Black Cockatoo Habitat Assessment

Lot 10900 Ladycroft Road, Glenoran

Prepared for Mr Jamie Thornton
12 August 2022

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SUMMARY

Onshore Environmental Consultants Pty Ltd (Onshore Environmental) completed a Black Cockatoo habitat assessment over two days in July 2022 at Lot 10900 Ladycroft Road Glenoran, herein referred to as the study area. The Black Cockatoo habitat assessment was undertaken in response to a request for further information from the Department of Water and Environmental Regulation (DWER) following submission of a Native Vegetation Clearing Application (NVCP, CPS 9732/1).

The study area covered 22.55 hectare (ha) and was dominated by Forest of Karri (*Eucalyptus diversicolor*) and Marri (*Corymbia calophylla*) which represented suitable foraging habitat and potential breeding habitat for three species of Black Cockatoo:

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) – listed as Endangered;
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) – listed as Endangered; and
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) – listed as Vulnerable.

Calls of the Forest Red-tailed Black Cockatoo were heard during the field survey. Additionally, old chewed Marri nuts indicating foraging by this species were observed within the study area. There was no evidence of the other two species of Black Cockatoo observed from the study area during the field survey.

A total of 56 trees were assessed for their suitability as nesting trees for Black Cockatoos. Of the 56 trees, 30 were categorised as being *unsuitable* as they did not support hollows or hollows were too small to be utilised for nesting. A further 19 trees were classified as being *marginal,* containing hollows that were over 10 cm in diameter but were considered unlikely to be utilised for nesting.

A total of five trees situated in the northern sector of the study area were classified as being *suitable* for nesting by Black Cockatoos. These trees contained hollows that appeared to be suitable for use as nesting hollows. Two additional *suitable* trees were situated outside the study area. None of these hollows showed conclusive evidence of use by Black Cockatoos.

1.0 INTRODUCTION

1.1 Preamble

Onshore Environmental was commissioned by Mr Jamie Thornton to undertake a Black Cockatoo habitat assessment at Lot 10900 Ladycroft Road Glenoran, which is situated 17 km west of Manjimup and approximately 30 km south-east of Nannup in the south-west of Western Australia (Figure 1).

In May 2022 Mr Thornton submitted a NVCP application for agricultural purposes (CPS 9732/1). Additional information was requested by the DWER, including a Black Cockatoo habitat assessment. The study area is within the known distribution of three species of Black Cockatoo listed under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *Biodiversity Conservation Act 2016* (BC Act):

- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) - listed as Endangered;
- Baudin's Cockatoo (*Calyptorhynchus baudinii*) - listed as Endangered; and
- Forest Red-tailed Black Cockatoo (*Calyptorhynchus banksii naso*) - listed as Vulnerable.

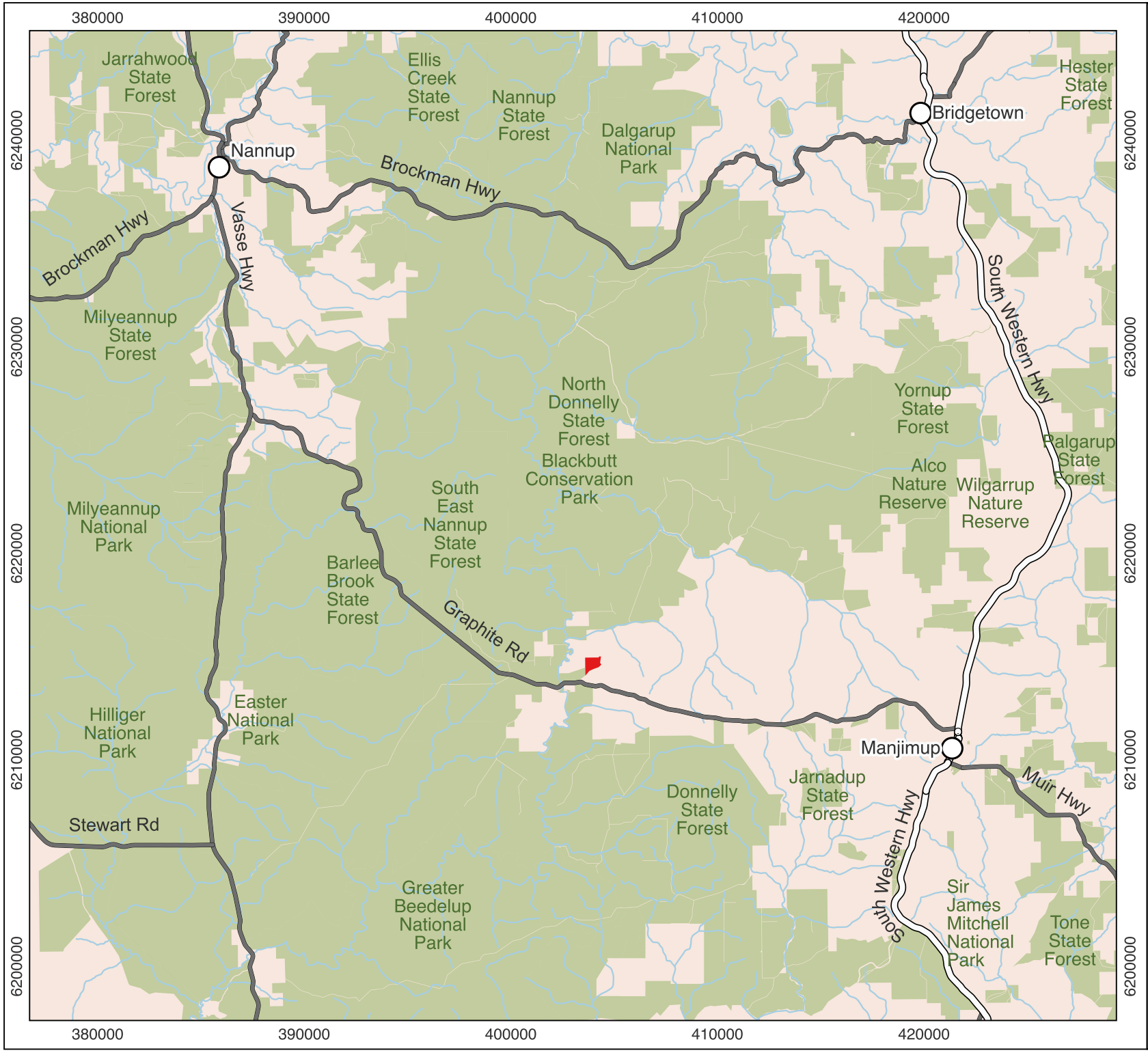
The study area occupies 22.55 ha covering the majority of the western sector of the property (see Figure 2). The north-eastern part of the property has previously been cleared and used for cropping with a dam located in the south-east corner of the lot. A small creek line runs from the dam along the southern boundary of the property. The dam and the creek line are situated outside the proposed development footprint (Figure 2).

