rounded to cup-shaped to cone-shaped
103. Juvenile leaves opposite for many pairs, adult leaves with acute-angled secondary venation
and sparse oil glands; coastal sands and limestone (*E. diversifolia*)
104. Juvenile leaves 25–55 mm wide; fruits 8–16 mm wide, disc level to ascending.....
.....***E. diversifolia* subsp. *diversifolia*** (p. 34)
104: Juvenile leaves 20–30 mm wide; fruits 6–11 mm wide, disc level .....***E. diversifolia* subsp. *hesperia*** (p. 36)
103: Juvenile leaves disjunct after a few pairs, adult leaves with mid-angled secondary venation
and numerous oil glands; rocky ridges of Flinders Ranges and Olary Spur .....***E. flindersii*** (p. 198)
95: Fruit valves below rim level
105. Bark scribbles often present; ovules in 2 rows; south-east of SA only ..... ***E. falciformis*** (p. 46)
105: Bark scribbles absent; ovules in 4 rows; widespread

106. Flower buds egg-shaped; adult leaves consistently glossy and green; fruits equidimensional ..... ***E. porosa*** (p. 132)
106: Flower buds egg- to spindle-shaped; adult leaves often dull, at least when young; fruits usually longer than wide
107. Juvenile leaves ovate; flowers white, pink or purple
108. Usually a mallee; fruits 6–11 mm long, 5–9 mm wide; Eyre Peninsula and Kangaroo Island ... ***E. albopurpurea*** (p. 122)
108: Usually a tree; fruits 4–7 mm long, 3–5 mm wide; mainland east of Spencer Gulf (*E. microcarpa*)
109. Flinders Ranges, mid north and south-east of SA..... ***E. microcarpa*** (p. 118)
109: Adelaide Plains and Adelaide Hills ..... ***E. microcarpa*** **'Adelaide variant'** (p. 120)
107: Juvenile leaves linear to narrowly-elliptical; flowers white (*E. odorata*)
110. Juvenile leaves narrow-lanceolate to narrow-elliptical; adult leaves 7–20 mm wide.....
..... ***E. odorata*** **subsp.** ***odorata*** (p. 124)
110: Juvenile leaves linear to narrow-lanceolate to narrow-elliptical; adult leaves 3–15 mm wide
111. Sandy or loamy flats, rises and low hills in the south-east of SA only .....
.....***E. odorata*** **subsp.** ***wimmerensis*** (p. 128)
111: Stony to clayey sites in Middleback Ranges, Flinders Ranges, and ridges to the east.....
..... ***E. odorata*** **subsp.** ***cajuputea*** (p. 126)