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*trading as*
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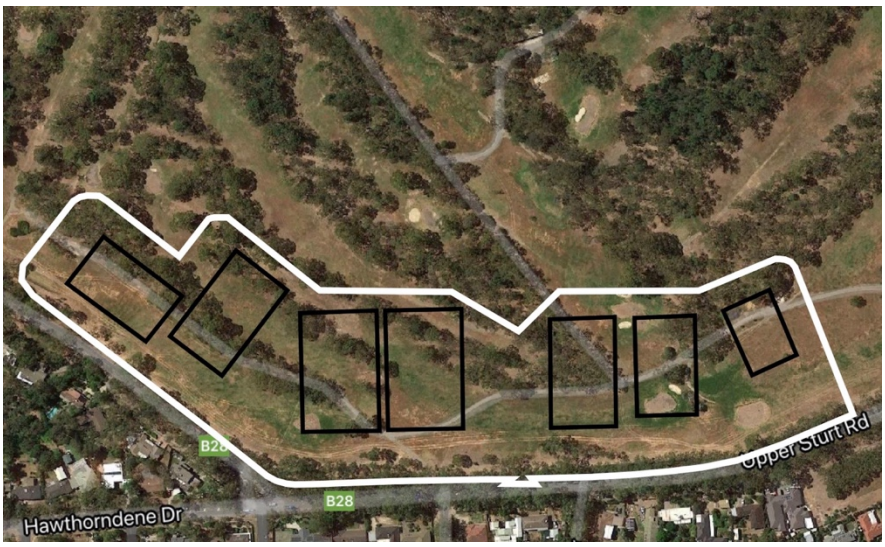
Arboriculture - Botany - Ecology - Eucalypt Research

# Arboricultural Report: Belair National Park, Belair, SA

## Arboricultural survey
## in relation to a proposed development




Arboricultural report requested by Craig Wilkins, chief executive of *Conservation SA*, on the 12th of April 2021.

Arboricultural report prepared by Dean Nicolle following site inspections and tree assessments on the 16th, 20th and 23rd of April 2021.

**Report dated the 28th of April 2021.**

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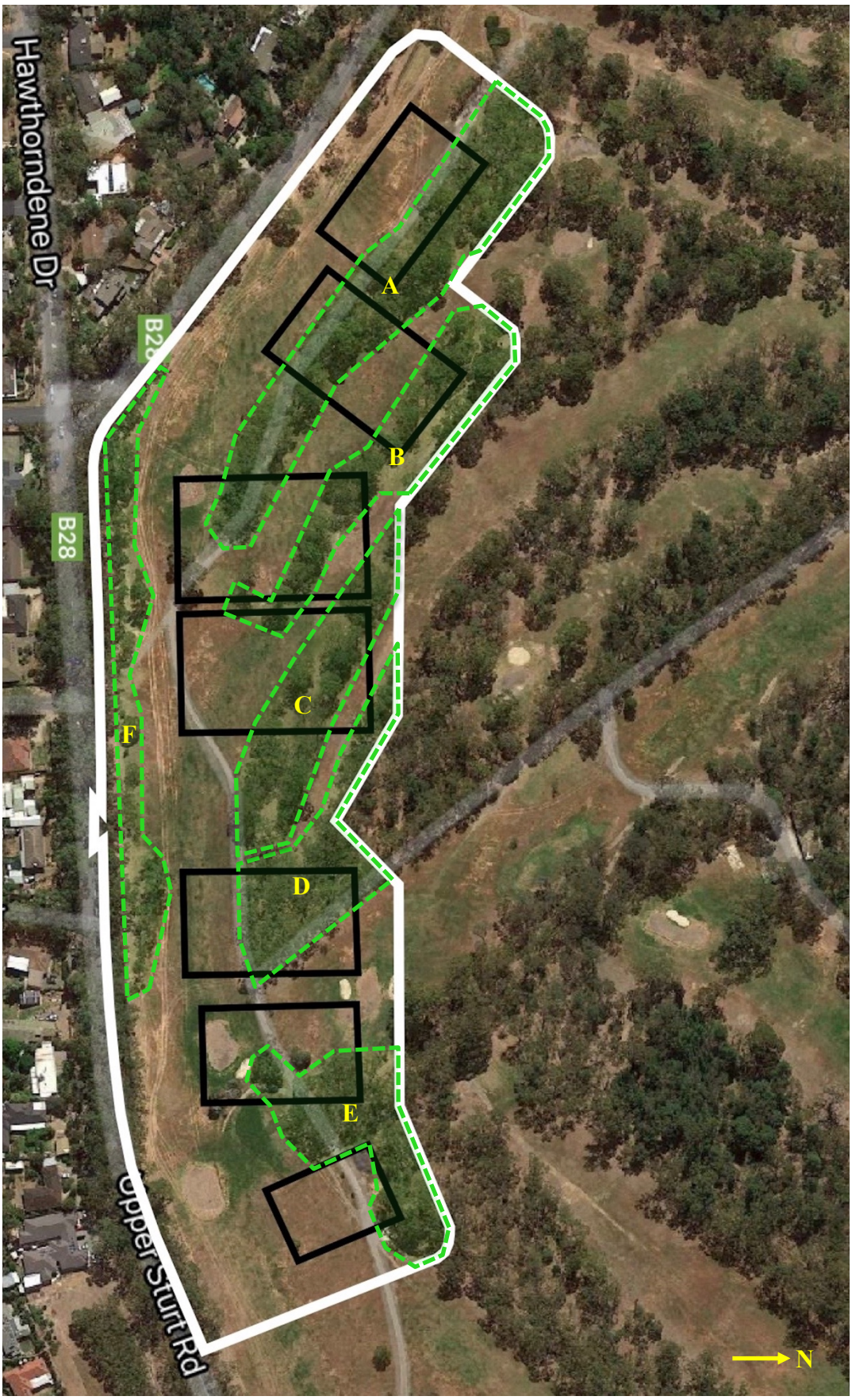


***Figure 1. Native vegetation areas.*** *The subject site (white polygon) within Belair National Park. Proposed soccer pitches are indicated by black rectangles. The superimposed yellow areas indicate the six areas of native vegetation.*

## 1.0 BACKGROUND

The proposal for the development of a number of soccer pitches and associated infrastructures (car parking etc) in the south-western section of Belair National Park in Belair, South Australia, has the potential to impact on native vegetation, including many remnant trees, in that section of the Park.

