Black Cockatoo

Habitat Tree Assessment

CPS 8482/1

Lot 12140

Jones Road

Yanmah

December 2019

Version 1

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SUMMARY

This report details the results of a black cockatoo habitat tree assessment carried out over a section of Lot 12140 Jones Road, Yanmah.

The landowner (Morning Glory Enterprises Pty Ltd) has applied to clear 46.7 hectares of remnant bushland from within the Lot to the Department of Water and Environmental Regulation (DWER) (CPS 8482/1) (Figure 1).

An initial inspection of the area by DWER identified the presence of potential black cockatoo breeding habitat and as a consequence they have requested a black cockatoo habitat tree survey be undertaken (DWER 2019). The results of this survey are presented here.

An inspection of the permit area was carried out by Greg Harewood (Zoologist - 16 years' experience) on the 12 December 2019. The assessment involved a series of transects across the permit area while searching for trees which contained or potentially contained one or more hollows that appeared suitable or potentially suitable for black cockatoos to use for nesting purposes.

The vast majority of the trees present within the permit area were relatively young and as a consequence most do not contain hollows, or if present, what appeared to be only small hollows that would be unsuitable for black cockatoos to use for nesting.

No conclusive evidence of black cockatoo nesting activity was observed in any tree within the permit area. Eight trees were identified within the permit area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. Upon closer inspection with a drone six of these trees were assessed as not having hollows suitable for black cockatoos to use for nesting.

One tree was observed to contain a large chimney type hollow that appeared to be of a suitable size for black cockatoos but showed no evidence of use. A side entry hollow in Tree 6 showed some minor evidence of use in the form of some apparent chew marks but the actual cause (black cockatoos/galahs nesting/investigating?) was inconclusive. This hollow also seemed marginal in its suitability for cockatoos as it is quite shallow in depth.

If DWER approve the clearing permit it is recommended that an inspection of all the trees be carried out by a suitably qualified "fauna specialist" immediately prior to clearing to determine if any of the hollows are in use at the time. Trees containing hollows found to be in use should not be felled until it is certain no fauna are present.

1. INTRODUCTION

This report details the results of a black cockatoo habitat tree assessment carried out over a section of Lot 12140 Jones Road, Yanmah.

The landowner (Morning Glory Enterprises Pty Ltd) has applied to clear 46.7 hectares of remnant bushland from within the Lot to the Department of Water and Environmental Regulation (DWER) (CPS 8482/1) (Figure 1).

An initial inspection of the area by DWER identified the presence of potential black cockatoo breeding habitat and as a consequence they have requested a black cockatoo habitat tree survey be undertaken (DWER 2019). The results of this survey are presented here.

2. SCOPE OF WORKS

The scope of works are based on specifications provided in DWER's request for additional information (DWER 2019) which states:

Information Requirements

- A black cockatoo habitat tree assessment / survey is required for the area proposed to be cleared.

Specifications

- The assessment/survey is to be carried out by a *fauna specialist* and the survey is required to identify all trees that have a diameter, measured at 1.5 metres from the base of the tree, of 50 centimetres or greater that contain a hollow(s) that may be suitable for breeding Carnaby's cockatoo, Baudin's cockatoo, and forest red-tailed black cockatoo.
- The survey must document:
    - the date(s) of the survey;
    - the GPS locations (i.e. eastings and northings or decimal degrees) of all trees identified as containing hollows which may be suitable for black cockatoos;
    - the methodology for determining the evidence of use of each hollow and a description/photo of the evidence; and
    - a description/photo of the evidence of use.

- All surveys must be submitted in accordance with the EPA's Instructions for the preparation of data packages for the Index of Biodiversity Surveys for Assessments (IBSA) and be accompanied by a completed Metadata and Licensing Statement.