1.2 Regional Context

The Interim Biogeographic Regionalisation for Australia (IBRA7) divides Australia into 89 bioregions based on climate, geology, landform, native vegetation, and species information (Department of the Environment and Energy [DoEE] 2018). The study area is located within the Warren Bioregion and close to the southern border of the Southern Jarrah Forests subregion (Hearn *et al.* 2002). The bioregion is described as dissected and undulating with vegetation including Karri Forest, Jarrah/Marri Forest, low Jarrah woodland, paperbark/sedge swamps, and dunes with *Agonis flexuosa*, *Banksia* woodlands and heaths (Hearn *et al.* 2002).

1.3 Previous Surveys

A flora and vegetation survey of the study area was undertaken by Mr Bruce Ward in November 2021 (Ward 2022). Vegetation was described as Jarrah/ Marri Forest on uplands in the northern sector of the property, and Karri Forest on slopes in the southern half of the property. Previous disturbance was noted including harvesting of trees and cattle grazing.



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Lot 10900 Ladycroft Road Glenoran Black Cockatoo Habitat Survey

Figure 1

Location of the study area

Legend

Property Boundary

0 5 10 km

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Datum: GDA 94
Projection: MGA Zone 50

Date:05/08/2022
Status: Final
Figure: 1
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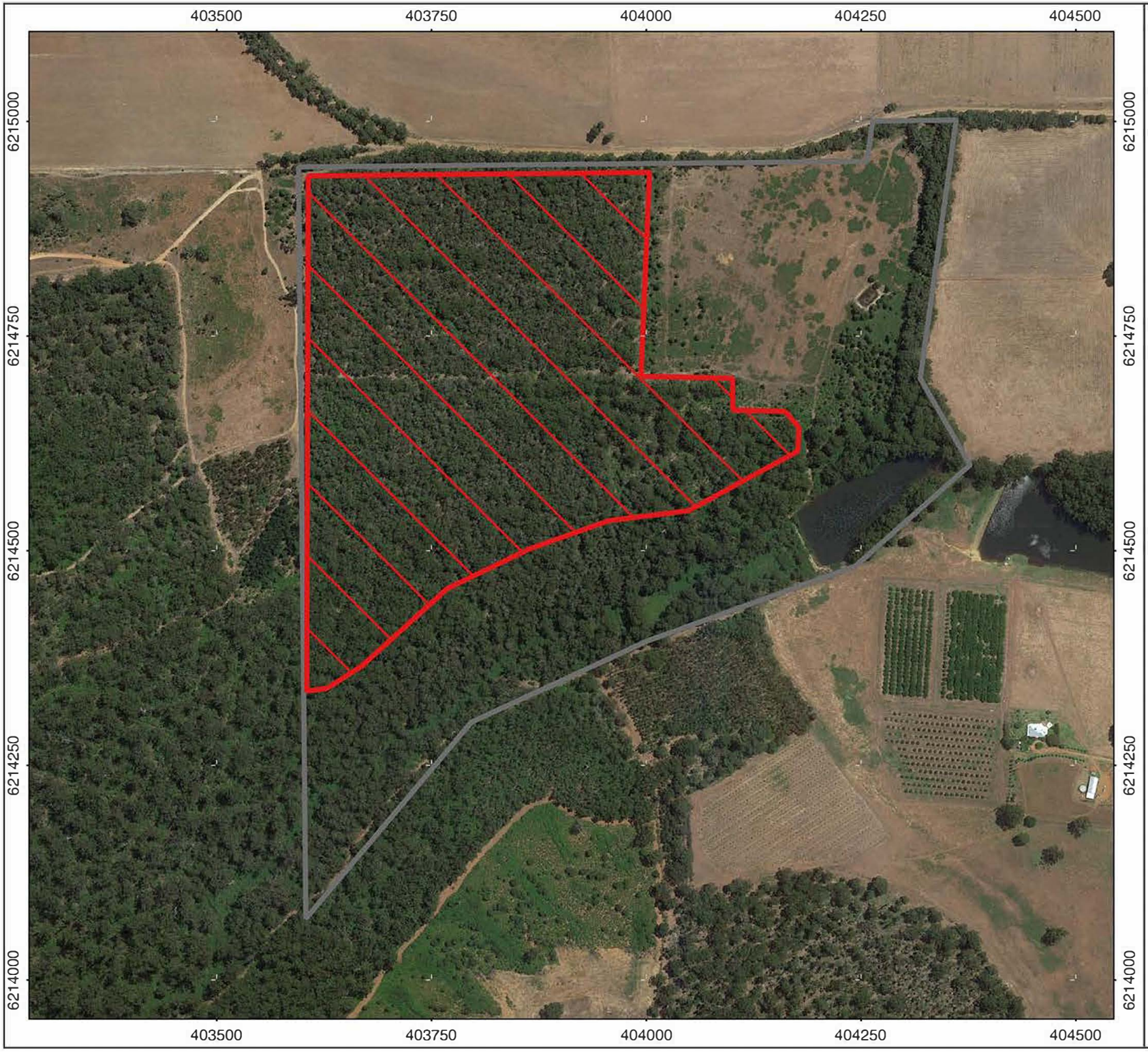

