

***River Red Gums at Bryans Swamp
and other sites in SW Victoria and
in South Australia:***

***Photographs & measurement of
significant ancient trees***



Rod Bird

February 2011

Cover Picture

A giant River Red Gum (*Eucalyptus camaldulensis*) on Dwyers Ck, 400 m downstream from the bridge near the Mirranatwa-Dunkeld Rd and junction with the Victoria Point Rd (Photo in October 2006)

This ancient tree has a girth of 13.1 m and diameter (at 1.3 m above ground) of 4.0 m, probably the largest in Victoria. This tree was measured by Lionel Elmore in 1962 and a re-measurement in 2006 showed that the tree may have grown in diameter by an average of 6.6 mm per year over those 44 years.

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A photograph of 'Old Be-al' in Wyperfeld National Park in the 1960s was taken by Jean Blackburn and published by the Victorian National Parks Association in 1965.

Other photographs in this report were taken by the author, except where indicated otherwise in the photo captions.

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Introduction

A traveller in Australia cannot fail to note the River Red Gum (*Eucalyptus camaldulensis*), the eucalypt with the widest geographical range of all. These majestic trees grow throughout much of the continent, excepting the SW and NE corners and Tasmania (Boland *et al.* 1984), as various sub-species (Eldridge *et al.* 1993, Doran 2000). The timber is hard, very durable and resistant to termites and has been used for heavy construction purposes, fencing, firewood and furniture (Bird 2000).

Some provenances of River Red Gum (RRG) are tolerant of high soil salinity (Marcar & Crawford 2004; Jackson & Bird 2008). The species has been widely planted in Mediterranean countries and in many arid and semi-arid lands. Sub-tropical sub-species have also been used in SE Asia, India, Brazil and Mexico (Doran 2000).

Usually associated with rivers, particularly along the Murray and Darling River systems, or apparently dry drainage lines in outback Australia, the species also features large in the agricultural landscape of SW Victoria and SE South Australia. Most would be familiar with the water colour paintings of Hans Heysen, where RRGs often dominated the landscape scene.

Despite ring-barking and cutting for railway sleepers, posts, poles and firewood, hundreds of thousands remain on farms but most are of mature age. Many are now senescent, at the end of a life that stretched over 500 years or more. Losses occur as a result of natural causes (storms, drought, disease, insects, possums), clearing for cropping, effects of livestock or cultivation, competition with Blue Gum plantations, timber-cutting, salinity or fire operations. There has been little concerted effort to facilitate regeneration on farms and, unless action is taken now, a time will come when our agricultural landscapes are bereft of these charismatic giants or their juvenile replacements.

The species regenerates on road reserves and, in SE Australia, has a significant representation in National Parks in Victoria (e.g. Grampians/Gariwerd, Little Desert, Wyperfeld, Hattah, Barmah), South Australia (e.g. Mt Remarkable, Flinders Range) and New South Wales (e.g. Mutawintji) and many other reserves.

The catalyst for this study came, firstly, from a life-long interest in trees and in River Red Gums in particular (Bird 1986). Jim Burston (Primary Industries South Australia) of Struan, and others, raised awareness of the threat to RRGs in the agricultural landscape (Anon. 1994). Then an initiative from Greening Australia, with ABC's Mt Gambier-based 5MG, with a quest for the largest Red Gum in the south-east of South Australia (Anon. 1996), to publicise the importance of the species and highlight the need protect old trees and plant new trees.. A similar initiative was launched later in Hamilton, to encourage Western District landholders to observe and value their trees (Anon. 1998).

Another motivation was the survey that a farmer and naturalist, Lionel Elmore, had made in 1962 of large trees in the Bryans Ck-Victoria Valley area near Hamilton. If those trees could be found and re-measured, some estimate of average diameter growth could be made. The final motivation was the Bilston Tree off Glenmia Rd, Brimboal (Lahey 1987): a tourism sign erected in the mid 1990s on the Casterton-Chetwynd Rd proclaimed this tree to be the world's largest red gum! Where did it actually rank? And how do we measure size?

A version of this report was produced for the 50th Anniversary of the Hamilton Field Naturalists Club (HFNC) in 2008. An abbreviated form was published in the Australian Forest Grower (Bird 2009).

Scope of the study and methods used

This report covers the following records of River Red Gum (RRG):

- A photographic record of RRGs at Bryans Swamp and Dwyers Ck in 1962 and recently (2002, 2006, 2007), with associated measurements of height and/or girth and estimates of diameter growth over 40 years since the HFNC (principally Lionel Elmore) visited the area in 1962. Many younger trees were also measured to aid future growth studies.

- Measurements and photographs from other significant RRGs in Victoria (Brimboal, Dunkeld, Edenhope, Grampians/Gariwerd NP, Gringegalgona, Mirranatwa, Mooralla, Redcap, Wannon and Wyperfeld).
- Measurements and/or photographs from other significant RRGs in South Australia (Mullinger Swamp, Comaum, Orroroo, Wirabara, Flinders Range & other sites).
- Reports of other significant RRGs in South Australia (the measurements cited have not been verified by me and some caution must be applied when making comparisons).
- Photographic records of other significant RRGs in the landscape of south-eastern Australia, including Aborigine scar trees and trees that have layered.

Tree positions (latitude & longitude) were recorded with GPS Australian Geodetic 1984 logic. Large, loose pieces of bark were dislodged before running the tape around the tree to measure girth. Girth over bark was measured at 1.3 m above ground (DBH), with loose litter scraped away, on the uphill side. Large, old trees are often found on a mound a few metres wider than their base, created over time. This mound may be raised from 0.2-0.5 m above the plain. I have taken the top of the mound to be ground level, accepting that over time the point of DBH will be higher on the trunk.

Tree height was measured with a *Suunto clinometer*. The method was to sight from a point 60-80 m away (D) on about the same level as the tree base, and read the % height scale to the top and to the base of the tree (ground level). These values were combined (the latter reading being either + or -, depending on the slope from D) and multiplied by D to get the height of the tree.

Study sites

Bryans Swamp, Dwyers Ck & Victoria Valley trees measured by Lionel Elmore or Rod Bird:

1. Bryans Swp RRG1: large old tree on fence line at Outlet Creek – girth 8.93 m at 1.2 m above ground or 8.83 m at 1.3 m above ground and height 18.6 m, on 2 Mar. 2002 (Photos 1 & 20). The tree was measured by Elmore on 25 Mar. 1962 (Photo 2) – girth 26'10" (8.18 m) at 4 ft (1.2 m). The diameter growth is therefore $2.94 - 2.60 = 0.24$ m, or 6 mm per year since 1962. (GPS 37-34-24/142-14-31).
2. Bryans Swp RRG2: hollow-base tree on NW bank, N of Outlet Creek – girth 8.75 m at 1.3 m and height 22 m, on 2 Mar. 2002 (Photo 10). (GPS 37-34-04/142-14-26).
3. Bryans Swp RRG3: big tree, largest of a pair on edge of swamp N of Outlet Creek – girth 7.70 m at 1.3 m (or 7.90 m at 1.2 m) & height 28.8 m, on 2 Mar. 2002 (Photos 6-8). This tree was 24'7" (7.37 m) at 1.2 m above ground on 25 Mar. 1962 (Photos 3-5). The diameter growth was $2.515 - 2.346 = 0.165$ m, or 4.1 mm/year since 1962. (GPS 37-33-59/142-14-26).
4. Bryans Swp RRG4: smaller tree of the pair (Photo 6 & 7) – girth 5.84 m at 1.3 m and height 28 m, on 24 Nov. 2002. (GPS 37-33-59/142-14-26).
5. Bryans Swp RRG5: tree near fence on NW, N of Outlet – girth 7.30 at 1.3 m and height 28.4 m, on 2 Mar. 2002 (Photo 9). (GPS 37-33-32/142-14-28).
6. Bryans Swp RRG6: solid tree with a fork at 3-4 m, NW bank near gate – girth 6.55 m at 1.3 m and height 30.6 m, on 2 Mar. 2002 (Photo 11). (GPS 37-33-28/142-14-31).
7. Bryans Swp RRG7: a spreading tree near fence below high bank, N of gate – girth 6.43 m at 1.3 m and height 20.4 m on 2 Mar. 2002 (Photos 12, 13 & 16). (GPS 37-33-22/142-14-46).
8. Bryans Swp RRG8: scar tree near W fence, N of Outlet Ck – girth 6.08 m at 1.3 m, on 24 Nov. 2002. (GPS 37-33-56/142-14-24).
9. Bryans Swp RRG9: smooth-barked, youngish tree N of Outlet Creek, central – girth 4.93 m at 1.3 m and height 30 m, on 24 Nov. 2002 (Photo 14). (GPS 37-33-47/142-14-24).
10. Bryans Swp RRG10: medium-sized old tree further N – girth 6.29 m at 1.3 m, on 24 Nov. 2002. (GPS 37-33-44/142-14-25).
11. Bryans Swp RRG11: medium-sized tree – girth 6.17 m at 1.3 m, on 24 Nov. 2002. (GPS 37-33-43/142-14-26).
12. Bryans Swp RRG12: medium-sized young tree near swamp – girth 3.22 m at 1.3 m and height 18.8 m, on 28 Nov. 2002 (Photo 15). (GPS 37-33-31/142-14-35).
13. Bryans Swp RRG13: young tree on edge of swamp – girth 1.05 m (at 1.3 m) and height 15.2 m on 24 Nov. 2002 (Photo 17). (GPS 37-33-40/142-14-30).
14. Bryans Swp RRG14: on bend of NW horn – girth 6.85 m at 1.3 m and height 26 m, on 24 Nov. 2002 (Photo 19). (GPS 37-33-14/142-15-02).
15. Bryans Swp RRG15: dead, fallen tree – girth 4.5 m. (GPS 37-33-33/142-14-33).
16. Bryans Swp RRG16: hollow log – girth about 8 m – this may be the "canoe tree" photographed by Murray Gunn in 1962 (Photo 21) and reported in HFNC minutes of 12 Apr. 1962 – girth 28 ft (8.4 m) at 4 ft (1.2 m) and over 100 ft (30 m) tall. (GPS 37-33-37/142-14-30).

17. Bryans Swp RRG17: the tree was almost dead – girth 5.55 m at 1.3 m, in 2002. (GPS 37-33-52/142-14-28).
18. Bryans Swp RRG18: dead, fallen tree Photo 23), 100 m N of Outlet Creek – perhaps Elmore's burl tree (Photo 22) – girth 26'3" (8.0 m) at 1.2 m on 25 Mar. 1962. (GPS 37-34-14/142-14-34).
19. Bryans Swp RRG19: big tree on the W boundary – girth 6.4 m at 1.3 m and height 30.2 m, on 25 Jan. 2007 (Photo 25). This is Elmore's tree (Photo 24) in 1967. (GPS 37-33-29/142-14-29).
20. Vic. Point Rd RRG1: tree on N side of road – girth 7.90 m at 1.3 m and height 25.6 m, on 24 Nov. 2002. (Photo 31). (GPS 37-30-08/142-18-53).
21. Vic. Point Rd RRG2: tree S side of road – girth 7.06 m at 1.3 m and height 34.4 m, on 24 Nov. 2002 (Photo 32). (GPS 37-30-03/142-19-02).
22. Dwyers Ck RRG, 400 m S from a bridge near the Vic Valley Rd junction. Elmore measured the tree in Jul. 1962 (Photo 27) – girth 40 ft (12.19 m) at 4 ft (1.2 m) above ground. Donald McArthur directed me to this tree – girth 13.1 m at 4 ft (1.2 m) above ground, or 12.7 m (at 1.3 m) and height 28.5 m, on 15 Oct. 2006. The diameter growth is 417–388 cm = 6.6 mm per year since 1962. The tree has a hollow base, perhaps a "canoe tree" (Photos 28-30). (GPS 37-59-50/142-19-22).
23. Gariwerd RRG1, Forest Lodge – girth 7.07 m and height 51 m, in May 1998 (Photo 48). The tree was burned in a wildfire in Jan. 2006 (Photo 47). (GPS 37-10-19/142-20-51).
24. Gariwerd RRG2, Forest Lodge – girth 8.3 m and height 35 m in May 1998 (Photo 49). (GPS 37-10-21/142-20-55).
25. Gariwerd RRG3, Glenelg R Rd – girth 7.25 m and height 36.6 m, on 1 May 2008 (Photo 50). (GPS 37-13-39/142-24-14).
26. Gariwerd RRG4, Glenelg R Rd – girth 5.84 m and height 32.0 m, on 1 May 2008 (Photo 51). (GPS 37-13-22/142-24-10).
27. Mirranatwa RRG1 on 'Bowacka' (A Beveridge) – girth 9.87 m at 1.3 m and height 36.8 m, in May 2008. The tree has a large crown and many dropped branches. There is a small dead area ~ 1 m high x 0.3 m at the base (Photo 68). (GPS 37-23-50/142-22-57).
28. Mirranatwa RRG2 on 'Lambing Flat' (A Beveridge), near Vowels Ck – girth 9.05 m at 1.3 m and height 31.5 m, on 6 May 2008. The tree is forked at ~3.5 m, multi-branched, very healthy, canopy ~34 m spread, no branch drop and base without defect. A magnificent tree (Photo 69). (GPS 37-25-45/142-20-47).
29. Mirranatwa RRG3 on 'Bowacka' (A Beveridge) – girth 8.72 m at 1.3 m and height 27 m on 6 May 2008 (Photo 70). (GPS 37-23-55/142-23-13).
30. Mirranatwa RRG4 on 'Beverlea' (A Beveridge), Dwyers Ck – girth 7.62 m at 1.3 m and height 36 m, on 6 May 2008 (Photo 71). (GPS 37-24-30/142-25-18).
31. Mirranatwa RRG5 near 'Lambing Flat', Vowels Ck – girth 4.15 m at 1.3 m and height 36.3 m, on 6 May 2008. The tree is branched at ~17 m – a beautiful young, tall, straight tree with no major defect (Photo 72). (GPS 37-24-58/142-20-38).