I have been commissioned by Craig Wilkins of *Conservation SA* to provide expert advice regarding the species, origin, age, and biodiversity value of trees within an area proposed for the soccer pitches (the 'survey area').

The survey area is the area identified as the 'optimal proposed soccer club footprint' in the draft former golf course masterplan (see Figure 1), as provided to be by Craig Wilkins.

This report provides my findings with respect to the species, origin, age, and biodiversity value of trees within the survey area.

## 2.0 METHODOLOGY

The site was inspected to identify areas of native tree vegetation (see Figure 1). Individual trees within each area were then assessed with regard to their:

Species
Only locally indigenous tree species were assessed.

Origin
Only remnant and semi-remnant trees were assessed. Planted trees were not assessed.

*Remnant* trees are defined as trees that pre-date European settlement and development in the locality.

*Semi-remnant* trees are defined as trees that are locally indigenous and are self-seeded, but do not pre-date European settlement and development in the locality.

Estimated age
The age of each tree was estimated, based on the known and inferred growth rates for the species, considering the local environmental conditions, the presence and characteristics of any trunk and branch hollowing in the tree (and considering the wood durability for the species), and the regenerative strategy of the species.

*Eucalyptus microcarpa* (grey box) is a particularly difficult to accurately age, due to the species often having a multi-trunked, 'mallee' habit. Individuals with a mallee habit are typically much older than the age of the older extant trunk. Mallee individuals may live for many hundreds or thousands of years.

Biodiversity value

The biodiversity value of a tree is assessed as *very high* if it is a locally indigenous species, is remnant or semi-remnant in origin, is reproductively mature, and has habitable faunal hollows.

The biodiversity value of a tree is assessed as *high* if it is a locally indigenous species, is remnant or semi-remnant in origin, is reproductively mature, but lacks habitable faunal hollows.

Trees of moderate, low, and negligible biodiversity value were not included in this assessment.

## 3.0 FINDINGS

Six primary areas of native vegetation have been identified in the survey area (see Figure 1). I identified a total of 336 remnant or semi-remnant trees in the six areas of native vegetation within the survey area. A summary of the species, origin, age, and biodiversity value of trees is provided below and in Table 1, and for each area is provided in Sections 4 to 9 of this report.

### 3.1 Species

- 231 trees of *Eucalyptus microcarpa* (grey box). This species was assessed as being ***Rare*** in the Adelaide and Mount Lofty Ranges NRM region as part of the *Regional Species Conservation Assessment Project* (Gillam & Urban 2014).

- 97 trees of *Eucalyptus leucoxylon* subsp. *leucoxylon* (South Australian blue gum). This subspecies was assessed as being ***Near Threatened*** in the Adelaide and Mount Lofty Ranges NRM region as part of the *Regional Species Conservation Assessment Project* (Gillam & Urban 2014).

- 8 trees of *Eucalyptus camaldulensis* subsp. *camaldulensis* (river red gum). This subspecies was assessed as being ***Near Threatened*** in the Adelaide and Mount Lofty Ranges NRM region as part of the *Regional Species Conservation Assessment Project* (Gillam & Urban 2014).

### 3.2 Origin

- 125 remnant trees
- 151 remnant or semi-remnant trees
- 60 semi-remnant trees

### 3.3 Estimated age

- 16 trees that are >200 years old
- 109 trees that are 100 to >200 years old
- 151 trees that are >100 years old (including many mallee-like grey box trees which are very difficult to provide an upper age estimate for)
- 60 trees that are <100 years old

### 3.4 Biodiversity value

- 125 trees with *very high* biodiversity value. These trees are of locally indigenous species, are remnant or semi-remnant in origin, are reproductively mature, and have increased importance due to also having habitable faunal hollows.

- 211 trees with *high* biodiversity value. These trees are of locally indigenous species, are remnant or semi-remnant in origin, are reproductively mature, but lack any habitable faunal hollows.

### 3.5 Other indigenous species

Although this assessment was focused on the indigenous eucalypt trees on the site, other indigenous vegetation is also present on the site. I have noted some of the other notable indigenous species within each of the six areas of remnant vegetation identified on the site (see Tables 2 to 7). Other non-eucalypt species noted are:

I highly recommend that a species-level vegetation survey be undertaken on the whole of the site prior to any development, to identify locally indigenous understory and groundstory species. Such a survey should be undertaken in early Spring to allow annual and herbaceous perennial species (orchids, sundews, etc) to be identified.

*Table 1. Summary of species, origin, age classes and biodiversity value for locally indigenous trees in Areas A to F.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | ***Eucalyptus camaldulensis*** **subsp. *camaldulensis*** **(river red gum)** | **Total (all trees for age class)** |
|---|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 12 | 4 | 0 | **16** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 70 | 39 | 0 | **109** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 112 | 39 | 0 | **151** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 37 | 15 | 8 | **60** |
| **Total (all trees for species)** | **231** | **97** | **8** | **336** |