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Lot 10900 Ladycroft Road Glenoran Black Cockatoo Habitat Survey

Figure 2
Property Layout

Legend

- Property Boundary
- Study Area

0 100 200 300 km

1:6,000

Datum: GDA 94
Projection: MGA Zone 50

Date: 05/08/2022
Status: Final
Figure: 2
Sheet Size: A4
File Name Reference: Figure2_trees.pdf
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2.0 METHODOLOGY

2.1 Scope

The Black Cockatoo habitat assessment aimed to document the suitability of habitat within the study area for breeding by Black Cockatoos. The assessment identified all trees that may be suitable for nesting by Black Cockatoo species. These trees were defined as having a diameter, measured at 1.5 metres (m) from the base of the tree (diameter at breast height [DBH]) of 50 centimetres (cm) or greater, that contained a hollow(s) that may be suitable for breeding by Carnaby's Cockatoo, Baudin's Cockatoo, and/or Forest Red-tailed Black Cockatoo. Any evidence of foraging or roosting by Black Cockatoos observed during the survey was also documented.

2.2 Guidance Statements

The Black Cockatoo habitat assessment was carried out with reference to the Environmental Protection Authority (EPA) requirements for environmental surveying and reporting in Western Australia:

- Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020); and
- Environmental Factor Guideline Terrestrial Fauna (EPA 2016).

Other publications consulted in relation to designing and conducting the field survey included the Australian Government's Referral Guidelines for three WA threatened Black Cockatoo species (DCCEEW 2022a), and the following Black Cockatoo recovery plans:

- DPaW (2013) Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan; and
- DEC (2008) Forest Black Cockatoo (Baudin's Cockatoo, *Calyptorhynchus baudinii*) and Forest Red- tailed Black Cockatoo, *Calyptorhynchus banksii naso*) Recovery Plan.

2.2 Desktop Assessment

A literature review of Black Cockatoo surveys previously undertaken within the Manjimup area was completed. Several Black Cockatoo habitat assessments had previously been undertaken in close proximity to the study area and these surveys were reviewed to provide context for the survey.

A database search was conducted relating to conservation significant vertebrate fauna previously collected or described within, or in close proximity to, the study area. An EBPC protected matters search was conducted for a 10 km radius around the central point of the property (DCCEEW 2022b). The search was extended beyond the study area to place species and community values into a local and regional context.

2.3 Survey Methodology

The field survey was undertaken by Senior Ecologist Ms Jessica Waters, on the 26th and 27th of July 2022. The study area was walked and assessed to document habitat characteristics including evaluation of the presence of habitats suitable to support Black Cockatoo breeding, foraging and night roosting. The following parameters were recorded for all conservation significant fauna observed:

- Co-ordinate location;
- Description of habitat in which the species was located; and
- Photograph of the species, evidence of habitat use and/or habitat.

Habitats used by Black Cockatoos have been placed into three categories by DSEWPC (2012):

- Breeding Habitat;
- Foraging Habitat; and
- Night Roosting Habitat.

The field survey focused on breeding habitat for Black Cockatoos assessed by targeting suitable habitat trees that had a DBH of 50 cm or greater. Target tree species included Marri, Jarrah, Karri and any other *Corymbia* and *Eucalyptus* species of a suitable size. Large trees with the potential to contain hollows were marked using a handheld GPS. These trees were then examined using binoculars to identify the presence of hollows and evidence of actual use by Black Cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches).

Hollows observed were categorised based on the size of the hollow entrance (i.e. hollows >10cm in diameter) and suitability of the hollow for Black Cockatoo use (see Table 1). The location of each tree identified with suitable nesting hollows was recorded along with details on the number and size of the hollows present.

Any evidence of foraging (e.g. chewed fruits around the base of trees) was also recorded during the survey. Potential foraging habitat was documented notwithstanding the presence of foraging evidence. Evidence of roosting (e.g. branch clippings, droppings or moulted feathers) within trees was also recorded.

Table 1 Categories for tree hollows potentially utilised for nesting by Black Cockatoos

Category	Description
Unsuitable	Hollows unsuitable for nesting due to hollow entrance diameter <10cm or hollow examined by drone and determined to be unsuitable for nesting. These hollows may be utilised by other species and have the potential to become nest sites in the longer term.
Marginal	Hollow is potentially suitable for nesting i.e. diameter of 10 cm or greater. However, these hollows are considered unlikely to be used by Black Cockatoos as nesting sites for one or more of the following reasons: • small entrance (generally <20cm); • deemed unlikely to have a large internal space for nesting, or sufficient depth inside the hollow (i.e. less than 0.5 m); • evidence of use by other competitive species i.e. bees, other birds or possums; • orientation of the hollow; and/or • the presence of branches or other obstructions. While these hollows are not currently high-quality potential nest sites they have the potential to become nest sites in the future. It is possible that these trees may also contain suitable hollows that were not visible from ground level.
Suitable	A hollow that is likely usable for nesting. The hollow is of suitable size, is likely to be of sufficient depth, and no competitive species are noted. However, there is no evidence of use.
Chewed	Evidence of chew marks or other signs of use on edge of hollow or trunk indicating recent or historical usage.
Used	Known nesting hollow.

2.4 Constraints

The survey provided an assessment of the study area over the two days surveyed with no seasonal component considered in the design. The survey was completed within the recommended timing for assessment of breeding habitat for Black Cockatoos[1] (DCCEEW 2022a). Black Cockatoos may move in to or investigate hollows at any time and while there may be no evidence of them currently using hollows, there remains a possibility that activity may commence prior to clearing. Additionally, it is possible that Black Cockatoos may utilise hollows where no evidence of use was visible from a ground survey (i.e. hollows may not be extensively chewed, or entrances not visible). Hence, there is a possibility that active or previously used breeding hollows may be missed during the field survey.