Other trees measured and/or photographed by Rod Bird

32. Brimboal RRG1, Bilston's Tree, Glenmia Rd – girth 7.7 m at 1.3 m & height 36 m, in Feb. 1998 – the tree has a huge volume of wood in a solid butt (Photo 45). (GPS 37-22-44/141-19-28).
33. Brimboal SF, RRG2 – girth 9.65 m at 1.3 m and height 26.4 m, on 25 Jan. 2003 (Photo 46). (GPS 37-23-06/141-19-31).
34. Dunkeld RRG (W. Funk) – girth 8.8 m at 1.3 m and height 30.5 m in May 1998.
35. Wannon River RRG, several km below Nigretta – girth 7.8 m at 1.3 m and height 26 m on 27 Apr. 2003. A fine tree on the E bank of the river. (GPS 37-38-57/141-53-15).
36. 'Dulcian', Mooralla RRG – girth 7.48 m at 1.3 m and height 27.8 m, on 28 Mar. 2001. The tree was too large for sleeper cutters in 1936 or for Ian Luhr's autologger in 1960. The 30-cm-deep cut on 25% of the bole has apparently not affected the tree (Photo 52).
37. Wirabara SF, SA, 'King Tree' RRG – girth 9.42 m and height 36.5 m (from a sign seen in Jan. 2001, Photo 53) or girth 9.55 m at 1.3 m and height 36.9 m on 7 Dec. 2009 (Photo 54).
38. Cazneaux RRG near Wilpena Pound, SA – girth of 5 m and ~18 m tall. This tree is old and worn, with a huge base, tapering rapidly to a modest girth (Photo 84, Sept. 2001). Large RRGs in arid lands exist only near watercourses.
39. Orroroo RRG, Pekina Ck, SA – girth stated to be 10.9 m at 0.61 m in Feb. 1998 (Photo 55). Girth in 22 Sept. 2008 was 9.9 m at 1.3 m & height 19.0 m. (GPS 32-43-46/138-36-25)
40. Mullinger Swp RRG1, SA: 'Big Red' in a paddock 100 m W of swamp – girth 12.12 m at 1.3 m, with height 42.0 m, on 12 Jan. 2008. The butt is hollowed out to ~ 7 m height (Photo 56). This ancient RRG may have the largest mass of any in Australia. (GPS 36-50-60/140-58-04).

41. Mullinger Swp RRG2, SA: solid tree near fence W of swamp – girth 9.7 m at 1.3 m with height 42.2 m, on 12 Jan. 2008 (Photo 57). (GPS 36-50-57/140-58-05).
42. Mullinger Swp RRG3, SA: tree with dead basal patch, in the reserve near parking area – girth 9.4 m at 1.3 m with height 38.2 m, on 12 Jan. 2008 (Photo 59). (GPS 36-51-03/140-58-05)
43. Mullinger Swp RRG4, SA: a paddock tree with v. large basal bulge ~20 m W of swamp – girth 11.53 m at 1.3 m with height 33.0 m, on 12 Jan. 2008 (Photo 60). (GPS 36-51-06/140-58-02).
44. Mullinger Swp RRG5, SA: lovely, sound tree in a paddock ~500 m W of swamp – girth 7.72 m at 1.3 m with height 30.5 m, on 12 Jan. 2008 (Photo 58). (GPS 36-51-05/140-57-43).
45. Mullinger Swp RRG6, SA: paddock tree with a small basal hollow ~400 m W from swamp – girth 8.64 m at 1.3 m, height 33.0 m, on 12 Jan. 2008 (Photo 63). (GPS 36-51-02/141-57-46).
46. Mullinger Swp RRG7, SA: paddock tree with a base bulge ~100 W of swamp – girth 8.7 m at 1.3 m with height 33.0 m, on 12 Jan. 2008 (Photo 62). (GPS 36-51-05/140-58-01).
47. Mullinger Swp RRG8, SA: tree by the track in the reserve ~ 200 m S of parking area – girth 8.6 m at 1.3 m with height 30.0 m, on 12 Jan. 2008 (Photo 65). (GPS 36-51-10/140-58-00).
48. Mullinger Swp RRG9, SA: tree E of the track in the reserve ~ 150 m S of parking area – girth 7.2 m at 1.3 m with height 30.0 m, on 12 Jan. 2008 (Photo 64). (GPS 36-51-06/140-58-04).
49. Mullinger Swp RRG10, SA: tree just S of parking area near swamp – girth 8.2 m at 1.3 m with height 28.7 m, on 12 Jan. 2008 (Photo 61). (GPS 36-51-05/140-58-05).
50. Nangeela RRG (M Moran, ‘Lawford Park’): girth 9.2 m at 1.3 m and height 43.6 m, on 7 May 2008; 10 m to the first branch. A magnificent, healthy tree with a massive bole showing no sign of defect (Photo 66). (GPS 37-27-59/141-17-06).
51. Edenhope RRG: a healthy paddock tree with a spread of ~40 m, ~5 km W on Apsley Rd & ~1 km N off a side road – girth 4.57 m at 1.3 m with height 20.5 m, on 12 Jan. 2008 (Photo 67). (GPS 36-59-08/141-14-18).
52. Casterton RRG1 (R & L Clayton, ‘Glenbrae’): a tree of girth 8.2 m at 1.3 m and height 29.7 m (including almost 8 m of top that died in the last year or so) on 1 Feb. 2011. The bole has some dead wood and inner decay (Photo 73). (GPS 37-38-15/141-19-42).
53. Casterton RRG2 (R & L Clayton, ‘Glenbrae’): a healthy tree with a span of 42 m, girth 6.2 m at 1.3 m and height 23.6 m on 1 Feb. 2011. The bole is intact but asymmetric, with a large concavity on the western side and branch-free to 6 m (Photo 75). (GPS 37-38-12/141-19-53).
54. Casterton RRG3 (R & L Clayton, ‘Glenbrae’): a healthy tree with a branch-free bole of 12 m that escaped the sleeper cutters of the 1960s, perhaps due to a defective heart. Girth 7.1 m at 1.3 m and height 36.0 m on 1 Feb. 2011 (Photo 76). (GPS 37-38-12/141-20-10).
55. Casterton RRG4 (R & L Clayton, ‘Glenbrae’): a tree of great age and character (Photo 74). The butt has been hollowed out and grossly distorted; that renders the measurement of girth, 12 m at 1.3 m, as approximate. The height was 25 m. (GPS 37-38-15/141-20-26).
56. Comaum Forest Reserve RRG1: a remnant tree in 2nd rotation pine plantation – girth 6.75 m at 1.3 m with height 32.4 m, on 15 June 2008. Solid base but unhealthy tree with one of the 2 major branches dead (Photo 77). (GPS 37-11-13/140-54-06).
57. Comaum Forest Reserve RRG2: a splendid, spreading tree among a dozen or so trees in a paddock adjacent to W&F station – girth 6.45 m at 1.3 m and height 26.4 m, on 15 June 2008. Forked at ~5 m with a very sound base (Photo 79). (GPS 37-11-60/140-53-53).
58. Comaum Forest Reserve RRG3: a tree in a remnant low-lying block of native vegetation – girth 5.75 m at 1.3 m, height 26.4 m, on 15 June 2008. The tree has a small dead strip on the south side (Photo 78). (GPS 37-12-51/140-56-25).
59. Wyperfeld NP RRG2 (Be-al look-alike): girth 5.25 m below great branches (~ 1.3 m from old surface), height 18.6 m & span 41 m in Feb. 2011 (Photo 82) (GPS 35-33-52/142-03-27).
60. Dunkeld Pastoral Co. RRG: a remarkable tree that has rooted where the great branches rest on the ground (Photos 85-87, Oct. 1999).
61. Gringegalgona RRG, off Gashs Lane (M Pern): this RRG survived the sleeper cutter by rooting from the cut top (Photos 88-90, Jan. 2005).
62. Brimboal RRG3, adjacent to the Bilston Tree: another curiosity – the original trunk died but the RRG lives on, having rooted from branches contacting the ground (Photos 91 & 92, Jan. 2007).
63. Wirabara SF, Ippinichie Ck campground, SA ‘ghost’ RRG: a half circle of sawn stump that measures 4 m across, a diameter (at 1 m) of 12.5 m (Photo 83). Because of its size, this tree must have been difficult to cut down (possibly in the 1940s) (GPS 33-04-04/138-13-46).
64. Guildford Tree (Ballaarat St) – girth “at the base” and height has been reported as 12.8 m and 25.9 m (Age 2004), or 9.35 m and 30 m, with a spread of 34 m (National Trust 2004). However, I recorded a girth of 11.8 m (at 1.3 m) & height 32.5 m on 21 Apr 2011 (Photo 110). A large burl exaggerates the girth reading at 1.3 m (girth at 1.8 m was 8.5 m). (GPS Aust84, 37-09-01/144-09-43).

Trees reported by others but not verified by Rod Bird

65. 'Bolac Plains' RRG (R Jamieson): tree on black-soil plains ~1 km from Salt Ck; Bill Middleton regarded this tree as "exceptional" in that landscape, although not of great size.
66. Bochara RRG (M Bawden) – girth reported in May 1998 as 7.85 m at 1.3 m, height "not great".
67. Balmoral RRG (M Broers) – girth reported in 1998 as 9.05 m at 1.3 m, height 30-40 m. The tree was hollowed out at the base by fire and was once used as a "birthing tree" by Aborigines.
68. Gunbower Ck RRG, Cohuna – girth reported in May 1998 by G Nicholson as 8.22 m "at the narrowest point".
69. Comaun Forest RRG near Struan, SA –girth reported in *Bush Chronicle* 1996 as 10.5 m.
70. Poocher's Swamp RRG, SA – girth reported in *Bush Chronicle* 1996 as 10.5 m.
71. Penola RRG, SA (ID March) – girth reported in *Bush Chronicle* 1996 as 10.46 m.
72. Mundulla RRG, SA (L Rogers) – girth reported in *Bush Chronicle* 1996 as 10.46 m.
73. Casterton RRG (F Haddrick) – girth reported in *Bush Chronicle* 1996 as 10.05 m.
74. Dergholm RRG (W Crozier) – girth reported in *Bush Chronicle* 1996 as 9.7 m.
75. Charleston Tree, SA – girth reported in *The Courier* 2007 (and www.treesa.biz) as 12.3 m at 1.0 m, height 41.3 m, in Oct. 2007. The tree stands in a paddock on the Charleston-Torrens Rd, near Charleston. It has a crown width of ~30 m and has a hollow base (Photo 95 – DSCN 0686 by Kym Knight, SA Soc. Arboriculture).
76. Mt Crawford area RRG1, Wirra Wirra Rd, SA – girth reported in www.treesa.biz 10.6 m at 1 m, height 32.4 m, in Mar. 2008. The tree has a crown width of ~30 m.
77. Mt Crawford area RRG2, SA – girth reported in www.treesa.biz as 13 m at 1 m, height 31.5 m, in March 2008. This is an impressive tree with a hollow trunk in private property.
78. Mt Crawford area RRG3, SA – girth reported in www.treesa.biz 12.5 m at 1 m, height 38.2 m, in March 2008. The tree has a large tree with a crown width of 35 m and a flared trunk. It grows in a grazed front paddock at Mt Crawford.
79. Mt Crawford area RRG4, SA – girth reported in www.treesa.biz 7.82 m at 1 m, height 43.5 m, in March 2008. This is a large, spreading tree (crown width 40 m) in a grazed paddock.
80. Mt Crawford area RRG5, SA – girth reported in www.treesa.biz 10 m at 1 m, height 35.1 m, in March 2008. The tree has a storm-damaged crown of ~ 20 m width and a hollow, fluted trunk. It occurs on a creek in private property behind Forest Headquarters.
81. Melrose RRG, SA – girth reported in www.treesa.biz as 9.8 m at 1 m, height 38.5 m, in April 2005. A magnificent tree with a crown width of ~25 m in a paddock near Mt Remarkable.
82. Mt Remarkable, SA RRG – Kym Knight (SA Soc. Arboriculture) –girth reported as 14.45 m at 1 m; a magnificent, multi-branched specimen (Photo 94 – NKN 8344 by Kym Knights).
83. Charleston Buttressed Tree, SA – Kym Knight (SA Soc. Arboriculture) – girth reported as 15.5 m (at 1 m); a magnificent specimen in a grazed paddock (Photo 93 – DSCN 1685 by Kym Knights).
84. Herbig's Tree, SA – Kym Knight (SA Soc. Arboriculture) – girth reported as 15.1 m at 1.4 m; an ancient specimen on the Register of National Estate (Photo 96 – NKN 1331 by Kym Knights). The tree lost its top ~150 years ago and has a small crown. The butt stands now on 6 'legs'.
85. Barmah-Millewa Forest, Murray R – 2 trees, 13.5 & 11.5 m girth at breast height (Ranken 2011).