## 4.0 AREA A

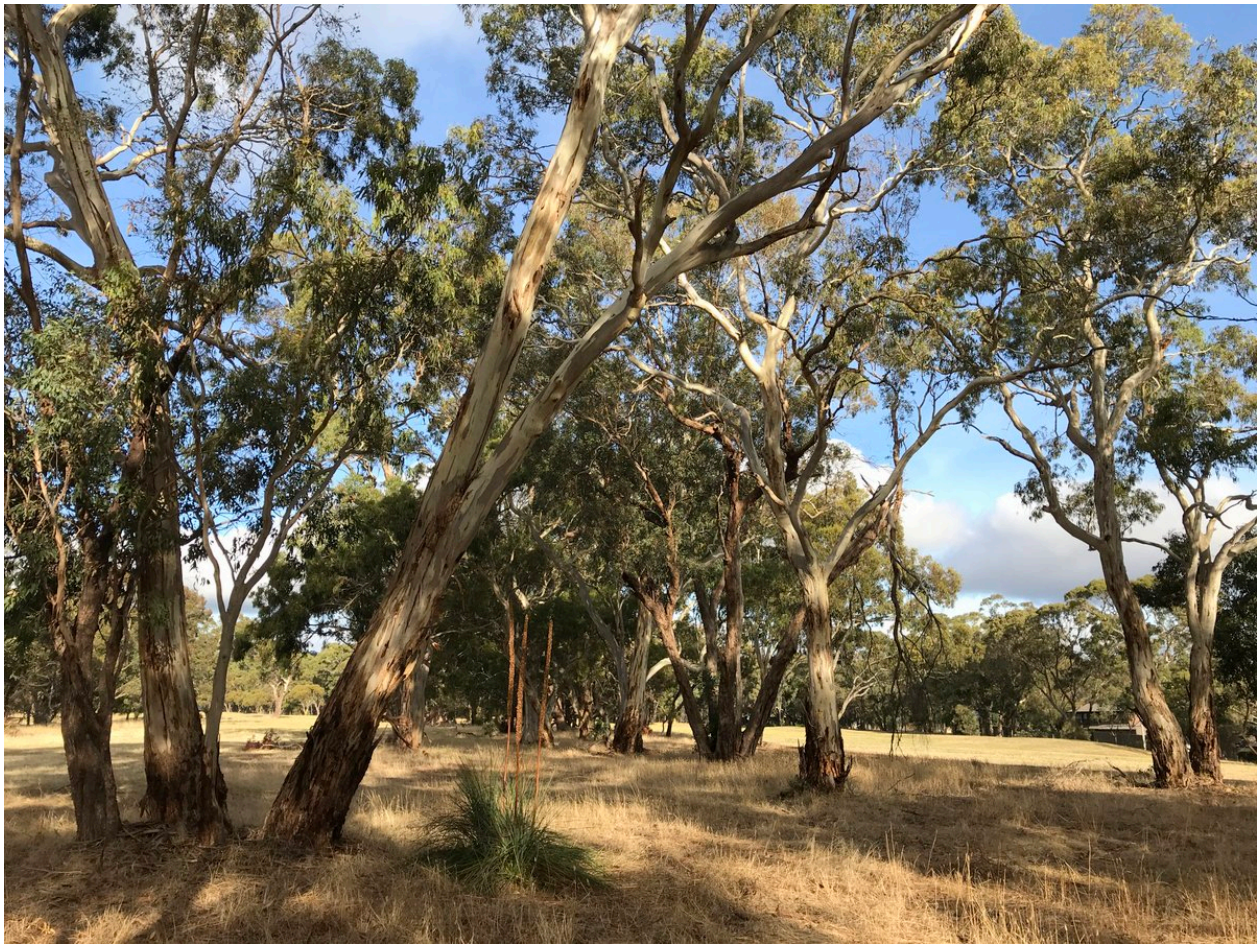

*Figure 2. View of part of Area A, photographed on the 23rd April 2021.*

*Table 2. Area A indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | **Total (all trees for age class)** |
|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 2 | 0 | **2** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 23 | 18 | **41** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 31 | 4 | **35** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | **0** |
| **Total (all trees for species)** | **56** | **22** | **78** |
| Other notable indigenous species | *Xanthorrhoea semiplana* subsp. *semiplana* (tufted grass tree), native grasses including *Lomandra* sp. (mat rush) and *Themeda triandra* (kangaroo grass) | | |