Trees were examined from the ground and as internal dimensions were difficult to determine, the survey may overestimate or underestimate the number of hollows actually suitable for use within the study area (Whitford 2002). Various characteristics of the hollow may not be visible from the ground including the internal dimensions, opening size, obstructions and signs of use. Additionally, hollows within trees may not be visible from ground level due to orientation or may be obstructed by branches and surrounding trees. Examination of hollows by drone

[1] Recommended timing for breeding habitat assessments for Baudin's Black Cockatoos is August - January with the survey conducted just outside this period in late July.

during the survey was not possible due to the weather conditions at the time of survey and the relatively continuous (forest) canopy structure. A conservative survey approach was taken, with the number of suitable trees likely overestimated based on the ground level survey with drone operation unsuitable.

Access on foot through parts of the study area was difficult, particularly within the southern part of the property, with dense leaf litter and steep terrain. Weather at the time of survey was overcast/raining which was not ideal for viewing and assessing depth of hollows. Where possible effort was made to assess hollows on multiple occasions over the two days under varying lighting conditions. The large height of the Karri trees and dense canopy cover in areas presented some difficulty in assessing hollow suitability at the site. This was reflected in the number of trees assessed as potentially containing hollows. Where there was uncertainty regarding a tree or hollow, a precautionary approach was taken with the tree classified as *marginal*.

3.0 RESULTS

3.1 Desktop Review

The study area is within the South Coast Region which provides important breeding and foraging habitat for the three species of Black Cockatoos (DCCEEW 2022a). The results of the EPBC Act Protected Matters database search confirmed that the three species of Black Cockatoo are known to occur within 10 km of the study area. In addition, the search indicated that breeding of Baudin's Black Cockatoo is known to occur within 10 km of the study area DCCEEW 2022b)[2].

There have been several habitat tree assessments for Black Cockatoos and targeted fauna assessments completed recently in the Manjimup area:

- Harewood, G. (2020) Black Cockatoo Habitat Tree Assessment Lots 9766-9768 and 9770 Glenoran;
- Harewood, G. (2021). Targeted Fauna Assessment - Lots 9766-9768 and 9770 (CPS 9047/1), Glenoran;
- Harewood (2020) Black Cockatoo habitat Tree assessment CPS 5377/3 Lots 10914 and 10920 Smith Brook; and
- SW Environmental (2020) Black Cockatoo Survey Lots 7 and 961, Quinninup. Unpublished report for Dean and Julia Ryan.

The above surveys all recorded a small number of trees with hollows that were potentially suitable for breeding by Black Cockatoos. However, no evidence of Black Cockatoo breeding (i.e. chewed hollows) was observed during the surveys. Additionally, none of the previous surveys noted any evidence of foraging by Black Cockatoos.

3.2 Survey Results

3.2.1 Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*)

Carnaby's Black Cockatoo is one of two White-tail Black Cockatoos listed as Endangered under the EPBC Act and the BC Act. This species occurs in south-western Western Australia extending from Kalbarri to Cape Arid and inland to the Wheatbelt. Breeding habitat for the species is generally inland (Wheatbelt region) utilising hollows of smooth barked *Eucalyptus* species such as Wandoo and Salmon Gum (Saunders 1982). More recently there has been an expansion in the breeding range of Carnaby's Black Cockatoos to the west and south with

[2] Note that in addition to the three species of Black Cockatoos the EPBC search tool indicates that Woylie and Quokka are known to occur within a 10km radius of the property and the Western Ringtail Possum and Chuditch are considered likely to occur.

breeding recorded from the Darling Scarp and as far south as Capel (Johnstone and Kirby 2019). The study area is situated close to the southern extremity of the modelled breeding extent for this species (DCCEEW 2022a).

All habitats within the study area represent suitable breeding and foraging habitat for this species. No evidence of this species utilising the study area was recorded during the survey.

3.2.2 Baudin's Cockatoo (*Calyptorhynchus baudinii)* and Red-tail Black Cockatoos (*Calyptorhynchus banksii naso)*

Baudin's Black Cockatoos and Forest Red-tail Black Cockatoos occur in the forested areas of the south-west with a generalised distribution between Perth to Albany and inland to Kojonup. Baudin's Black Cockatoos are listed as Endangered while Forest Red-tail Black Cockatoos are listed as Vulnerable.

Both species have a diet mainly comprised of the seeds of Marri (*Corymbia calophylla*), with Baudin's also consuming seeds from Proteaceous species. Red-tailed Black Cockatoos also consume Jarrah seeds and a range of other species. All habitats occurring within the study area are suitable for foraging for both species.

The study area is within the current known breeding range of both species (DCCEEW 2022) and the Protected Matters database search indicated that Baudin's Black Cockatoos are known to breed in close proximity to the study area (DCCEEW 2022b).

Both species nest in large hollows of mature trees, predominantly Marri, with Jarrah, Wandoo and other *Eucalyptus* species also utilised (Saunders 1974a, Johnstone *et al* 2013). Baudin's Black Cockatoos breed between August and December (Johnstone *et al.* 2011). The timing of breeding for Red-tailed Black Cockatoos is less defined with breeding having been recorded in all months of the year, with peaks during Winter to Autumn and Spring (Johnstone and Kirby 2019).

Forest Red-tailed Cockatoos were heard in the study area during the field survey and old chewed Marri fruits were observed. No evidence of Baudin's Black Cockatoos was observed from the study area.

3.2.3 Breeding Habitat

The study area supported two habitat types with the northern half dominated by relatively open Marri Forest with scattered Karri. The southern half of the study area was dominated by Karri occurring on hillslopes becoming increasingly steep leading down to a valley with a small creek line (Plate 1). Both habitats contained large trees amongst regrowth and represented potential breeding habitat.

Plate 1 Karri Forest within the study area

A total of 56 large trees with the potential to contain hollows were recorded within or immediately adjacent to the study area (Figure 3). These trees were further assessed as to the suitability for breeding for Black Cockatoos as per criteria outlined in Table 1.