Discussion

Giant River Red Gums

Several factors prompted me to measure and document some of the notable RRGs of SE Australia. One was the obvious presence of these majestic trees and the desire to know how they ranked in size. That was inspired by a sign on the Casterton-Chetwynd Rd proclaiming that the largest red gum in the world – the Bilston Tree (Photo 45) – could be found 3 km to the west on Glenmia Rd. It was neither exceptionally tall (36 m compared with 51 m for the Forest Lodge Rd Tree (Photo 47) in the Grampians) nor of great girth (7.7 m girth at 1.3 m above ground compared with 13.1 m for the Dwyers CK tree (Photo 30) in the Victoria Valley). What constitutes size? Apart from height, girth, canopy spread, or total wood volume, the obvious unspecified factor here was bulk of timber that could be profitably sawn from the tree. It was found in 1987 to be solid to the core – unusual for a RRG of that age – and with an unbranched bole with little taper for some 11 m. Estimates in 1971 suggested that 9,100 super feet of sawn timber could be extracted from the tree (21.5 m³ of timber?) but fortunately this leaning tree had been spared by sawmiller Lance Phyear and in 1962 a Forest Reserve of 1 ha was created on the farm then owned by T Bilston.

Another factor that prompted me to investigate these trees was a thesis by Erica Nathan(1998) who looked at the history of red gum milling from 1880-1960 in the Dundas Tableland area and any connection with increased soil salinity. Erica concluded, in part, that the RRGs milled in 1880 had regenerated post-pastoral settlement in 1840. Trees of 60-90 cm diameter milled in the period after

1920 were considered to be only 50-100 years old, based on sawlog records from the Dundas sawmills and an estimate of annual diameter growth of 14 mm obtained from RRGs on the Murray River. Roger Edwards (Forest Officer at Cavendish) measured the diameter growth of RRGs in the adjacent Woolhpooper State Forest at 3.5 mm per year over a 25-year period, for trees less than 100 years old. I found and re-measured three old trees that Lionel Elmore had measured in the 1960s at Bryans Swamp and Dwyers Ck, and obtained a value of (RRG1) 4, (RRG3) 6 and (Dwyers Ck RRG) 6.6 mm diameter growth per year over 40 years. Taking an average of 5.6 mm/annum or 3.5 mm/annum (Edward's value), Erica's trees may have been 110-170 years old (for 60 cm diameter) and 165-260 years old (for 90 cm diameter) and would therefore have germinated pre-settlement.

The DBH of the old RRG on Dwyers Ck (Photo 28) is 4.0 m and, using that measure, this is one of the largest and oldest in Australia. For 5.6 mm as an average annual growth rate, the tree could be 700 years old, or perhaps 900 years if we included in the average Edward's measure of growth rate for younger trees at Woolhpooper. The tree has a large hollow at the base on the western side; the wood there has decayed sufficiently to allow a person entry to the cavernous butt, as it did for Lionel Elmore and his ladder in 1966. An owl roosts inside now. A fire would probably destroy this tree.

The naturalist Norman Wakefield (1967), writing in his 'Nature Notes' column of The Age, described the Dwyers Ck tree as the largest Red Gum he had seen. His article is interesting from two angles. First, Wakefield mentions that Elmore had arranged for carbon-dating of wood taken from the centre of the trunk, at the top of the hollow in the base of the tree. The result was 170 ± 80 years. Was the sample contaminated by 'new' carbon? Elmore noted later (hand-written on a copy of Wakefield's article) that the sample was actually taken at 14 ft from the ground, from the wall of a circular cavity more than 1 ½ ft in diameter – i.e. from the outer layers of an original tree whose centre had rotted away. Therefore, one must estimate the age of that inner core and add it to any age obtained for the sample. Elmore suggested that could take the age of the tree to well over 300 years.

In regard to the Dwyers Ck tree, Wakefield noted the response of a distinguished forester, M.R. Jacobs (Director General of the then Forestry and Timber Bureau) to a letter from ED Gill (Assistant Director of the National Museum of Victoria), who was interested in the carbon-dating result. Jacobs explained that big, old trees tend to "belly out" when the centre fails, largely as a result of tangential compression that makes each sheath of cell expand in diameter. Thus, girth measurements taken near ground level may have no relation to tree growth. Jacobs cited his work at Mathoura (15 inch rainfall) where River Red Gums had a "*girth increment of at least ¾ inch annually*" and "*I would guess that growth conditions on the plains in West Victoria would be much more favourable than at Mathoura and I would expect girth increments of two to three inches annually on healthy trees...this could easily give girths of twenty feet in a hundred years*". Note that Jacobs mentions girth, not diameter – a tree of DBH 50 cm would grow to 52.4 cm DBH if the annual growth in girth was 3 inches. The annual diameter growth thus calculated is 24 mm – a value almost 7 times that found by Edwards. Jacob's appears to have over-estimated the growth capacity of RRGs on the plains of western Victoria.

For reasons given above, Jacobs (1955) gives cause to question the validity of growth estimates made on large, old, hollow trees. The 'growth' data obtained by me for the old trees at Bryans Swamp may reflect an expansion of girth that is not true growth. The trees would be growing at an even slower rate than calculated, and may not be growing wider at all, despite their actual increased girth.

'Big Red' near Mullinger Swamp, SA (Photo 56), has a good claim as the largest RRG, although 2 others in SA (one at Mt Remarkable) appear to be much larger in girth (4.6 and 4.9 m diam. when measured at 1 m above ground). Comparing these trees is difficult, since the heights of two are not known, nor were the girths measured at the same height above ground. Collectively they are undoubtedly the 3 biggest RRGs assessed so far. However, the RRG (4.3 m DBH) reported by Ranken (2011) in the Barmah-Millewa Forest, and others, may be contenders. Before the river was regulated, and water diverted, the trees may have had greater access to water and certainly more sunlight and higher temperatures for growth. The logging industry in those forests – and the use of the timber by the paddle-boat steamers in the early days – must have removed many of the giants.

The girth of 'Big Red' in Jan. 2008 was 12.12 m (3.86 m DBH) compared with a girth of 11.6 m (3.7 m DBH) in March 1996 (Anon. 1996). At 42 m it is much taller than the Dwyers Creek tree (28.5 m) and has a much greater volume of timber. The Dwyers Creek tree (Photo 28) is much branched, with a short bole. In that regard it is similar to the Orroroo Tree in SA (Photo 55) which has a girth of 9.9 m (3.15 m DBH), a short bole and a height of 19 m. The RRG with a hollow base at Charleston, SA, ranks about 8th, with a girth of 13.2 m & height of at least 41 m. Other RRGs in SA with a girth of

about 10.5 m (Anon. 1996) are: Comaum Forest Reserve west of Dergholm (I could not locate this tree), Poocher's Swamp, I. March's property at Penola and L. Roger's property at Mundulla.

The giant RRG at Forest Lodge in the Grampians/Gariwerd NP (Photo 48) was 51 m tall – possibly the tallest RRG in Australia – and had a girth of 7.07 m (2.25 m DBH) in 1998. It had an apparently solid, straight bole of about 19 m without a branch. The fire of Jan. 2006 burned a 1.7 m cavity at the base (Photo 47) and burned the leaves on its top. Also regrettable was a fire in Nov. 2006 that killed or severely damaged a dozen of the venerable trees at Bryans Swamp (Photos 40-44). A lesson to be learned by managers of reserves with significant trees is that fallen limbs and litter should be shifted away from the base of such trees, to prevent fire from hollowing out the trunks and thus shortening their life. The old trees provide a vital habitat for a host of insects, lizards, birds and mammals. The Bilston Tree (Photo 45) off Glenmia Rd, Brimboal, is much publicised (e.g. Lahey 1987). There is a sign on the Chetwynd-Casterton Rd that claims it as “*The world's largest red gum*”. It was 36 m tall and had a girth of 7.7 m (2.45 m DBH) when I measured it in 1998. This tree is unbranched for ~11 m and has an enormous bulk of timber. It may have the most merchantable timber, although the Forest Lodge tree has a bulk (using the cone formula $\frac{1}{3} \pi r^2 h$) of about 67 m³ compared with 56 m³ for the Bilston Tree. Another measure is Smalian's formula (Volume = $h (A_b + A_t)/2$, where A_b is the area of the butt end and A_t is the area of the top end of the major sawlog section. The calculated volume is 40 m³ for the Bilston Tree and 45 m³ for the Forest Lodge Tree. For these calculations I had to estimate the trunk diameter at the first major branch – I scaled these from the photographs. The Bilston Tree is slightly larger at the base and has much less taper, thereby achieving a volume approaching that of the much taller Forest Lodge tree. This leaning tree is magnificent, ranking about 15th in size – but not the world's largest RRG!

If one uses Smalian's formula for ‘Big Red’ at Mullinger Swamp, (Photo 56) where the major fork is at ~10 m, the volume of merchantable timber could have been ~73 m³. Even allowing for a smaller size before rot developed in the heartwood pipe, ‘Big Red’ must have had the greatest volume of merchantable timber of any living RRG. Now, in its old age (perhaps 800 years), the hollow extends about 7 m vertically and occupies the greater part of the butt (the tree was once a convenient “change room” for bathers at Mullinger Swamp). Even now, if one considers the total amount of wood in the huge branches above the fork, it may have the greatest total wood volume of any living RRG.

The Nangeela RRG (Photo 66) on Michael Moran's farm is 43.6 m tall, with a girth of 9.2 m (2.93 m DBH), is a marvellous tree with no visible defect in the bole and it probably ranks about 10th in size. The Morans are careful to remove fallen branches from near the bole, to protect it from any fire. Where cropping is now practiced on the Dundas Tableland, one may see branches smashed from the trees by heavy machinery (to allow cropping operations close to the tree) and piled around the trunks.

There are many grand trees on the Kanawinka Sandplain of far western Victoria, although Pine and Blue Gum plantations have, in recent years, occupied much of the land-system. The tall Casterton RRG3 (36 m and girth 7.1 m) on Ross & Lorraine Clayton's property is a superb tree, branch-free to 8 m (Photo 76). However, most of the RRG that had tall, straight boles like this tree fell to sleeper cutters, leaving old trees of “character” standing. One such tree, pictured (Photo 74), has a girth that would approximate to 12 m if it were intact. On the basis of girth, that makes it one of the largest recorded but, as can be seen, the bole is hollowed out.

No measurement was made by Elmore of the huge, hollow-butt tree (Photo 21) at Bryans Swamp. This “canoe” tree was merely a log on the ground when we visited in 2002. Based on a scaling of figures in Photo 3, using a height of 1.2 m for Michael Gunn, the DBH of the tree in Photo 21 would be 2.5 m, much smaller than the giant at Dwyers Creek (Photo 30).

The forest of RRGs in the flats of the Grampians/Gariwerd NP in the Victoria Valley/Moora Moora & Lodge Rd area contains many magnificent trees (Photos 49-51), although most of the large trees have been burned out at the base as a consequence of frequent fires and lack of protection.

A tree on Andrew Beveridge's farm at Mirranatwa (Photo 68) was 37 m tall with a girth of 9.87 m at 1.3 m and another (Photo 69) has a girth of 9.05 m and is 31.5 m tall; both are healthy specimens with sound boles and the prospect of a long life. Other impressive trees occur in the area (Photos 70-72).

Also impressive is the Charleston Tree in SA (Photo 95), with a girth of 12.3 m (at 1 m) and height of 41.3 m. Herbigs Tree in SA (Photo 96,) was once immense (it had a girth of 15.1 m at 1.4 m) but has lost most of its top and is now near collapse. It is on the register of the National Estate.

Many towns or shires have claims to the largest Red Gum in Australia. Guildford (near the Loddon River, between Daylesford and Castlemaine) has a lovely, large Red Gum in the town (Photo 110). This tree is listed as a significant tree on the register of the National Trust of Australia and described in 2004 as “...one of the largest River Red Gums in Victoria”, with a girth 9.35 m (‘at the base’) & height 30 m. Another view of its size: “...thought to be the largest of the species in Victoria” with a 12.8 m girth & height of 26 m (Age 2004). In 2011 I found it to have a girth of 11.8 m (at 1.3 m), over a large basal burl (or 8.5 m at 1.8 m). The tree ranks high in the lower half of the top 25.