NOTE: DWER considers "fauna specialist" to mean a person who holds a tertiary qualification specializing in environmental science or equivalent, and has a minimum of 2 years work experience in fauna identification and surveys of fauna native to the region being inspected or surveyed, and who holds a valid fauna licence issued under the *Biodiversity Conservation Act 2016 (WA).*

3. METHODS

An inspection of the permit area was carried out by Greg Harewood (Zoologist - 16 years' experience) on the 12 December 2019. The assessment involved a series of transects across the permit area while searching for trees which contained or potentially contained one or more hollows that appeared suitable or potentially suitable for black cockatoos to use for nesting purposes.

Details on each tree were recorded including species, location, number and type of hollows observed.

Potential hollows were initially placed into one of three categories based on the type of hollow entry:

- Chimney: the hollow entry faces directly upwards in the end of the trunk;
- Spout: hollow entry which is at the end of a broken branch; or
- Side: the entry is directly into the side of the trunk or a branch with no protrusions.

For the purpose of this review, hollows have then been placed into one of five categories based on the observable characteristics of each hollow. The categories used were:

- Confirmed Hollow: Black cockatoos observed utilising the hollow for breeding purposes;
- Chewed Hollow: The hollow shows signs of chewing ("chipping" around or near entrance and/or internally) attributed to black cockatoo activity (in most cases indicating nesting activity, but in some cases possibly marks left by black cockatoos investigating ("prospecting") hollows);
- Unused Hollow: The hollow appears to be of a suitable size for black cockatoos to use for nesting, but no conclusive evidence of this activity seen. It should be noted that chew marks/chipping are not always evident or present on some hollows that

have been used for nesting. Hollows classified as "unused" may therefore have been used for nesting but cannot be specifically classified as such. Alternatively, some "unused" hollows may not be suitable for black cockatoos as a range of characteristics, not all of which can be seen or measured, ultimately determined if a hollow will ever actually be used;

- Unsuitable Hollow: The hollow has been assessed, based on information obtained, as being unlikely to be suitable for black cockatoos (generally because of the entrance appearing to be too small or because the actual hollow or accommodating branch/tree trunk appears to be too small or as having an unfavourable orientation);

- No Hollow: A possible hollow was found upon closer inspection to not be present.

Identified hollows were examined using binoculars for evidence of actual use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches). Where possible each potential hollow was also inspected and photographed with a drone.

4. SURVEY CONSTRAINTS

No seasonal sampling has been carried out as part of this fauna assessment. The conclusions presented are based upon field data and the environmental monitoring and/or testing carried out over a limited period of time and are therefore merely indicative of the environmental condition of the site at the time of the field assessments. It should also be recognised that site conditions can change with time.

During the black cockatoo habitat survey trees with hollows were searched for. It should be noted that identifying hollows suitable for fauna species from ground level has limitations. Generally, the full characteristics of any hollow seen are not fully evident (e.g. internal dimensions). It is also difficult to locate all hollows within all trees as some are not observable from ground level, though to a certain extent some of these limitations can be overcome by using a drone or pole camera to examine possible hollows in more detail (where considered warranted and feasible).

5. RESULTS

The permit area was found to be dominated by an open forest/woodland of marri and jarrah trees with some blackbutt. The vast majority of the trees were relatively young and appear to represent regrowth from a historical clearing event. Because of their relatively young age most trees do not contain hollows, or if present, what appeared to be only small hollows that would be unsuitable for black cockatoos to use for nesting.

Eight trees were identified within the permit area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. The location of these trees is shown in Figure 1. Details of each tree and the hollows they contain can be found in Appendix A.

A summary of observations made are provided in Table 1 below.