A total of 30 trees were categorised as being *unsuitable,* as on inspection they either did not contain hollows or hollows were too small to be utilised for nesting.

A further 19 trees were classified as *marginal,* containing hollows that were over 10 cm in diameter but were considered unlikely to be utilised as nesting hollows. These hollows may potentially become suitable for nesting by Black Cockatoos in the future.

A total of seven trees were classified as *suitable,* containing hollows that appeared to be suitable for use as a nesting hollow. Five of these trees were situated within the northern sector of the study area (Figure 3). Two additional trees classed also as *suitable* were situated marginally outside the western boundary of the study area (Figure 3). Trees classified as suitable had at least one hollow with a medium to large opening (>20 cm), suitable orientation and were assessed as likely to be of sufficient depth to support breeding by Black Cockatoos. None of these hollows showed conclusive evidence of use by Black Cockatoos (i.e. chew marks).

Descriptions of all trees and hollows assessed are provided in Appendix 1 and locations of the trees is shown in Figure 3.

Suitability for Breeding

Many additional factors may affect the suitability of the study area for breeding. These factors include the proximity of water sources and the availability of adequate foraging habitat in close proximity. The availability and connectivity of nearby foraging habitat is important for breeding of Black Cockatoos (Saunders 1977, 1986). The property is surrounded by substantial areas of foraging habitat consisting of native vegetation containing Marri, Karri and Jarrah. Additionally, the property is located in close proximity to water sources, with a dam on the property and the Donnelly River situated nearby.

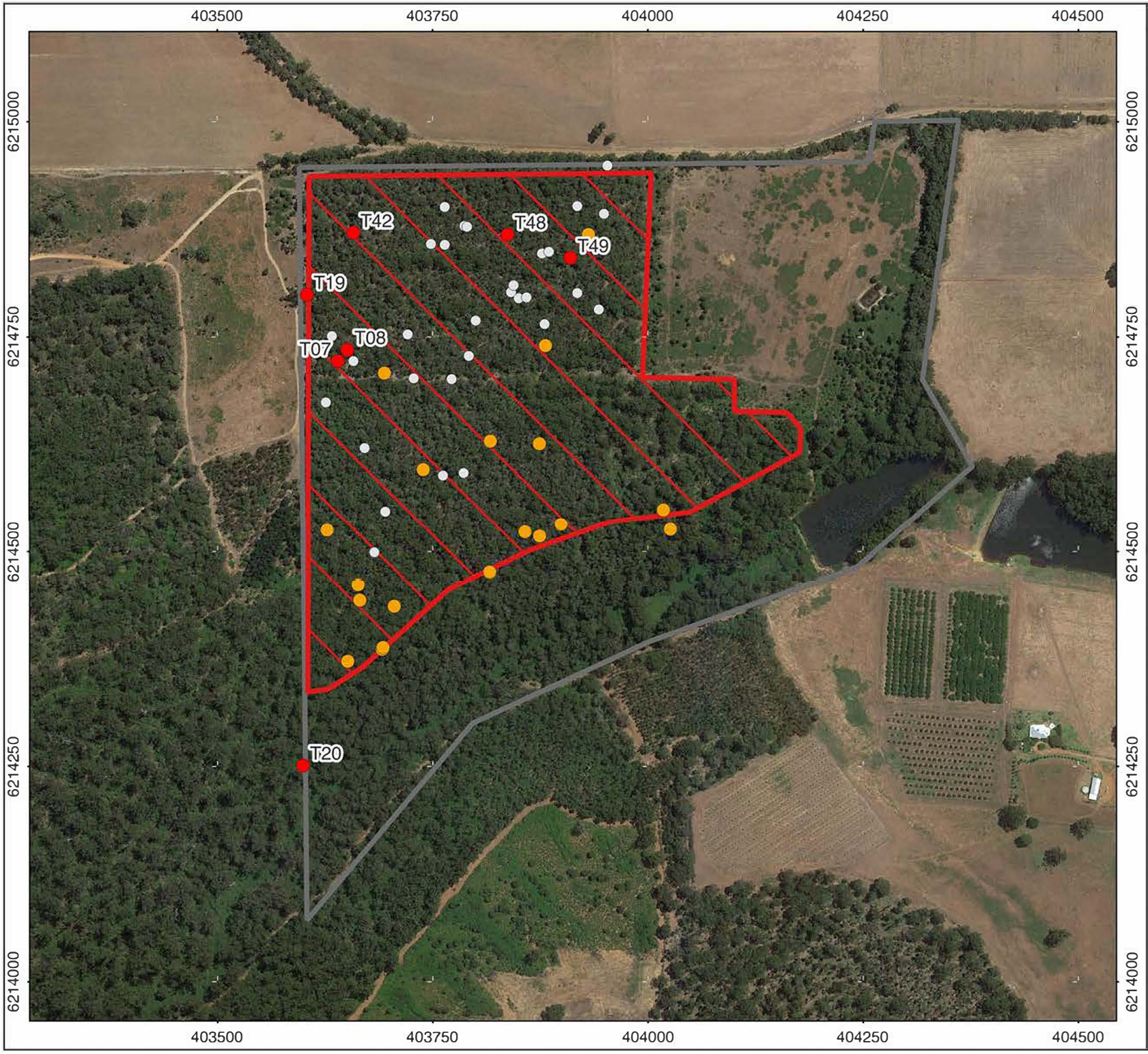
Other species present within the study area may compete with Black Cockatoos for suitable nesting hollows. European Honeybees were observed occupying a number of hollows.

3.2.4 Foraging Habitat

The entire study area provides high quality foraging habitat for all three species of Black Cockatoos. The dominant forage species include Karri and Marri. No recent evidence of foraging was observed within the study area. Pine plantation occurs adjacent to the property with scattered Pine wildings present within vegetation on the property. Baudin's and Carnaby's Cockatoos will both utilise *Pinus* species as a food source.