There are thousands of RRGs on farms in Victoria from Chatsworth to Apsley, perhaps some of greater size than listed here, but tall trees unbranched for 6 or more metres were prized by sleeper cutters in the 1920s and later (particularly in the 1950s and 1960s). Many tens of thousands were also ring-barked by settlers (see Bird 1986; Bird 2011), on the assumption that they competed with pasture. Being deep-rooted, there is little evidence that widely spaced mature RRGs do reduce pasture production, although high stocking of young trees does have a negative impact (Bird *et al.* 1994). With 7-year-old RRGs at 2 sites, comparing treatments of 35 & 60 trees/ha with 175 & 225 trees/ha, pasture production was reduced by 15% by the higher stocking. The effect for *Pinus radiata* was a 20% reduction, while the reduction for *E. viminalis* (not as deep-rooted) was 60%. As the trees grow those differences would increase, assuming that no thinning of the stand was allowed.

Judging from remnant blocks, the large RRGs in the pre-settlement landscape were probably spaced no closer than 20-30 m (9-16 trees/ha) and the shading and shelter effects on animals and pasture may balance any negative impacts of root competition on pasture (Bird *et al.* 1992). As well, the trees have the capacity (via leaf-drip and leaf and twig drop) to recycle nutrients leached beyond the root zone of grasses and other ground-cover plants (Murray & Mitchell 1962; Bird *et al.* 1992). In the absence of artificial fertilisers, and where nutrients are exported from the landscape (in wool, mutton, beef, grain), trees contribute to the sustainability of the whole system by replacing lost nutrients.

Those who are interested in viewing a pastoral landscape of veteran RRGs could travel the roads a short distance west, south and east of Dunkeld, or along the Yarram Gap Rd west of Willaura to the laterised tablelands overlain with sand from the Grampians. Just west of Hamilton there is a fine stand of old trees at Bochara, on both sides of the Glenelg Highway. A drive to Balmoral or Harrow will also reveal thousands of these charismatic, deep-rooted trees of the “Red Gum Country”. The Henty Highway, especially between Mooralla and Montana La, also provides spectacular landscape views.

A final mention must be made of ‘Old Be-al’ in the Wyperfeld NP (Garnet 1965). Garnet described this tree on Outlet Ck as “surely one of the most magnificent River Red Gums in the land” (Photo 80). This great, spreading tree with foliage hanging to the ground escaped the fire of 1959 but not the fire of 1982 that damaged it badly. It lives on but has also suffered badly from lack of water. A lovely younger tree with a massive span (Photo 82) on a dune slope 400 m SW from Lake Brambruck has enjoyed recent rains. Water last flowed down Outlet Ck from Lake Albacutya in 1975 (Photo 81), the floods of early 2011 did not reach it. Seeds from Old Be-al were collected in the 1970s, germinated in 1997 and planted in the camping area in 1997 by the Friends of Wyperfeld (Fendley 1997).

Lack of water has affected many other great trees in the Wimmera and Mallee of Victoria, including those on the sandy banks of Lake Mournpoul in Hattah NP. I remember well the incredible sunrise and sunset skies through the great trees and over the clear waters of the lake in the 1980s (Photo 97). The lake was subsequently deprived of water from Chalka Ck (off the Murray River) and seedlings germinated in the lake so that in 2010, when water returned for the first time since the early 1990s, the wide ring of trees is now standing in water (Photos 98 & 99). Those high on the bank mostly appear to have recovered and have a healthy canopy again. What will be the fate of the saplings in the lake? If more water is allowed in, to keep the roots flooded, then they must eventually die.

Layered trees

Apart from sheer size, there are many other unusual trees in the region, including those on the old-time Mt. Sturgeon Station, 3 km W of Dunkeld and ~150 m N off the Cavendish Rd (Photos 85-87) where new root systems established where branches touched the soil. Close up, this is a magnificent tree with a branch spread of about 45 m (Kenyon 1997).

This phenomenon of layering also occurred at Brimboal (Photos 91 & 92). The tree is located about 100 m west of the Bilston Tree (Photo 45). A visitor to the Bilston Tree should not miss seeing this other interesting arched tree. As seen in the photographs, the original stump has died but the tree lives on, as a result of new roots developing where a branch touched the ground (Kenyon 1997).

Another spectacular case of layering is to be seen on a farm at Gringegalonga (M Perns). Sleeper cutters operated there in the 1950s or 60s. In one case a tree on the bank of a creek was felled and sleepers were cut from the 6-m butt log. Subsequently in that winter, the top rooted from the cut end that had lodged deep into the wet earth beside the creek (Photos 88-90). The tree now has great branches projecting vertically from the large log on the ground.

Scar trees – shields and canoes

A number of RRGs are illustrated that show the effects of removal of bark to use as shields, carry vessels or canoes (Photos 100-109). Excellent descriptions of the history, manufacture and use of the bark canoe by Aborigines is given by Edwards (1972) and Curr (1883).

The RRG was favoured for use wherever the species grew, although other species, such as Messmate Stringy-bark (*E. obliqua*), were used where RRGs were few. The construction of such fragile but useful vessels ended in the early 1900s; an example may be seen in the National Museum of Victoria and another in the South Australian Museum in Adelaide. The scar trees that remain are often located near rivers or lakes but have been found up to 30 km distant from any waterway.

Great care was taken in the selection of a tree from which the bark was cut. The ideal was a wide trunk with some curvature that helped to obtain uplifted prow and bow when the bark was dried. The shape of the sheet was marked out on the trunk, often high up, chopped along with a tomahawk and then prised away from the sapwood/hardwood core. This was best done when the sap flow was greatest, in the spring-summer period. On the ground, little fires were placed inside the sheath to dry out the bark and curl the sides up. In some areas the bark was placed on a canoe-shaped pit excavated in the ground, and the bark weighted with stones during the drying to achieve the desired shape. Elsewhere, stake props were used along the outside to achieve the curled shape. The canoes varied from 2 to 6 m in length, the short canoes carrying 1 or 2 people and the larger 7 or 8. The craft had a useful life of less than 2 years. Early settlers along the Murray River also used such canoes extensively to ferry sheep, bales of wool and supplies cross the river, and to travel along the river.

Conclusion

One objective of this study was to give an approximate ranking of size of our existing RRGs. That has not proved to be an easy task. Twenty-five of “The World’s Largest Red Gums” are tentatively ranked from the 85 assessed:

1. Mt Remarkable, SA RRG: Kym Knight (SASA) reported a tree of diam. 4.6 m (at 1 m), a magnificent, multi-branched specimen (Photo 94 – NKN 8344 by Kym Knights).
2. Charleston Buttressed Tree, SA: Kym Knight (SASA) reported a tree of 4.93 m diam. (at 1 m), a magnificent specimen in a grazed paddock (Photo 93 – DSCN 1685 by Kym Knights).
3. ‘Big Red’ RRG1 at Mullinger Swamp, SA: 42 m tall and 3.86 m DBH in Jan. 2008, with hollow base. Ranked on volume of timber (once perhaps 73 m³) (Photo 56).
4. ‘Herbig’s Tree’, SA: Kym Knight (SASA) reported a tree of 4.8 m diam. (at 1.4 m) with crown re-growth of 150 years. Base rotted, standing now on 5 or 6 ‘legs’ (Photo 96 – Kym Knight).
5. Dwyers Creek RRG, Victoria Valley: 28.5 m tall and 4.0 m DBH in Oct. 2006 – the largest girth recorded in SW Vic but base partly hollowed out (Photo 27).
6. Gariwerd RRG1 at Forest Lodge: 51 m tall and 2.25 m diam. in May 1998 – the tallest tree recorded and also a substantial volume of merchantable timber (45 m³) (Photo 48).
7. Mt Crawford area RRG2, SA: reported in www.treesa.biz as 31.5 m tall and diam. 4.1 m (at 1 m) in March 2008; an impressive tree with a hollow trunk; tree with a hollow trunk.
8. Charleston Tree, SA: 41.3 m tall and 3.91 m diam. (at 1 m) in Oct. 2007. The tree has a hollow base. For comparative purposes I estimated, from a photograph and data supplied in the website, that the DBH was approximately 3.6 m (girth 11.3 m).
9. Mt Crawford area RRG3, SA: reported in www.treesa.biz as 38.2 m tall and diam. 3.9 m (at 1 m) in March 2008; a large tree with a crown width of 35 m and a flared trunk.
10. Nangeela RRG (M Moran): 43.6 m tall and 2.93 m DBH in May 2008 with ~10 m to the first branch. A magnificent, healthy tree with a sound base (Photo 66).
11. Mullinger Swamp RRG2, SA: 42.2 m tall and 3.1 m DBH in Jan. 2008, solid (Photo 57).
12. Mt Crawford area RRG4, SA: reported in www.treesa.biz as 43.5 m tall and diam. 2.5 m (at 1 m) in March 2008; a large, spreading tree (crown width 40 m).
13. ‘King Tree’, Wirrabara RRG: 36.5 m tall & 3.0 m DBH and apparently solid (Photo 53).
14. Mullinger Swamp RRG3, SA: tree near the fence in the reserve near parking area, height 38.2 m & DBH 2.99 m in Jan. 2008 (Photo 64).

15. Mirranatwa RRG1 on 'Bowacka' (A Beveridge): 36.8 m tall & DBH 3.12 m in May 2008. A healthy tree but with a small dead spot at the base (Photo 68).
16. Guildford RRG: 32.5 m tall & 3.75m DBH in Apr. 2011 (but exaggerated by a large burl – the diameter above the burl (at 1.8 m) was 2.7 m). This is a picturesque tree (Photo 110).
17. Brimboal RRG1, Bilston's Tree, Glenmia Rd: 36 m tall & 2.45 m DBH in Feb. 1998 – a massive volume of merchantable timber (40 m³) in what appears to be a solid butt (Photo 45).
18. Mirranatwa RRG2 on 'Lambing Flat' (A Beveridge): 31.5 m tall & 2.88 m DBH in May 2008. Multi-branched at 3.5 m, 34 m spread, sound base. A magnificent tree (Photo 69).
19. Comaum Forest RRG, SA: reported in 1996 to have a DBH of 3.34 m.
20. Poocher's Swamp RRG, SA: reported in 1996 to have a DBH of 3.34 m.
21. Penola RRG, SA (ID March): reported in 1996 to have a DBH of 3.33 m.
22. Mundulla, SA (L Rogers): reported in 1996 to have a DBH of 3.33 m.
23. Casterton (F Haddrick): tree reported in 1996 to have a DBH of 3.2 m.
24. Balmoral RRG (Broers): reported in May 1998 to be 30-40 m tall & DBH 2.88 m. The tree was hollowed out at the base by fire.
25. Orroroo RRG, SA: 19 m tall & DBH 3.15 m in Sep. 2008. The tree has a very short, apparently solid bole (Photo 55).

Three points need to be made about the above assessment:

- the judgement on 'size' depends on what one is assessing. Is it height, diameter of the bole, volume of extractable sawlog timber, sheer mass of wood, or spread of canopy?
- where I have not been able to verify or obtain full measurements for trees recorded by others I have been conservative and ranked those trees below those that I have measured that seem to be of equal size.
- there must be trees among the hundreds of thousands across the plains of western Victoria – and in the great forests of Nyah, Vinifera, Gunbower and Barmah on the Murray River – that are larger than some listed here, waiting for someone to report them (e.g. Ranken 2011).

GPS positions, measurements and photographs have been given for 60 RRGs: 16 at Bryans Swamp, 2 on the Victoria Point Rd, 4 in Grampians/Gariwerd NP, 1 at Dwyers Ck tree, 5 at Mirranatwa, 10 at Mullinger Swamp, 3 at Comaum, 4 at Casterton and 15 elsewhere, so that in perhaps 40 years time future members of HFNC, or other interested people, may locate and re-measure some of them.

The limited data from this study, together with the substantial bank of data collected at Woohlpooer State Forest by Roger Edwards of DSE, provides estimates of a modest diameter growth (3-6 mm/year), roughly one third that assumed by Erica Nathan (1998) who, on the basis of what I believe was an incorrect assumption of annual diameter growth, concluded that most of the mature RRGs on the Dundas Tableland began life after white settlement of the 1840s and change in land use.

Many of these majestic trees will be alive and standing in 50 years time but perhaps not in 100 years. Fire and the action or inaction of fire fighters may determine the fate of some, as will clearing, but windstorms, lightning strikes, defoliation (by herbicides, insects and possums) and drought will also have an impact. On present trends, an annual loss of 0.1-0.5% can be expected.