## 5.0 AREA B

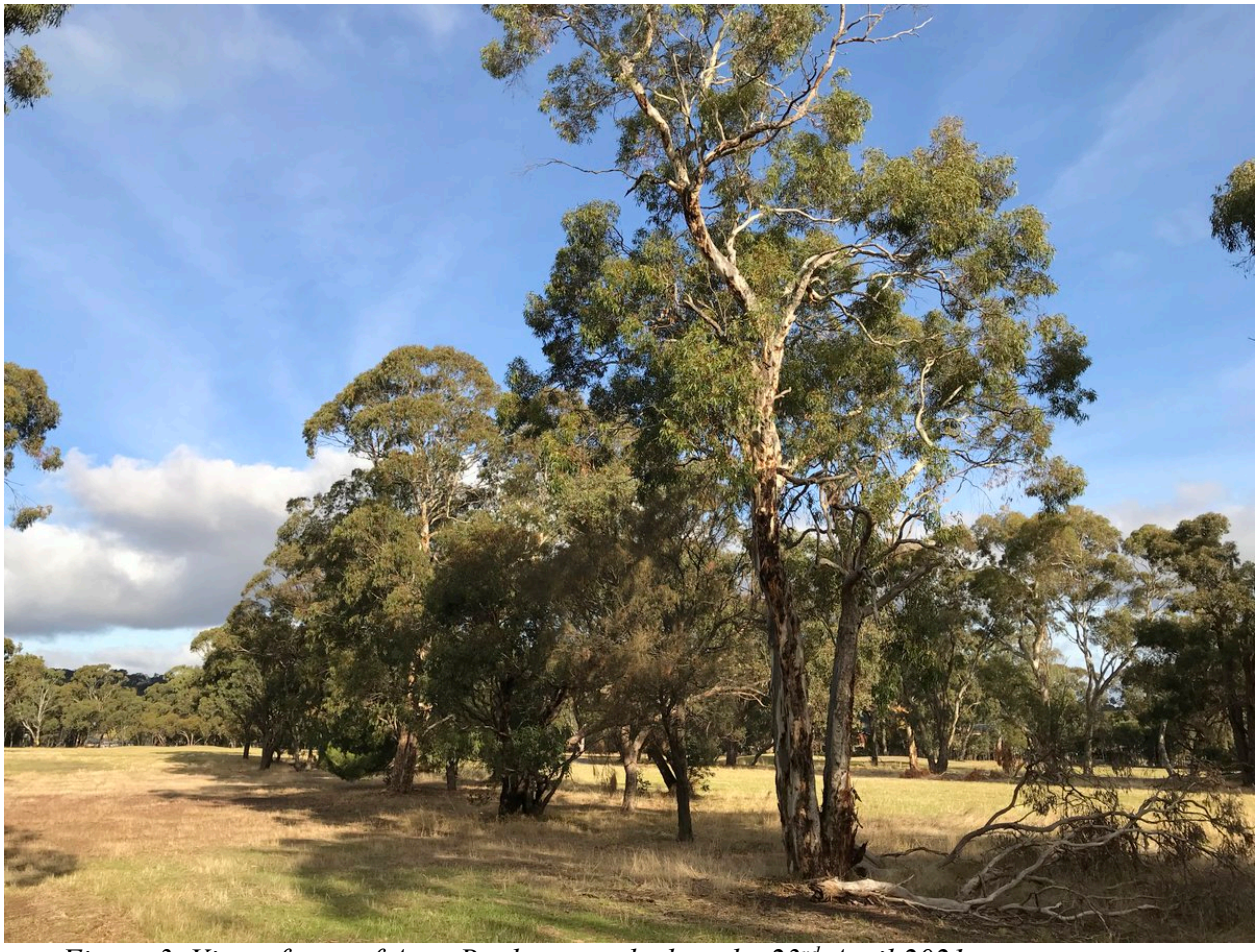

*Figure 3. View of part of Area B, photographed on the 23rd April 2021.*

*Table 3. Area B indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | **Total (all trees for age class)** |
|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 1 | 1 | **2** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 10 | 9 | **19** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 6 | 2 | **8** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | **0** |
| **Total (all trees for species)** | **17** | **12** | **29** |
| Other notable indigenous species | *Allocasuarina verticillata* (drooping she-oak), *Xanthorrhoea semiplana* subsp. *semiplana* (tufted grass tree) | | |

## 6.0 AREA C

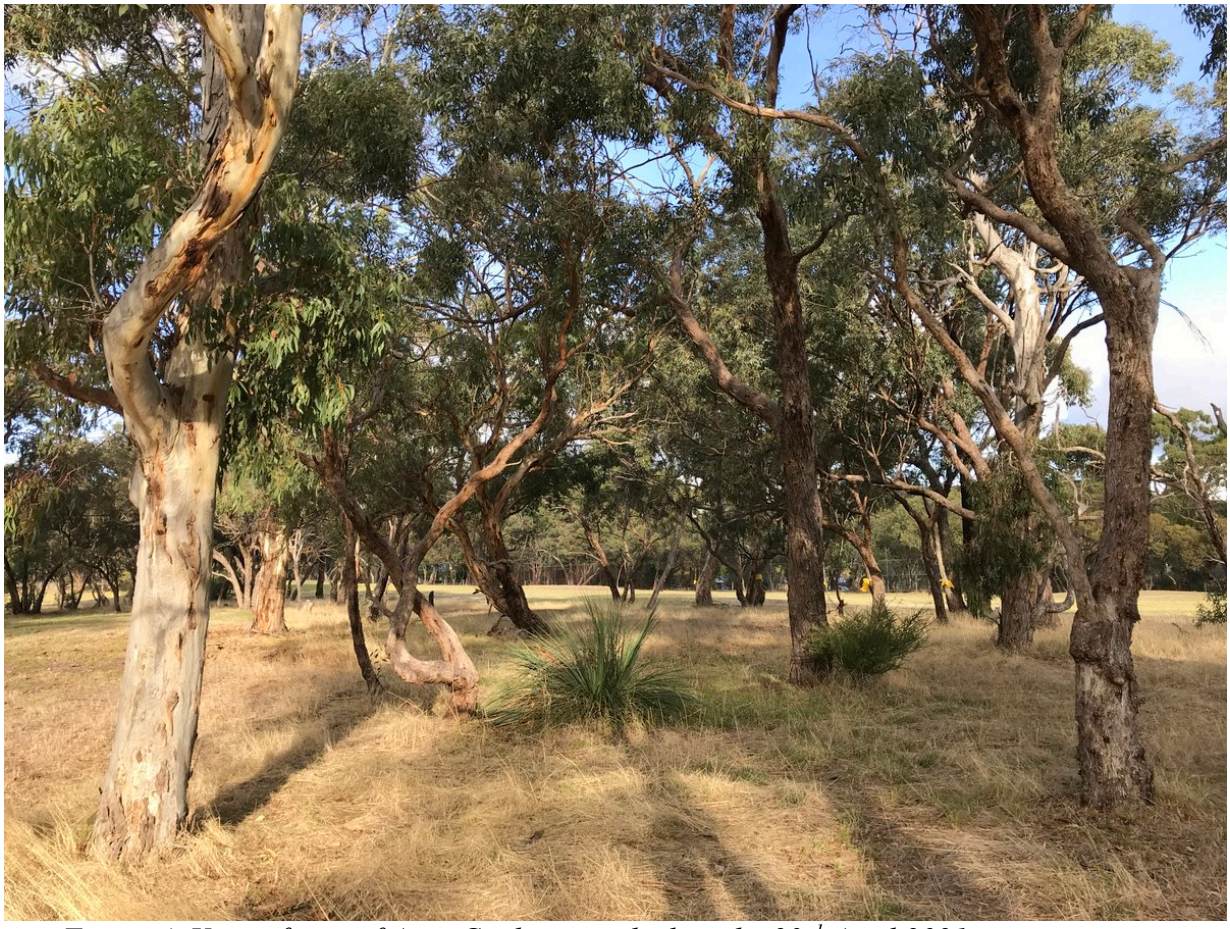

*Figure 4. View of part of Area C, photographed on the 23rd April 2021.*

*Table 4. Area C indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa* (grey box)** | ***Eucalyptus leucoxylon* subsp. *leucoxylon* (South Aust. blue gum)** | ***Eucalyptus camaldulensis* subsp. *camaldulensis* (river red gum)** | **Total (all trees for age class)** |
|---|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 0 | 2 | 0 | **2** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 13 | 8 | 0 | **21** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 19 | 1 | 0 | **20** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | 1 | **1** |
| **Total (all trees for species)** | **32** | **11** | **1** | **44** |
| Other notable indigenous species | *Acacia paradoxa* (hedge wattle), *A. pycnantha* (golden wattle), *Xanthorrhoea semiplana* subsp. *semiplana* (tufted grass tree), *Themeda triandra* (kangaroo grass) | | | |