3.2.5 Roosting Habitat

No evidence of roosting was observed within the study area. The dam on the property and the creek line running through the southern sector of the property (both outside the study area) may represent potential roosting habitat. It is noted that these areas were not comprehensively searched for evidence of roosting as the field assessment focused on ground truthing within a smaller and more defined potential development footprint.



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Lot 10900 Ladycroft Road Glenoran Black Cockatoo Habitat Survey

Figure 3
Hollow bearing trees within the study area

Legend

- Property Boundary
- Study Area

Trees

- Suitable
- Marginal
- Unsuitable

0 100 200 300 km

1:6,000

Datum: GDA 94
Projection: MGA Zone 50

Date: 05/08/2022
Status: Final
Figure: 3
Sheet Size: A4
File Name Reference: Figure3_trees.pdf
Drawn by: JW
Requested by: DB

4.0 REFERENCES

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APPENDIX 1

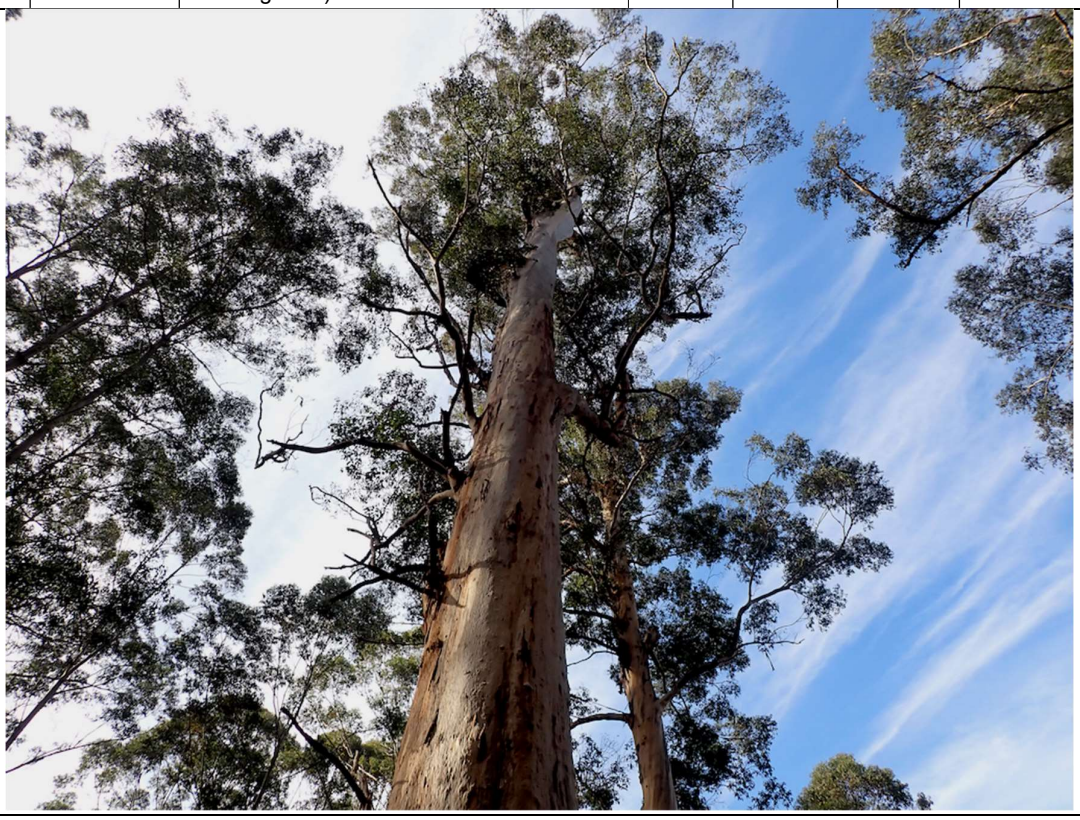
Details of potential nesting trees within the proposed clearing area

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
T01	Marginal	At least two hollows; spout and side entry. Hollow sizes and depth not assessable from ground	403627	6214525	Karri	1.6

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
T02	Unsuitable	Opening at top is filled with woody debris	403682	6214499	Marri	1
T03	Marginal	Top open potentially containing hollow but cracked and likely filled with wood and decaying material. Tree is dead	403665	6214443	Karri	1.3
T04	Marginal	Large dead Karri, spout hollows in the side branches and potentially top hollow.	403691	6214386	Karri	1.7
T05	Marginal	Potentially a marginal hollow in a depression on north side of trunk. Opening not visible from the ground. May also contain small hollows in top branches.	403651	6214372	Marri	1.3
T06	Unsuitable	Small spout hollow at end of branch.	403626	6214674	Marri	1.5
T07	Suitable	Side entry upwards facing large hollow. Bark has recently been removed or has flaked off the side of the hollow. No chew marks evident.	403640	6214722	Marri	1

T08	Suitable	Medium side entry hollow with double opening on north side of large side branch. Additional medium hollow near top east side. Multiple hollows in this tree.	403651	6214735	Marri	1.5

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T09	Unsuitable	Old dead tree. Top not visible from the ground unlikely to contain hollow.	403658	6214722	Dead	1.2
T10	Marginal	Potential small hollow, opening not clearly visible. On edge of cleared pad.	403694	6214708	Marri	1
T11	Unsuitable	Small hollows	403772	6214701	Marri	
T12	Unsuitable	No hollows	403728	6214702	Marri	
T13	Unsuitable	Only small hollows (<10cm) are visible, view is obstructed by branches	403792	6214728	Marri	1.5
T14	Marginal	Dead marri, hollow in top could be usable but difficult to see from ground. Old chewed nuts nearby	403817	6214629	Marri	1.4
T15	Marginal	Small side entry hollow near top	403874	6214626	Marri	1.3
T16	Unsuitable	Big Karri no hollows visible	403786	6214592	Karri	1.5
T17	Unsuitable	No suitable hollows. Small hollow side entry on trunk	403762	6214589	Marri	1.4
T18	Marginal	May have upwards facing hollow on bend of main trunk, view obstructed	403739	6214596	Marri	1.1
T19	Suitable	Several side and spout hollows appear suitable from ground (just outside clearing area on property boundary)	403604	6214799	Marri	1.3