These venerable RRGs that grace the pastoral landscapes in far SW Victoria and SE Australia also provide refuge for hollow-dependant species such as the endangered Red-tailed Black-cockatoo, Powerful Owl (and other owls), parrots, lorikeets, martins, treecreepers and many other species, including small mammals such as gliders, Tuan, Antechinus and bats. Climate change may have an impact on the longevity of these trees; they may not be able to cope with higher temperature and less rainfall and soil moisture. In some cases the long-term effects of drainage of wetlands and depleted groundwater resulting from extraction for irrigation or by plantations will aggravate the situation.

This study is a celebration of the beauty and utility of our majestic RRGs – and a plea for current and future generations to appreciate these veterans and manage them in a way that will see them standing until nature has its way.

It is also a plea to replace those RRGs in the pastoral landscapes that are lost as a result of natural causes, clearing for cropping, clearing to establish Pine and Blue Gum plantations, and timber-cutting or fire operations. The casual observer will see few (if any) young RRGs on the grazed or cropped paddocks. Unless something is done, that great landscape will be bereft of these magnificent trees in another 100 years, when the old trees have died.

Photo 1 (right)
Bryans RRG1 on Outlet Creek,
Bryans Swamp.

RRG1 was 18.6 m tall and girth 8.83 m @ 1.3 m or 8.93 m @ 1.2 m above ground when measured by Rod Bird. Diane Luhrs is standing near the tree.

Comparing 2002 and 1962 data, diameter growth over 40 years = $2.84 - 2.60 = 0.24$ m = 0.6 cm or 6 cm per year.

(GPS Aust84, 37-24.0/142-14-31.3)

[Photo Mar. 2002]



Photo 2 (below)
Bryans RRG1 at The Outlet from
Bryans Swamp.

Murray & Michael Gunn are standing by the tree.

RRG1 girth measured 26' 10" (8.18 m) @ 4' (1.2 m) above ground, diameter 2.60 m, on 25 Mar. 1962.

[Photo Mar. 1962 by Lionel Elmore]





Photo 3 (left)

Bryans RRG4 & 3 at Bryans Swamp – another view of the two trees in 1962, with Michael Gunn.

When measured by Rod Bird in March 2002, RRG3 was 28.8 m tall and girth 7.90 m (@ 1.2 m) or 7.70 m (@ 1.3 m). The diameter was 2.515 cm (@ 1.2 m) or 2.45 m (@ 1.3 m).

The diameter growth was $2.515 - 2.35 = 16.5$ cm in 40 years = 0.4 cm/year

[Photo Mar. 1962 by Lionel Elmore]

Photo 4 (below)

Bryans RRG4 & 3 on the west edge of Bryans Swamp, north of Outlet Ck.

Murray & Michael Gunn stand near the trees.

RRG3 girth was 24'7" (7.37 m) @ 4' (1.2 m) above ground, measured in Mar. 1962.

(GPS Aust84, 37-33-59/142-14-26)

[Photo Mar. 1962 by Lionel Elmore]



Photo 5 (right)
Bryans RRG4 & 3 on NW edge
of Bryans Swamp.

The bank appears to be carrying a dense growth of Austral Bracken. Lionel Elmore & Michael Gunn are near the trees.

[Photo Mar. 1962 by Murray Gunn]



Photo 6 (below)
Bryans RRG4 & 3 on west edge
of Bryans Swamp, north of
Outlet Ck.

Looking towards the swamp. Note the growth of Blackwood since 1962 (most of these were burned in Nov. 2006) and the presence of Phalaris.

[Photo Mar. 2002]



Photo 7 (right)

Bryans RRG3 & 4 on west edge of Bryans Swamp, north of Outlet Ck.

Looking west, away from the swamp. Diane Luhrs is near the tree. Blackwoods stand behind.

RRG3 was 28.8 m tall and girth 7.70 m @ 1.3 m above ground or 7.90 m @ 1.2 m above ground.

RRG4 was 28 m tall and girth 5.84 m @ 1.3 m above ground.

(GPS Aust84 37-33-58.9/142-14-25.5)

[Photo Mar. 2002]



Photo 8 (above)

Another view of Bryans RRG3 & 4 on the western edge of Bryans Swamp, north of Outlet Ck.

[Photo Mar. 2002]

Photo 9 (right)

**Bryans RRG5 on NW bank of
Bryans Swamp, north of
Outlet Ck, near the paddock.**

RRG5 was 28.4 m tall with a
girth of 7.3 m @ 1.3 m above
ground. Diane Luhrs is standing
by the tree to provide a scale.

(GPS Aust84,
37-33-32/142-14-28)

[Photo Mar. 2002]



Photo 10 (below)

**Bryans RRG2 on west bank of
Bryans Swamp, north of
Outlet Ck.**

RRG2 has a hollow butt and was
22 m tall, with a girth of 8.75 m
@ 1.3 m above ground

(GPS Aust84,
37-34-04/142-14-25)

[Photo Mar. 2002]



Photo 11 (right)

**Bryans RRG6 on NW bank of
Bryans Swamp, north of Outlet
Ck near a gate into paddock.**

RRG6 is solid and forked at about
4 m. It was 30.6 m tall with girth
6.55 m @ 1.3 m above ground.

The tree beyond is also shown in
Photo 24.

(GPS Aust84, 37-33-28/142-14-31)

[Photo Mar. 2002]



Photo 12 (below)

**Bryans RRG7 on NW bank of
Bryans Swamp, north of Outlet
Ck near a fence, below a high
bank.**

RRG7 was 20.4 m tall and 6.43 m
girth @ 1.3 m above ground.

(GPS Aust84, 37-33-22/142-14-46)

[Photo Mar. 2002]





Photo 13 (above)
**Bryans RRG7 on NW bank of
 Bryans Swamp, near fence,
 north of Outlet, below a high
 bank.**

RRG7 was 20.4 m tall and 6.43
 m girth @ 1.3 m above ground.

(GPS Aust84,
 37-33-22 /142-14-46)

[Photo Mar. 2002]

Photo 14 (right)
**Bryans RRG9, a younger,
 smooth-barked tree on NW
 bank of Bryans Swamp, north
 of Outlet Ck.**

RRG9 was 30.0 m tall and 4.93
 m girth @ 1.3 m above ground.

(GPS Aust84,
 37-33-47 /142-14-24)

[Photo Nov. 2002]



Photo 15 (right)
Bryans RRG12, a medium sized tree on edge of Bryans Swamp, north of Outlet Ck.

RRG12 was 18.8 m tall with a girth of 3.22 m @ 1.3 m above ground.

HFNC group on excursion.

(GPS Aust84,
37-33-31/142-14-35)

[Photo Nov. 2002]



Photo 16 (below)
Bryans RRG7 and Bryans Swamp with Serra Range beyond.

The swamp had water at this time.

[Photo April 2002]



Photo 17 (right)

**Bryans RRG13, a young tree
on NW edge of Bryans
Swamp, north of Outlet Ck.**

RRG13 was 15.2 m tall with a
girth of 1.05 m @ 1.3 m above
ground.

(GPS Aust84,
37-33-40/142-14-30)

[Photo Nov. 2002]



Photo 18 (below)

**Bryans Swamp and Serra
Range.**

[Photo Mar. 2002]



Photo 19 (right)

Bryans RRG14, a big old tree on the NW bank of Bryans Swamp, north of Outlet Ck, on the bend of the swamp.

RRG14 was 26.0 m tall with a girth of 6.85 m @ 1.3 m above ground.

(GPS Aust84,
37-33-14 /142-15-02)

[Photo Nov. 2002]



Photo 20 (below)

Bryans RRG1 on the bank of Outlet Creek (as in Photo 1).

Note the Bulrush in the creek.
The dead tree may carry a scar from removal of bark for a shield.

[Photo Mar. 2002]



Photo 21 (right)

Bryans RRG16 on NW bank of Bryans Swamp, north of Outlet Ck.

This “canoe” tree was no longer standing when we visited in 2002 (a large log still remains at GPS Aust84, 37-33-37/142-14-30).

Based on a scaling of figures in Photo 4, Michael Gunn may have been 1.2 m tall and, using that value, the DBH of this tree would be 2.5 m.

[Photo Mar. 1962 by Murray Gunn]

Photo 22 (below)

Bryans RRG18, a large tree with burl, north of Outlet Ck on the west side of Bryans Swamp.

In Mar. 1962 the tree had a girth of 26’3” (8.0 m) @ 4’ (1.2 m) above ground.

Michael Gunn stands at this tree, which was not standing in 2002. A large old trunk was found some 200 m north of Outlet creek, near the edge of the swamp. The tree appears to have toppled years ago.

[Photo Mar. 1962 by Lionel Elmore]





Photo 23 (above)

Bryans RRG18 with burl, N of Outlet on W side of Bryans Swamp

Presumably this is the tree in Photo 22 – the trees beyond have also gone.

(GPS Aust84 37-34-14/142-14-34) [Photo Jan. 2007 by Diane Luhrs]



Photo 24 (left)

Bryans RRG19 at Bryans Swamp, along NW bank.

[Photo Aug. 1967 by Lionel Elmore]

We were unable to identify this tree in 2002 but located it in Jan. 2007 (see Photo 25).



Photo 25 (left)
Bryans RRG19 – Elmore's tree in Photo 24.

RRG19 was 30.2 m tall, with a girth of 6.4 m @ 1.3 m above ground on 25 Jan 2007.

The area was burned by a wildfire on 30 Nov. 2006 started 1 km to the NW (Photo 40) from a site where sheep carcasses had been burned 8 weeks earlier.

Rod Bird stands near the tree.

(GPS Aust84,
 37-33-29/142-14-29)

[Photo Jan. 2007 by Diane Luhrs]

Photo 26 (below)
Bryans Swamp and Serra Range

This tree could not be found in 2007.

[Photo Nov. 1961 by Lionel Elmore]



Photo 27 (right)
D Ck RRG1, a giant tree on
Dwyers Ck, Victoria Valley.

RRG1 was 40' (12.19 m) in girth @
 at 4' (1.2 m) above ground when
 measured by Elmore in July 1962.

HFNC members stand on the N side
 of the tree. Dwyers Ck runs behind
 the tree. A smoke haze arose from a
 peat fire in Marneys Swamp behind
 the trees, a few km to the SW.

[Photo July 1962 by Lionel Elmore]



Photo 28 (left)
D Ck RRG1, a giant on Dwyers
Ck, ~400 m downstream from the
bridge near the Mirranatwa-
Dunkeld Rd and junction with
Victoria Point Rd, Vic. Valley.

The tree measured 13.1 m girth @
 at 4' (1.2 m) above ground, and 12.7 m
 at 1.3 m above ground, on 16 Oct
 2006. It was 28.5 m tall.

The tree had grown in diameter by an
 average of 6.6 mm per year since
 1962, consistent with values for two
 big, old trees measured at Bryans
 Swamp.

This tree has a large hollow at the
 base on the western side.

(GPS Aust84, 37-59-50/142-19-22)

[Photo Oct. 2006]



Photo 29 (left)

RRG1 on Dwyers Ck, ~400 m downstream from the bridge near the Mirranatwa-Dunkeld Rd and junction with Victoria Point Rd.

This tree has a large hollow at the base on the western side.

The tree is ~ 7 m to the east of Dwyers Creek. This creek is a steep-sided, eroded gutter at this point. It drains water from the Grampians higher in the Mirranatwa area through to Bryans Swamp.

(GPS Aust84, 37-59-50/142-19-22)

[Photo Oct 2006]

Photo 30 (right)

RRG1 on Dwyers Ck, ~400 m downstream from the bridge near the Mirranatwa-Dunkeld Rd and junction with Victoria Point Rd, Vic. Valley.

Scale is provided by the 15-cm diameter measuring tape case at the base of the tree.

The DBH is 404 cm and one might speculate, using 5.6 mm as an average annual growth rate, that the tree could be around 700 years old.

Roger Edwards, Forest Officer at Cavendish, has found that River Red Gums in a block at Woohlpooer (now about 100 years old) have grown at about 3.5 mm per year over the last 25 years. If that growth rate was the pattern for the trees at a younger age in the Victoria Valley then this tree may be nearer 900 years old.

(GPS Aust84, 37-59-50/142-19-22)

[Photo Oct. 2006]



Photo 31

RRG1 on the north side of the Victoria Point Rd.

The tree was 25.6 m tall and had a girth of 7.9 m @ 1.3 m above ground.