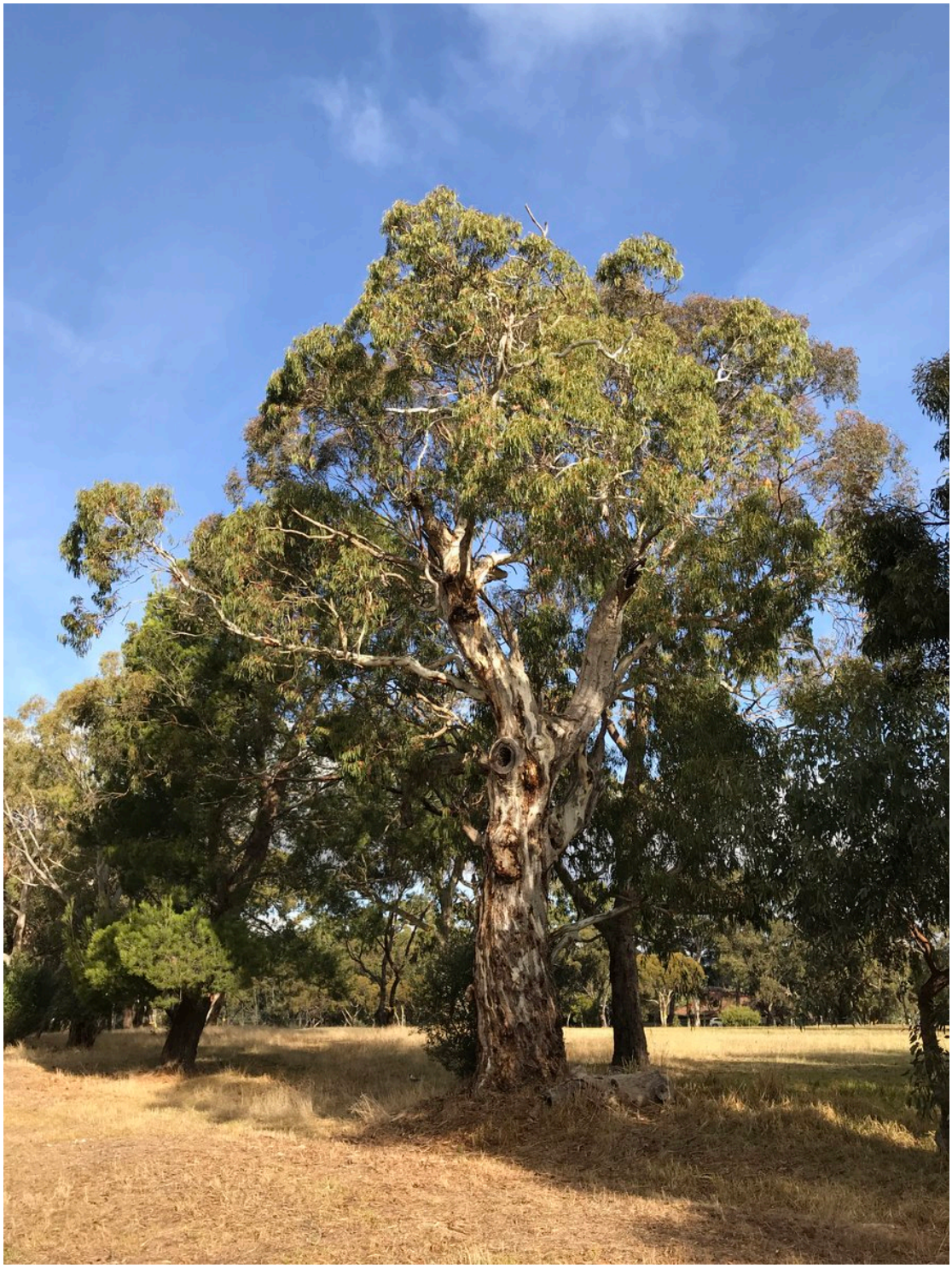

*Figure 5. One of the* Eucalyptus leucoxylon subsp. leucoxylon *(South Australian blue gum) trees in Area C. This remnant individual is in over 200 years old, has extensive hollowing, and is assessed to be of very high biodiversity value.*