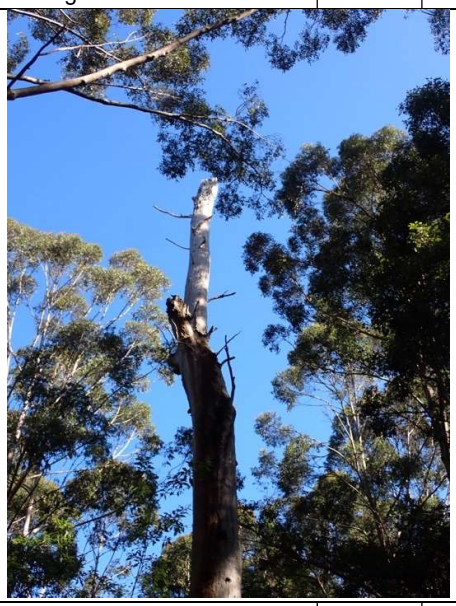
Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T20	Suitable	Huge old karri with large top opening and possibly other hollows (outside proposed clearing area)	403599	6214251	Karri	1.5
						

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
T21	Marginal	Hollow on north side looks used by parrots or possum. Likely too small for black cockatoos opening approx.. 10cm.	403692	6214388	Karri	1.3
T22	Marginal	Contains several small hollows and may have top opening but unlikely to be suitable	403705	6214436	Marri	1
						
T23	Marginal	Contains side entry hollow 10x 20cm entrance is worn and likely used by possums. Scats at base of tree.	403663	6214461	Marri	0.8

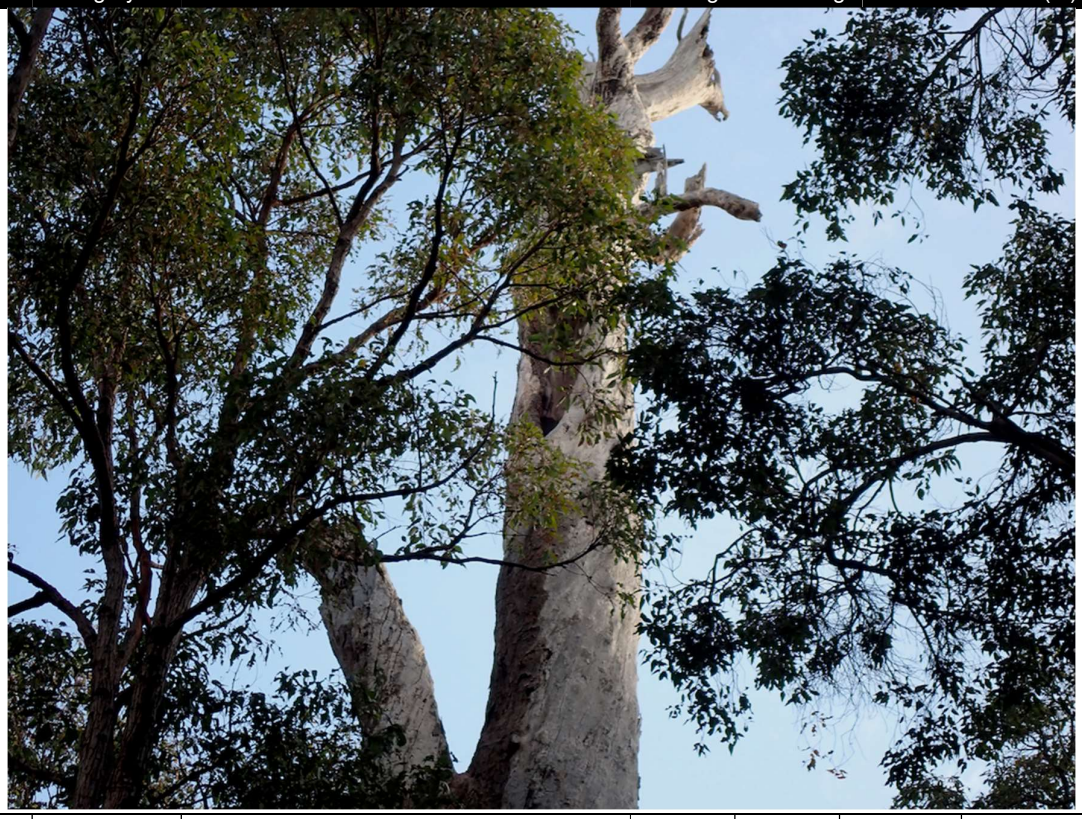
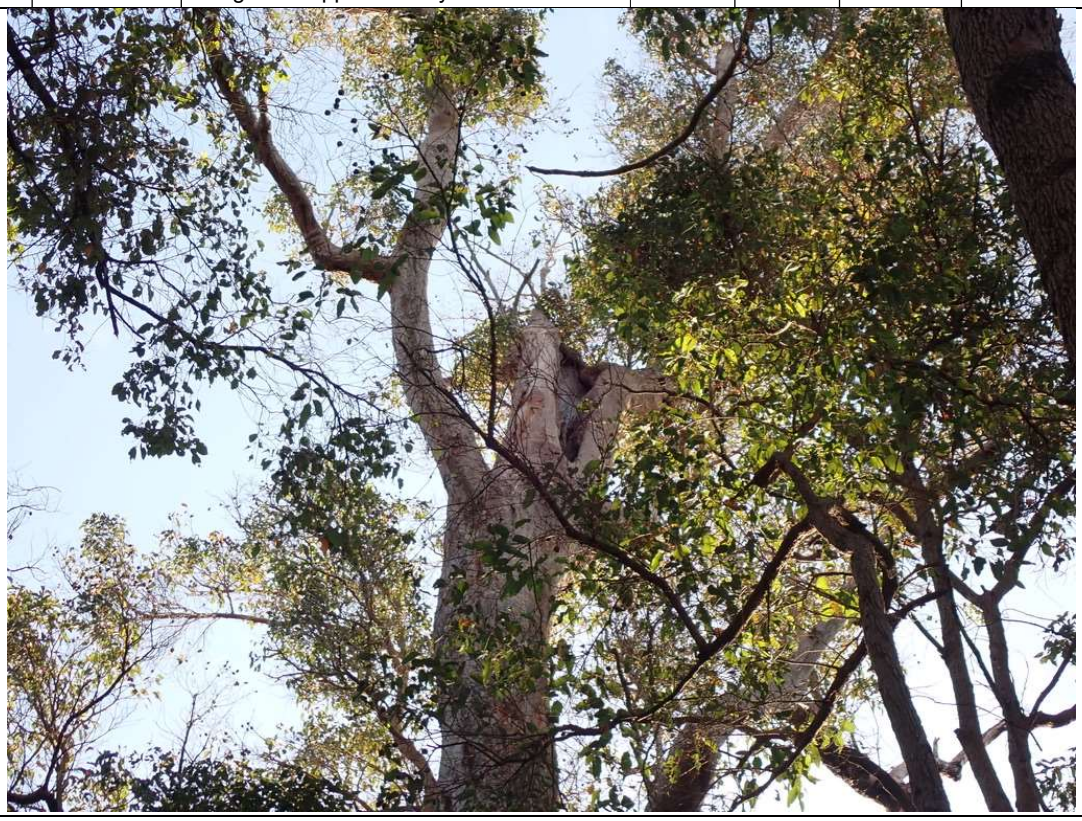
Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T24	Marginal	Potential hollow with opening approximately 10 x 25cm. View and entrance obstructed by branches and leaves	403816	6214476	Karri	1.3
T25	Marginal	One small hollow 10x10 not likely to be suitable to black cockatoos due to small size. No large observable hollows. Large tree may have other hollows that aren't visible	403857	6214523	Marri	1.5
T26	Marginal	Large Karri, no large hollows visible	403874	6214518	Karri	1.8
T26b	Marginal	Small side entry hollow from broken branch 15x15cm on eastern side of tree. Western Rosellas observed in the area could be using hollow. Small and likely not deep enough for Black Cockatoos	403899	6214532	Marri	1.3