(GPS Aust84, 37-30-08/142-18-53)

[Photo Nov. 2002]

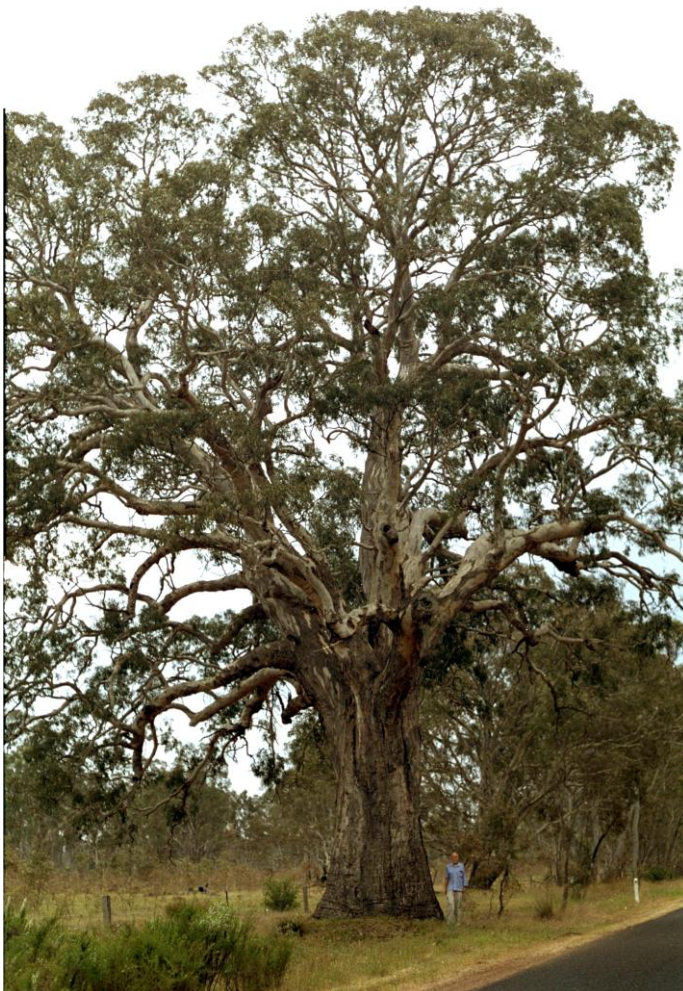


Photo 32

RRG2 on the south side of the Victoria Point Rd.

The tree was 34.4 m tall with a girth of 7.06 m @ 1.3 m above ground. John Cayley stands by the tree.

(GPS Aust84, 37-30-03/142-19-02)

[Photo Nov. 2002]

Photo 33 (below)

RRGs on an arm of Bryans Swamp

The scene is near the Ibis Rookery, near Outlet Creek. The Victoria Range can be glimpsed beyond. Murray Gunn and son Michael are in the foreground.

[Photo by Lionel Elmore in Mar. 1962]



Photo 34 (below)

Bryans Swamp – White Ibis fledglings on the rookery.

[Photo in Nov 1961 by Lionel Elmore]





Photo 35 (left)
Bryans Swamp at
Outlet Creek.

[Photo Mar. 2002]



Photo 36 (left)
River Red Gums
and logs at Outlet
Ck, off Bryans
Swamp.

[Photo Mar. 2002]



Photo 37 (left)
Detail of log at
Outlet Ck.

[Photo 2 Mar. 2002]



Photo 38 (left)
A natural graft on
River Red Gum at
Bryans Swamp.

[Photo Nov. 1961 by
Lionel Elmore]



Photo 39 (left)
Large River Red
Gums near Bryans
Swamp.

[Photo Mar. 1962 by
Murray Gunn]

Photo 40 (left, below)
Fire of 30 Nov. 2006
near Bryans Swamp.

The source and area of
land affected is shown
in the aerial photo.



The fire entered the
reserve on the west
bank and burned ~ 102
mature RRGs, severely
affecting about 30.

Of those, 7 burned
down, about 25 were
badly burned at the base
and a few fell later.

Action by DSE
prevented the affected
RRGs on the reserve
being bulldozed – the
CFA bulldozed fire-
affected trees on the
farmland.

The fire burned a small
area of swamp.

Photo 41 (below)

Aftermath of the fire of 30 Nov. 2006 at Bryans Swamp.

About a dozen large dead and living trees were destroyed in the 300-ha fire of 30 Nov. 2006 – started on farmland to the west where dead sheep were burned 8 weeks earlier. DSE made an effort to preserve these majestic old trees. The usual custom of DSE & CFA has been to bulldoze trees lit by fire.

The issue of needless loss of such biodiversity assets was pressed by HFNC earlier in 2006 and in 2005.

(GPS Aust84, 37-33-47/142-14-27) [Photo 25 Jan. 2007 by Diane Luhrs]



Photo 42 (below)

Fire threatened to burn the swamp – graded breaks were made to contain the fire.

This was at the top of the burned area, below the trees shown in Photos 11 & 24. Further south, fire spotted onto the swamp near Outlet Ck, and breaks were bulldozed around that area on the swamp. These very wide graded lines, prepared after DSE negotiated with CFA to save the trees from the bulldozers, were scheduled to be rehabilitated in autumn 2007. [Photo 25 Jan. 2007 by Diane Luhrs]



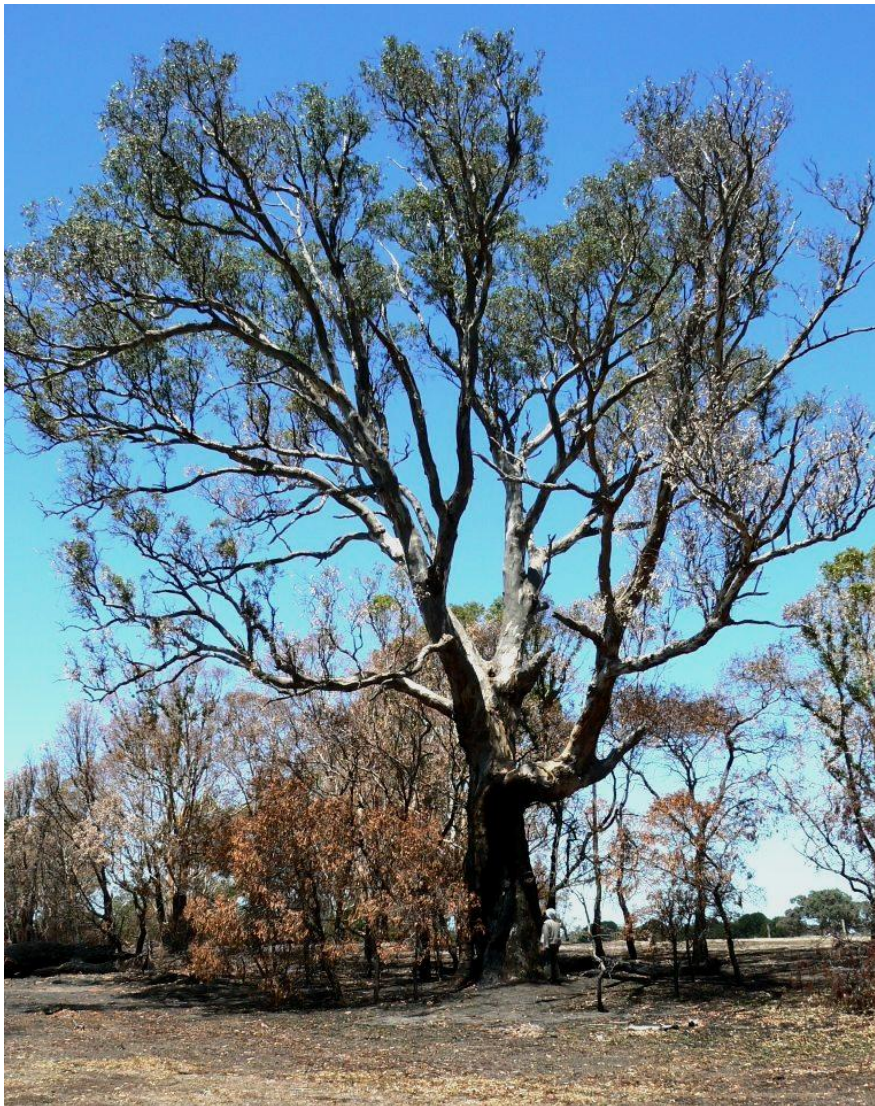


Photo 43 (left)

Bryan RRG8 – scar tree.

This tree is 100 m from the “twins” shown in Photo 3. It had possibly 3 large “shields” removed from the trunk. This tree was badly burned at the base in the fire of 30 Nov. 2006, hollowing out the butt. It may collapse in the next severe storm. Blackwoods nearby were killed by the fire.

(GPS Aust84,
37-33-56/142-14-24)

[Photo 25 Jan. 2007 by Diane Luhrs].

Photo 44 (below)

Survivor of the fire.

Apart from scorched lower canopy, this magnificent, mature tree survived relatively unscathed.

The tree stands SW of those shown in Photo 32 (it may be the tree shown in Photo 10).

[Photo 25 Jan. 2007 by Diane Luhrs]



Photo 45 (right)
Bilston Tree Brimboal RRG1
Glenmia Rd.

This tree was 36 m tall, with a girth of 7.7 m @ 1.3 m above ground, in May 1998. The first great branch is 11 m above ground.

The tree was said to be 7.26 m in girth and 44 m tall in 1987 (Lahey 1987). The height estimated then must have been in error; there is no evidence of a lost top.

The signboard at the site notes that the tree was 134 ft high (41 m) and contained 9100 SF of timber. That data may relate to estimates made in 1971. The ‘super feet’ estimate translates to 21.5 cubic metres of mill timber from the bole.

A core test showed in 1987 that the trunk was solid, unlike others that begin to rot out after about 400 years, possibly half the age of this tree.

The tag “World Largest Red Gum” is a misnomer. Shirley Neylon (once from ‘Glenmia’) and Eddie Donehue (Wando Bridge) assert that the tree was preserved as the “largest millable tree”. Forester Peter Musgrove was reported as saying in 1987 “*you might find a taller river red or one with a bigger girth, but there is none with such bulk as this*”.

In 1962, Dewar Goode (Koonongwootong) with Lance Phyear (‘Pyramid Sawmills’, Casterton), landholder T. Bilston and Forests Commission combined to conserve the tree in a 1-acre Forest Reserve. The land around now belongs to Eric Pettingil.

(GPS Aust84, 37-22-44/141-19-28)

[Photo Feb. 1998]



Photo 46 (right)
Brimboal SF RRG2

Girth 9.65 m @ 1.3 m above ground & height 26.4 m on 25 Jan. 2003.

This grand tree, a km south of the Bilston Tree in the Brimboal SF, probably escaped the sleeper cutters in the 1960s because of its poor form.

(GPS Aust84, 37-23-06/141-19-31)

[Photo Jan. 2008]



Photo 47 (right)
Grampians, Forest Lodge River Red Gum.

A mighty tree 51 m tall and with a girth of 7.07 m @ 1.3 m above ground when measured in 1998.

The first 17 m of trunk is unbranched and the bole appeared to be solid in 1998. That appearance proved to be incorrect when a fire in Jan. 2006 gained access to the butt and hollowed out the decayed wood there.

The tree is seen here almost a year after it was burned by a wildfire that, with back-burning added, burned 100,000 ha of the Grampians National Park and another 50,000 ha of farmland. In contrast to many RRGs on farmland, large trees in the forest are invariably damaged at the base by fire. More care is needed to prevent this in prescribed burns or to extinguish fires in the mop-up operations after a wildfire.

Because of its size and the presence of Black Wattles and other shrubs and trees in the woodland it was not possible in 1998 to photograph the entire tree unobstructed.

[Photo Jan. 2007]



Photo 48(left)
Grampians, Forest Lodge River Red Gum.

Photo showing the bole of this tree – Rod Bird and Diane Luhrs provide the scale.

Regrettably, the fire of Jan. 2006 burned out a cavity of about 1.7 m high and wide in the base, starting from the small scar indicated in the photo (base, right). Four branches were also burned off high in the tree. The life of this magnificent giant has perhaps been much reduced and some day it will topple in a storm.

By May 2008 the tree had regained some of its former healthy canopy.

(GPS Aust84, 37-10-19.1/142-20-51.2)

[Photo May 1998]



Photo 49 (above)

RRG2 Grampians/Gariwerd NP (Forest Lodge).

Girth 8.3 m @ 1.3 m & height 35.0 m in May 1998.

This tree was badly burned in the fire of Jan. 2006, with half of the bole lost and only sparse foliage now.

(GPS Aust84, 37-10-21/142-20-55) [Photo Jan. 2008]



Photo50 (above)

Grampians/Gariwerd RRG3 Glenelg R Rd.

Girth 7.25 m & height 36.6 m @ 1.3 m on 1 May 2008.

(GPS Aust84, 37-13-39/142-24-14) [Photo May 2008]



Photo 51 (above)

Grampians/Gariwerd RRG4 Glenelg R Rd.

Girth 5.84 m & height 32.0 m on 1 May 2008.

(GPS Aust84, 37-13-22/142-24-10)

[Photo May 2008]



Photo 52 (above)

Tree at 'Dulcian', Mooralla. Girth 7.48 m @ 1.3 m and

height 27.8 m. Luckily, this giant was too large for the

sleeper cutters in 1936, or Ian Luhrs autologger in 1960.

[Photo Mar. 2001]



Photo 53 (above)

King Tree at Wirabara State Forest, SA.

A sign gave the height as 36.5 m, DBH as 3.0 m and age ~ 400 years.