## 7.0 AREA D

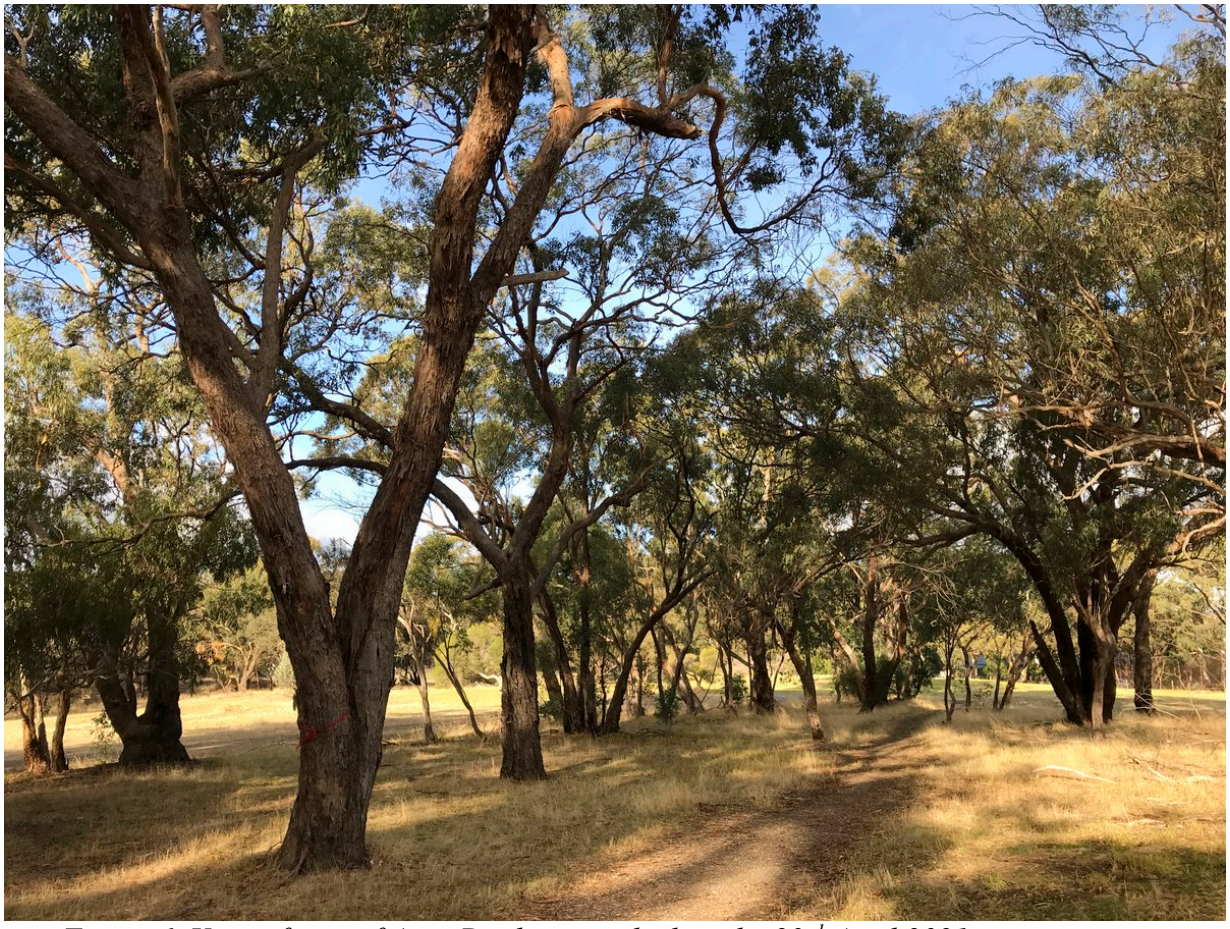

*Figure 6. View of part of Area D, photographed on the 23rd April 2021.*

*Table 5. Area D indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | **Total (all trees for age class)** |
|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 5 | 1 | **6** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 16 | 2 | **18** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 26 | 0 | **26** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | **0** |
| **Total (all trees for species)** | **47** | **3** | **50** |
| Other notable indigenous species | *Allocasuarina verticillata* (drooping she-oak), *Acacia paradoxa* (hedge wattle), *A. pycnantha* (golden wattle), *Exocarpos cupressiformis* (native cherry), *Lomandra* sp. (mat rush) | | |

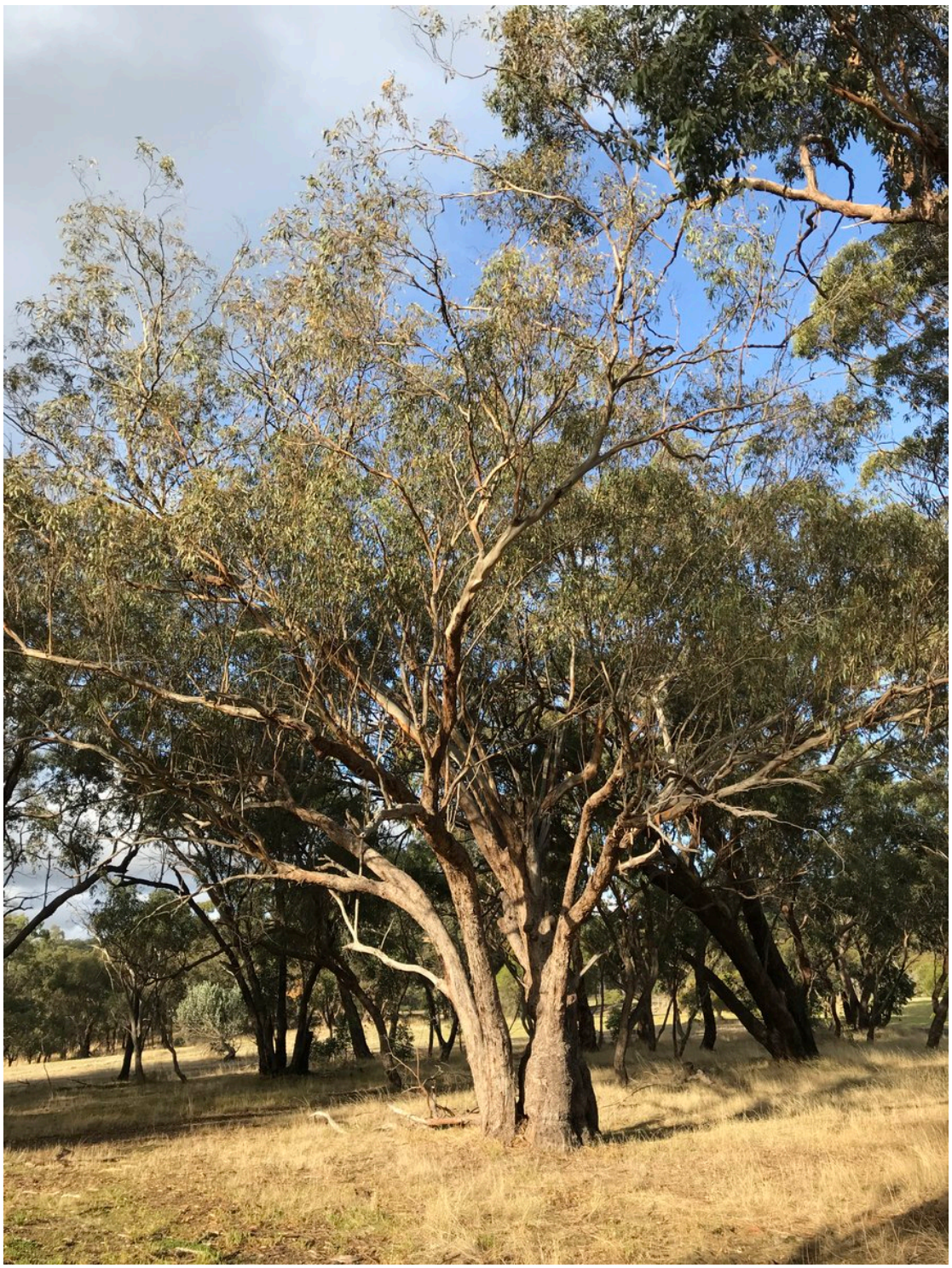

*Figure 7. One of the* Eucalyptus microcarpa *(grey box) trees in Area D. This remnant individual is in over 200 years old, has extensive hollowing, and is assessed to be of very high biodiversity value.*