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T27	Marginal	Large Karri with base of tree hollow. Multiple hollows at top however none appear suitable for cockatoos from the ground. Due to the large size of the tree it potentially contains suitable hollows. Visibility of top branches is obscured due to heigh and branches	404018	6214549	Karri	2.2

Point	Category	Comments	Easting	Northing	Tree	DBH (m)

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
T28	Marginal	Potential hollow in top. Small hollow side entry hollow is marginal. These two trees are just on border of clearing area and should be retained. Another large Karri just down slope towards the dam is outside the clearing area.	404026	6214526	Marri	2
						
T29	Unsuitable	Top opening but appears unsuitable	403695	6214547		1.6
T30	Unsuitable	Big old dead tree with dead branches	403671	6214621	Karri	1.5
T31	Unsuitable	May have small hollows at top. None of the visible hollows are large enough for black cockatoos	403633	6214751	Marri	1.2
T32	Unsuitable	Small hollow in upper branches	403721	6214753	Marri	1.1
T33	Unsuitable	No visible hollows	403800	6214769	Marri	
T34	Unsuitable	No visible hollows, top is dead and rotting	403850	6214795	Marri	1.5
T35	Unsuitable	No visible hollows	403859	6214796	Marri	1.7
T36	Unsuitable	Small hollow in upper branches is occupied by bees. Not suitable for black cockatoos	403841	6214802	Marri	1.5
T37	Unsuitable	No suitable hollows	403844	6214810	Marri	1.5
T38	Unsuitable	Multiple small hollows in upper branches, additional hollow in trunk occupied by bees	403880	6214765	Marri	1.2
T39	Marginal	Potentially a large hollow but partially obstructed by regrowth/plants and sharp broken branches	403881	6214740	Marri	1
T40	Unsuitable	No visible hollows, large dead tree	403943	6214782	Marri	1
T41	Unsuitable	Dead top branches top may be opening but likely rotten	403918	6214801	Marri	1.1
T42	Suitable	Large side entry hollow on southern side 20x30cm, appears deep, in dead section at top of tree.	403658	6214871	Marri	1.2

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T43	Unsuitable	Large tree but no suitable hollows visible, top dead	403748	6214858	Marri	1
T44	Unsuitable	Mostly dead, no suitable hollows visible	403764	6214857	Marri	1.2
T45	Unsuitable	Dead at top. No hollows visible. FRTBC heard in area. Small hollow in trunk.	403787	6214879	Marri	1
T46	Unsuitable	Mostly dead, no visible hollows	403790	6214878	Marri	
T47	Unsuitable	Large tree, no suitable hollows visible	403764	6214901	Marri	
T48	Suitable	Large upwards facing hollow in trunk, 35cm wide, tree mostly dead	403837	6214869	Marri	1.4

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
						
T49	Suitable	Large upwards facing hollow appears deep but hard to confirm dimensions from the ground approximately 30cm across	403910	6214842	Marri	1.2
						

Point	Category	Comments	Easting	Northing	Tree	DBH (m)
T50	Marginal	Medium hollow in top occupied by bees 20x20. Second hollow 15x15cm in side branch on other side looks used possibly by other birds, unlikely to be large enough for black cockatoos.	403931	6214869	Marri	
T51	Unsuitable	Large tree, no suitable hollows visible	403949	6214893	Marri	
T52	Unsuitable	Large tree, no suitable hollows visible	403953	6214949	Marri	
T53	Unsuitable	Unsuitable, small hollows, no suitable hollows visible	403877	6214847	Marri	
T54	Unsuitable	Large tree, no suitable hollows visible	403918	6214902	Marri	
T55	Unsuitable	Large tree, no suitable hollows visible	403885	6214849	Marri	