[Photo Jan. 2001]

Photo 55 (right)

Orroroo Red Gum, Pekina Ck, SA.

This tree was 19 m tall with a girth of 9.9 m @ 1.3 m above ground, 22 Sept. 2008.

There is dieback of terminal branches but the tree was otherwise healthy.

(GPS Aust84, 32-43-46/138-36-25)

[Photo Feb. 1998]

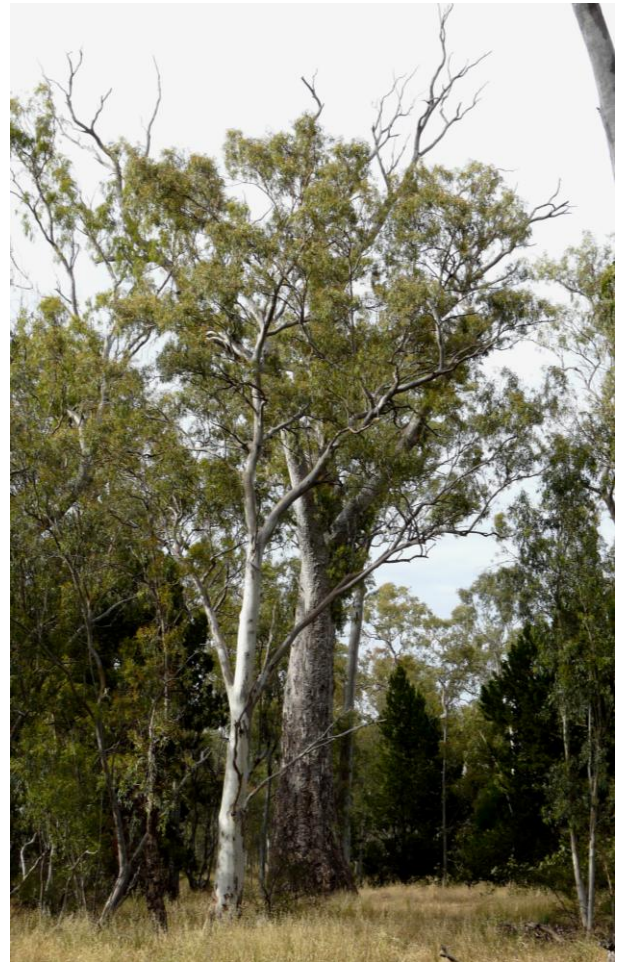


Photo 54 (above)

King Tree at Wirabara Forest, SA.

The girth was 9.55 m (DBH 3.04 m) & height 36.9 m when measured on 7 Dec 2009. The top branches were dead; the dry years had taken their toll.

[Photo Dec. 2009]



Photo 56 (right)
RRG1, 'Big Red', 100 m west of
Mullinger Swamp, SA.

Girth 12.12 m at 1.3 m (DBH 3.86 m)
& height 42 m.

Our largest RRG and possibly one of
the oldest.

(GPS Aust84, 36-50-60/140-58-04)
[Photo Jan. 2008]



Photo 57 (below, right)
RRG2, the 2nd largest tree at
Mullingers Swamp.

Girth 9.7 m at 1.3 m (DBH 3.1 m) &
height 42.2 m.

This tree appears to be solid at the
base.

(GPS Aust84, 36-50-57/140-58-05)
[Photo Jan. 2009]

Photo 58 (below)
RRG5, ~500 m west of Mullinger Swamp.

Girth 7.62 m (at 1.3 m) & height 30.5 m.
(GPS Aust84, 36-51-05/140-57-43)
[Photo Jan. 2008]



Photo 59 (below)

RRG3 on fence line, west bank of Mullinger Swamp.
Girth 9.4 m (at 1.3 m) & height 38.3 m. The tree has a dead patch on the north side of the bole.
(GPS Aust84, 36-51-03/140-58-05) [Photo Jan. 2008]

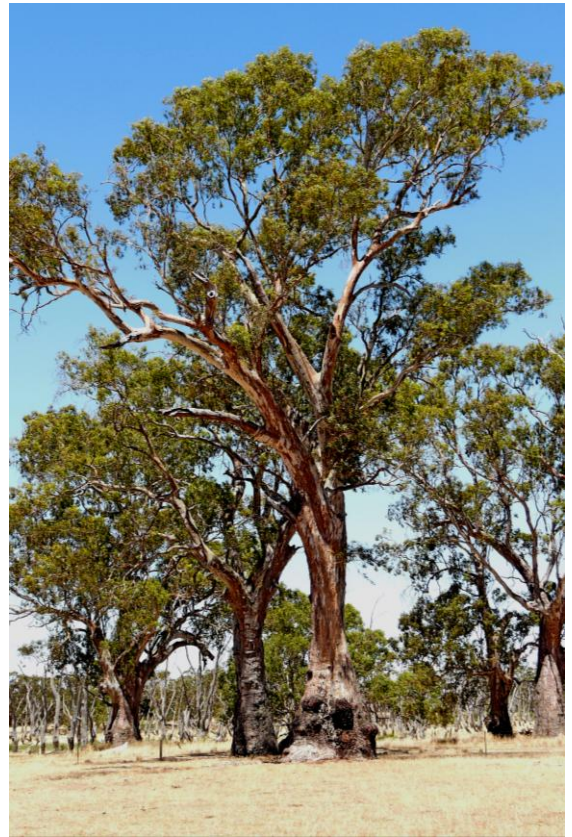


Photo 60 (above)

RRG4 with huge basal trunk 20 m west of Mullinger Swamp boundary.
Girth 11.5 m (at 1.3 m) & height 32.9 m.
(GPS Aust84, 36-51-06/140-58-02)
[Photo Jan. 2008]

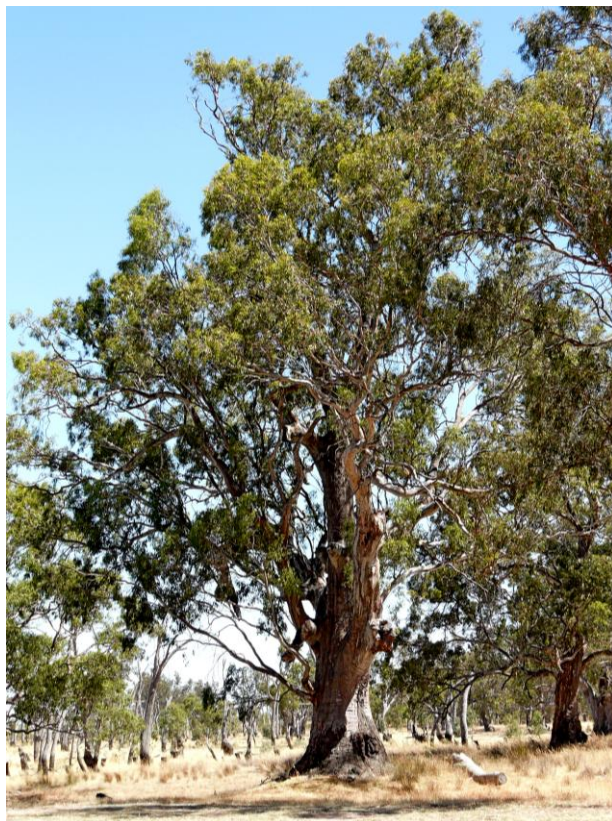


Photo 61 (above)

RRG10 by car park, west bank Mullinger Swamp.
Girth 8.2 m (at 1.3 m) & height 28.7 m.
(GPS Aust84, 36-51-05/140-58-05) [Photo Jan. 2008]

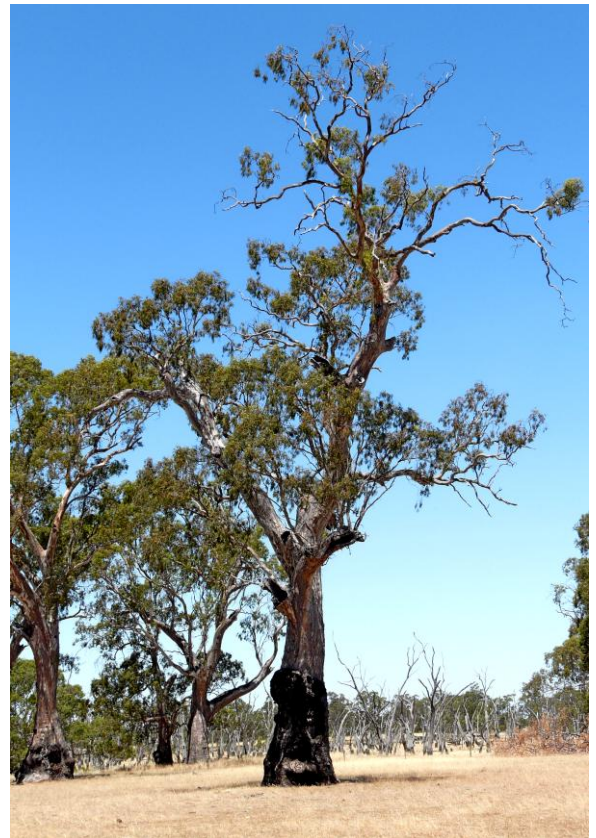


Photo 62 (above)

RRG7 ~100 m west of Mullinger Swamp.
Girth 8.7 m (at 1.3 m) & height 32.9 m.
(GPS Aust84, 36-51-05/140-58-01)
[Photo Jan. 2008]



Photo 63 (above)
RRG6 ~400 m west of Mullinger Swamp.
 Girth 8.64 m (at 1.3 m) & height 32.9 m.
 (GPS Aust 84, 36-51-02/141-57-46)
 [Photo Jan. 2008]

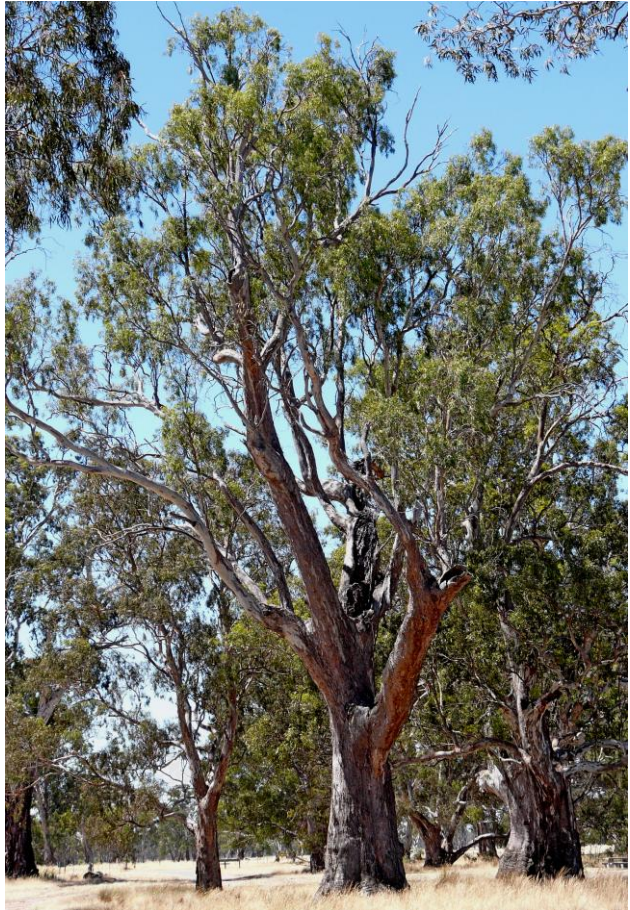


Photo 64 (above)
RRG9 on the west bank of Mullinger Swamp.
 Girth 7.2 m (at 1.3 m) & height 29.9 m.
 (GPS Aust84, 36-51-06/140-58-04) [Photo Jan. 2008]



Photo 65
RRG8 on the W bank of Mullinger Swamp. The bed of the 500-m-wide swamp stretches east. The lack of water in the swamp and standing dead trees are evidence of many dry years in recent times.
 Girth 8.6 m (at 1.3 m) & height 29.9 m. (GPS Aust84, 36-51-10/140-58-00). [Photo Jan. 2008]



Photo 66 (left)
Nangeela RRG1 at 'Lawford Park' (M. Moran).

Girth 9.2 m (at 1.3 m) & height 43.6 m on 7 May 2008. The bole appears to be solid.

This healthy tree is larger and more impressive than Bilston's Tree.

Basil, Pat & son Michael have cleared away large fallen branches to reduce any damage from wildfire. Michael & Pat provide the scale in this picture.

(GPS Aust84, 37-27-59/141-17-06)

[Photo on 7 May 2008]

Photo 67 (below)
Edenhope RRG1, N of Apsley Rd

Girth 4.57 m (at 1.3 m) & height 20.5 m on 12 Jan. 2008.

This magnificent tree with a canopy spread of 40 m provides a striking contrast to the Nangeela RRG.

(GPS Aust84, 36-59-08/141-14-18)

[Photo Jan. 2008]





Photo 68 (left)
Mirranatwa RRG1 on 'Bowacka'
(Andrew Beveridge).