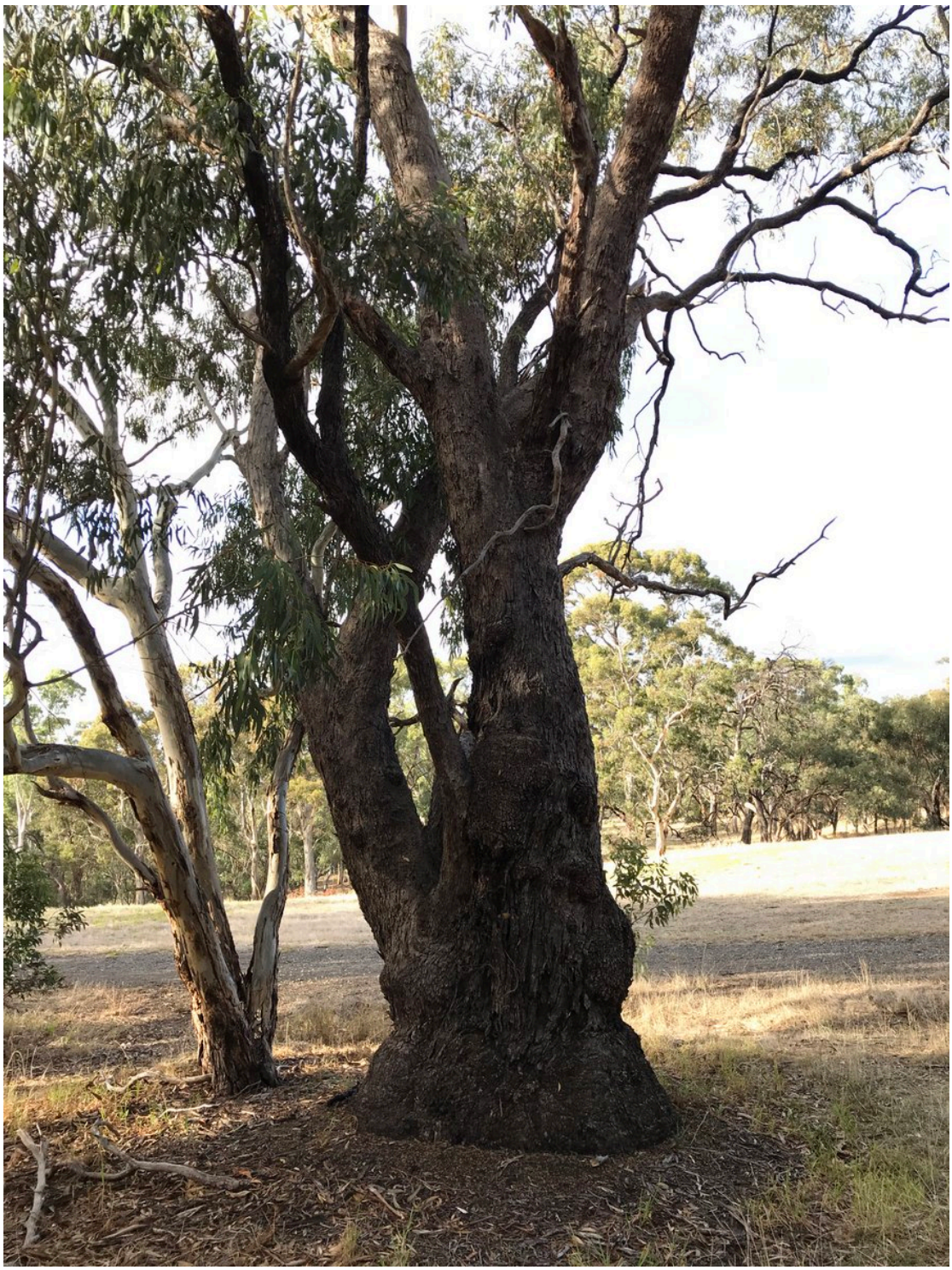

*Figure 8. Another one of the* Eucalyptus microcarpa *(grey box) trees in Area D. This remnant individual is also over 200 years old and is assessed to be of very high biodiversity value.*