Girth 9.87 m (at 1.3 m) & height 36.8 m
 on 10 May 2008.

This impressive giant has a massive bole
 with a great branch at ~5 m and fork at
 ~10 m.

The tree has a small defect (dead wood)
 near the base. Several huge branches
 have been dropped over the years.

(GPS Aust84, 37-23-59/142-22-57)

[Photo May 2008]

Photo 69
Mirranatwa RRG2 on 'Lambing Flat'
(Andrew Beveridge).

Girth 9.05 m (at 1.3 m) & height 31.5 m
 on 6 May 2008.

This magnificent RRG has a massive bole
 and a dense canopy spread over ~ 34 m.
 The tree is forked at 3.5 m.

The tree has no apparent defect in the
 bole and no sign of large branch drop
 over the years.

(GPS Aust84, 37-25-45/142-20-47)

[Photo May 2008]





Photo 70 (left)

Mirranatwa RRG3 on 'Bowacka' (Andrew Beveridge).

Girth 8.72 m (at 1.3 m) & height 27 m, 6 May 2008.

This picturesque RRG has dropped many branches. The bole appears to be solid and the first large branch is at ~8 m.

(GPS Aust84, 37-23-55/142-23-13)

[Photo May 2008]



Photo 71 (above)

Mirranatwa RRG4 on 'Beverlea' (Andrew Beveridge).

Girth 7.62 m (at 1.3 m) & height 36 m on 6 May 2008.

The bole is sound and the first large branch is at ~8 m.

(GPS Aust84, 37-24-30/142-25-18)

[Photo May 2008]



Photo 72 (left)

Mirranatwa RRG5 near Vowels Creek, east of 'Lambing Flat'.

Girth 4.15 m (at 1.3 m) & height 36.3 m on 6 May 2008.

The bole of this superb, erect, 'middle-aged' RRG is sound and the first large branch is at ~17 m – a tree prized by any sawmill operator.

(GPS Aust84, 37-24-58/142-20-38)

[Photo May 2008]



Photo 73 (above)
Casterton 'Glenbrae' RRG1 with Ross Clayton. Girth 8.2 m (at 1.3 m) and height 29.7 m (22 m to the green top).
 (GPS Aust84, 37-38-15/141-19-42)
 [Photo Feb. 2011]



Photo 74 (above, right)
Casterton 'Glenbrae' RRG4 with Ross Clayton. Girth about 12 m (at 1.3 m), height 25 m. The bole is hollowed out.
 (GPS Aust84, 37-38-15/141-20-26)
 [Photo Feb. 2011]



Photo 75 (below)
Casterton 'Glenbrae' RRG2 with Ross Clayton. Girth 6.2 m (at 1.3 m), height 23.6 m & span 42 m.
 (GPS Aust84, 37-38-12/141-19-53)
 [Photo Feb. 2011]



Photo 76 (above)
Casterton 'Glenbrae' RRG3 with Ross Clayton. Girth 7.12 m (at 1.3 m), height 36.1 m & clear bole to 12 m.
 (GPS Aust84, 37-38-12/141-20-10)
 [Photo Feb. 2011]



Photo 77 (left)
Comaum Forest Reserve, SA (a remnant tree in a pine plantation, east of Penola-Edenhope Rd).

Girth 6.75 m (at 1.3 m) & height 32.4 m.

(GPS Aust84, 37-11-13/140-54-06)

[Photo June 2008]

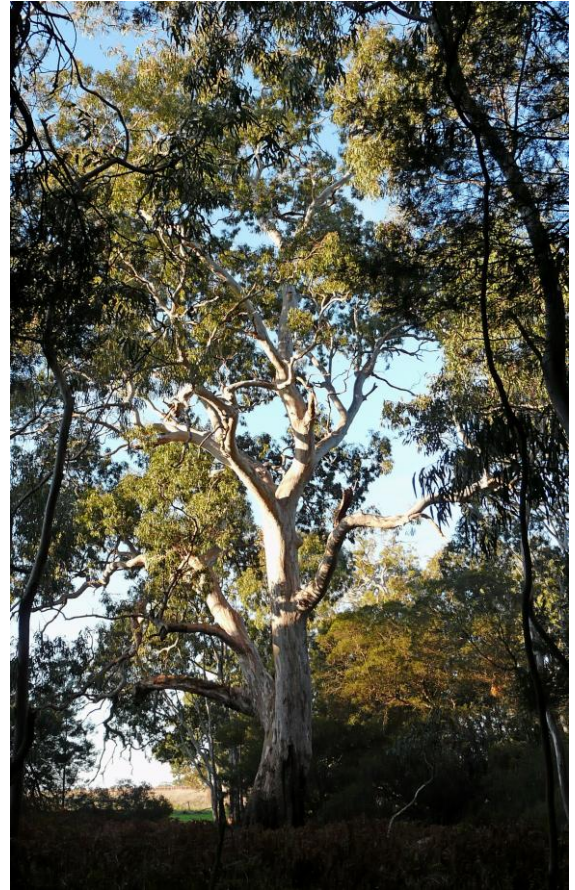


Photo 78 (above)
Comaum Forest Reserve, SA (remnant RRG block east from Nambour Rd).

Girth 5.75 m (at 1.3 m) & height 26.4 m.

(GPS Aust84, 37-12-51/140-56-25)

[Photo June 2008]



Photo 79 (left)
Comaum Forest Reserve, SA (small block adjacent to Woods & Forests compound near cnr Poolaijelo Rd/Penola Rd).

Girth 6.45 m (at 1.3 m) & height 26.4 m.

(GPS Aust84, 37-11-60/140-53-53)

[Photo June 2008]

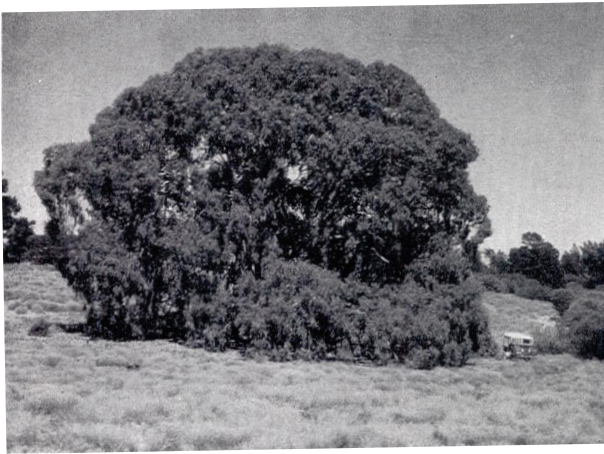


Photo 80 (above)

Old Be-al in Wyperfeld National Park in 1964.

Scaling from the LandRover in the photo, an estimate of height and width is 24 m x 35 m. Sadly, this mighty tree was damaged by fire in 1982. The following dry periods and lack of flows from Outlet Ck since 1975 has also affected many of the trees.

[Photo by Jean Blackburn]



Photo 82 (above)

Be-al Look-alike RRG, Wyperfeld NP.

Girth 5.25 m (taken below the huge branches, at ~ 1.3 m from the original surface), height 18.6 m & span 41 m. (GPS Aust84, 35-33-52/142-03-27)

[Photo Feb. 2011]



Photo 81 (above)

RRGs at Lake Branbruck, Wyperfeld NP

A foot of water remained after filling in 1975 (no water has reached the lake from Outlet Ck since 1975).

[Photo Sept. 1977]

Photo 83 (below)

A former giant RRG at the Ippinichie Ck campground, Wirabara Forest Park in SA.

The tree may have been cut down in the 1940s; the half-rim of stump has a diameter (at about 1 m) of 4 m. (GPS Aust84, 33-04-04/138-13-46)

[Photo Dec. 2009]



Photo 84 (above)

The Cazneaux Tree, Flinders Ranges, SA.

The tree has a girth of ~5 m and height of ~18 m. This tree is a relative giant in this arid environment and is probably sustained by access to groundwater.

[Photo Sept. 2001]



Photo 85 (right)
An interesting River
Red Gum on old Mt
Sturgeon Station
(Dunkeld Pastoral
Company).

This great spreading tree
has rooted at various
points from branches
resting on the ground.

This RRG is located on
the sand-sheeted basalt
plain ~3 km NW of
Dunkeld, ~150 m N
from the Cavendish Rd.

[Photo Oct. 1999]



Photo 86 (right)
Another view of the
Mt Sturgeon Station
River Red Gum.

[Photo Oct. 1999]



Photo 87 (right)
View of the Mt Sturgeon
Station tree from the
other side.

There are at least 2
rooting points visible in
this photograph.

[Photo Oct. 1999]



Photo 88 (right)

A fantastic “cutting-grown” River Red Gum on the property of Mick Perns, off Gashs Lane, Gringegalgona.

After falling the tree for sleepers in a wet winter in the 1950s, the head of the tree developed roots and began a new life.

The original stump can be seen on the edge of the water in the creek. The space between the stump and the prostrate trunk represents two sleeper lengths from the cut butt log.



[Photo Jan. 2005]

Photo 89 (right)

RRG on the property of Mick Perns, off Gashs Lane, Gringegalgona.

Another view of the tree, showing the full length of the original head and the new branches.



[Photo Jan. 2005]

Photo 90 (right)

RRG on the property of Mick Perns, off Gashs Lane, Gringegalgona.

A closer view of the River Red Gum in the above photographs, showing the root development from the cut trunk that embedded itself in the earth when the tree was cut down.



[Photo Jan. 2005]



Photo 91 (above)
Layered River Red Gum near the Bilston Tree at Glenmia Rd, Brimboal.

This tree appears to have begun life a long time ago from the stem on the left, now dead. The tree has leaned over and touched the ground, right. It then grew new roots there, reversed the sap flow and sent up a large branch. The story so far can be seen in the picture above.

[Photo Jan. 2007]



Photo 92 (left)
River Red Gum at Brimboal.

The tree also grew another very vigorous trunk and 2 major branches to the right. That can be seen in the picture at left. It is a fascinating spectacle and a source of much wonder.

[Photo Jan. 2007]



Photo 93 (left)
South Australia.

Girth 15.5 m (at 1 m).
[Photo DSCN 1685 by Kym Knight, SASA]

Photo 94 (below)
Mt Remarkable, SA.

Girth 14.45 m (at 1 m).
[Photo NKN 8344 by Kym Knight, SASA]



Photo 95 (below)
Charleston Tree on
Charleston-Torrens Rd,
SA.

Girth 12.3 m (at 1 m) &
height 41.3 m.

[Photo DSCN 0686 in Oct
2007 by Kym Knight,
SASA]



Photo 96 (below)
Herbigs Tree, SA.

Girth 15.1 m (at 1.4 m).

[Photo 72 NKN 1331 by Kym Knight, SASA]





Photo 97 (above)
Lake Mournpoul, Hattah NP sunset [Photo Sept. 1976]



Photo 99 (above)
Lake Mournpoul, fringe of young trees in the now water-filled lake [Photo Dec. 2010].



Photo 98 (above)
Lake Mournpoul – dry lake fringed with saplings, stressed RRGs on sandy banks [Photo Oct. 2008].

Photo 100 (right)
Shield tree at Lake Hattah [Photo Oct. 2008].

Photo 101 (below, left)
Shield tree, Kinchega NP, NSW [Photo Aug. 1996]

Photo 102 (below, middle)
Shield tree, Glenelg River, Youpayang Block, Dergholm SP (GPS Aust84, 37-20-22/141-13-44) [Photo Apr. 2010].

Photo 103 (below, right)
Shield tree, Bradys Swamp, Nth bank, Grampians NP (GPS Aust84, 37-35-11/142-27-00) [Photo Apr. 2010]





Photo 104(above)
Shield tree at Burke's Pool, Coopers Creek, SA.

[Photo June 2006]



Photo 106 (above)
Old, dead canoe tree at Gunbower NP, Murray River.

[Photo Sept. 2005]

Photo 107 (right)
Canoe tree on the Fleurieu Peninsula, SA.
 Unhappily, when seen again in Jan. 2009, the tree had recently been ring-barked by environmental vandals or racists.

[Photo Feb. 1994].



Photo 105 (above)
Canoe tree at Gunbower NP, Murray River.
 This dead tree was removed from its original position along the river and set up near the Interpretive Centre.

[Photo Sept. 2005]





Photo 108 (above)

Picturesque River Red Gums on the Wannon River, at The Rapids Flora Reserve near Bulart.
In times long past, bark has been cut from the large tree to construct a small canoe.

[Photo Sept. 2006]



Photo 109 (above)

Shield tree in a paddock at Bochara, 10 km west of Hamilton, on Claytons Rd.

[Photo Jan. 2011]



Photo 110 (above)

The Guildford Tree in Ballaraat St, Guildford, Victoria.

Girth 11.8 m (at 1.3 m) & height 32.5 m on 21 Apr 2011. Note – the large burl has exaggerated the girth reading (the girth above the burl, at 1.8 m, was 8.5 m).

(GPS Aust84, 37-09-01/144-09-43)

[Photo in Apr. 2011]

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