## 8.0 AREA E

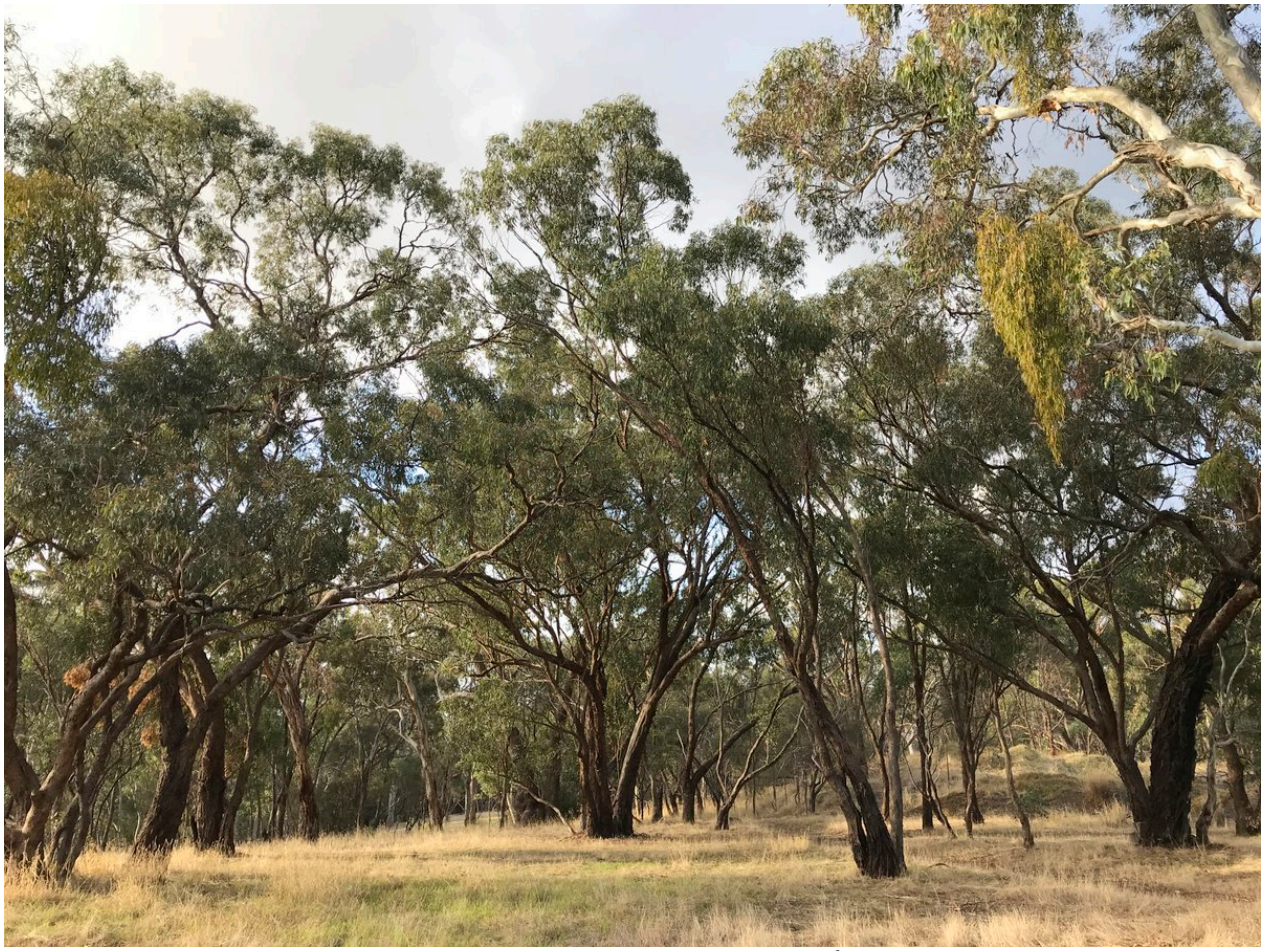

*Figure 9. View of part of Area E, photographed on the 23rd April 2021.*

*Table 6. Area E indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | **Total (all trees for age class)** |
|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 4 | 0 | **4** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 8 | 2 | **10** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 30 | 0 | **30** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | **0** |
| **Total (all trees for species)** | **42** | **2** | **44** |
| Other notable indigenous species | *Allocasuarina verticillata* (drooping she-oak), *Acacia pycnantha* (golden wattle) | | |

## 9.0 AREA F

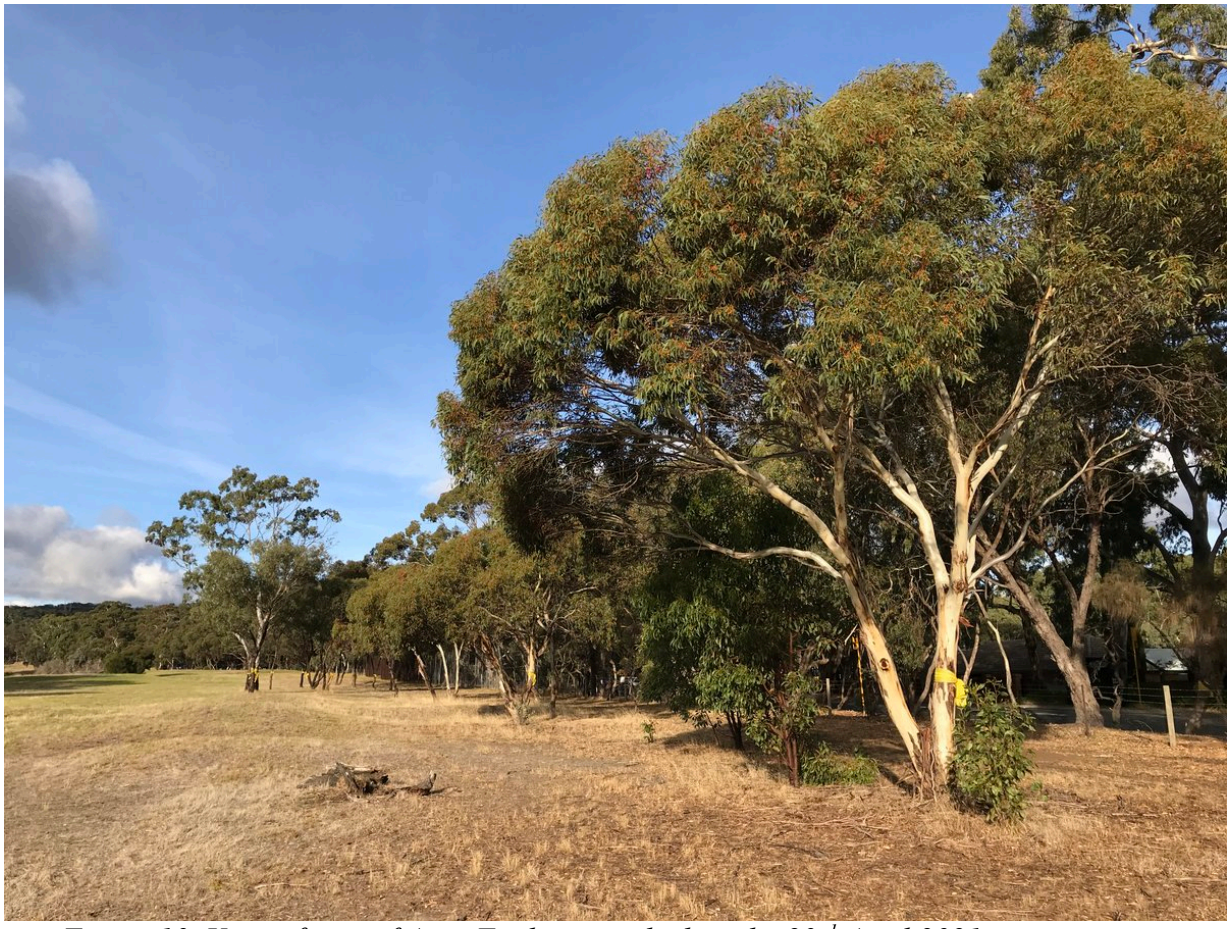

*Figure 10. View of part of Area F, photographed on the 23rd April 2021.*

*Table 7. Area F indigenous trees - Species, origin, age classes and biodiversity value.*

| | ***Eucalyptus microcarpa*** **(grey box)** | ***Eucalyptus leucoxylon*** **subsp. *leucoxylon*** **(South Aust. blue gum)** | ***Eucalyptus camaldulensis*** **subsp. *camaldulensis*** **(river red gum)** | **Total (all trees for age class)** |
|---|---|---|---|---|
| - Remnant<br>- >200 years old<br>- Extensive hollows<br>- Very high biodiversity value | 0 | 0 | 0 | **0** |
| - Remnant<br>- 100 to >200 years old<br>- Some hollows<br>- Very high biodiversity value | 0 | 0 | 0 | **0** |
| - Remnant or semi-remnant<br>- >100 years old<br>- No hollows<br>- High biodiversity value | 0 | 0 | 0 | **0** |
| - Semi-remnant<br>- <100 years old<br>- No hollows<br>- High biodiversity value | 37 | 15 | 7 | **57** |
| **Total (all trees for species)** | **37** | **15** | **7** | **57** |
| Other notable indigenous species | *Acacia pycnantha* (golden wattle), *Allocasuarina verticillata* (drooping she-oak), native grasses | | | |

I thank you for the opportunity to provide this assessment and report.
If you require further information or clarification please contact me for assistance.

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