Table 1: Summary of Observations

Tree ID	Number of Hollows	Status	Justification
1	2+	Several unsuitable hollows.	Spout type hollow with large entrance unfavourably orientated and appears too small internally. Some smaller unsuitable hollows in branches. No evidence of any use.
2	2+	Several unsuitable hollows.	One large chimney style hollow found to be very shallow with expose floor. This hollow appears to be too shallow for black cockatoos to use for nesting purposes. Some smaller unsuitable hollows in branches. No evidence of any use.
3	1	One unsuitable hollow.	Large side entry style hollow. This hollow appears to be too open and shallow for black cockatoos to use for nesting purposes. No evidence of any use.
4	2+	Several unsuitable hollows.	One spout style hollow found to be too shallow and narrow for black cockatoos to use for nesting purposes. Some smaller unsuitable hollows in branches. No evidence of any use.
5	1	One unsuitable hollow.	Large chimney type hollow in broken off trunk. Drone pictures indicate the presence of very shallow, open hollow, that appeared unsuitable for nesting black cockatoos. No evidence of any use.
6	2	One unsuitable hollow and one possibly chewed hollow.	A large chimney type hollow in this tree was found to be very open/shallow suggesting it would be unsuitable for black cockatoos. No evidence of any use. The side entry hollow appeared to go in some distance but had little vertical depth which may limit its favourability for black cockatoos. Some possible chew marks around entrance but inconclusive if caused by black cockatoos or galahs.
7	1	One unused hollow.	A chimney type hollow having some depth suggesting it may be suitable for black cockatoos though the entrance was partly overhung with branches which could restrict access. No evidence of any use.
8	2	Two unsuitable hollows.	One chimney type hollow was found to be very open/shallow suggesting it would be unsuitable for black cockatoos. No evidence of any use. A side entry hollow had marginal entrance size (~10cm) and had little vertical depth which may limit its favourability for black cockatoos. No evidence of any use.

Six of the seven hollow bearing habitat trees located contained what were assessed at the time as unsuitable hollows. This conclusion was generally based on the hollow being too shallow/open in the case of chimney and side entry hollows or unfavourably orientated and//or too small in the case of the spout type hollows observed.

One tree appeared to have a suitable sized chimney type hollow (Tree 7) but no signs of it having been used were evident.

Tree 6 contain a side entry hollow which had some possible chew marks around its entrance however it appeared to have little vertical depth which suggested it was not very favourable for black cockatoos. The marks around the entrance were not very extensive also suggesting only a minor level of activity possibly associated with investigating ("prospecting") and not actual nesting or possibly galah activity. The status of this hollow therefore remains inconclusive.

6. CONCLUSION

The assessment reported on here was undertaken to determine the presence of suitable breeding trees with the proposed clearing area.

The vast majority of the trees present within the permit area were relatively young and as a consequence most do not contain hollows, or if present, what appeared to be only small hollows that would be unsuitable for black cockatoos to use for nesting.

No conclusive evidence of black cockatoo nesting activity was observed in any tree within the permit area. Eight trees were identified within the permit area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. Upon closer inspection with a drone six of the eight trees were assessed as not having hollows suitable for black cockatoos to use for nesting.

One tree was observed to contain a large chimney type hollow that appeared to be of a suitable size for black cockatoos but showed no evidence of use. A side entry hollow in tree 6 showed some minor evidence of use in the form of some apparent chew marks but the actual cause (black cockatoos/galahs nesting/investigating?) was inconclusive. This hollow also seemed marginal in its suitability for cockatoos as it is quite shallow in depth.

If DWER approve the clearing permit it is recommended that an inspection of all the trees be carried out by a suitably qualified "fauna specialist" immediately prior to clearing to determine if any of the hollows are in use at the time. Trees containing hollows found to be in use should not be felled until it is certain no fauna are present.

This report should be forwarded to DWER for their consideration.

7. REFERENCES

Department of Water and Environmental and Regulation (DWER) (2019). Email to Bevan Eatts – Application to Clear – Request for information. Ref: CPS 8482/1. Dated 29 November 2019.

FIGURES

Legend

- Permit Area (8482/1)
- Habitat Trees Inspected

0 50 100 150 200 250

Metres

Fauna Survey

CPS 8482/1
LOT 12140 JONES ROAD
YANMAH

Habitat Trees Inspected

Drawn: G. Harewood
Date: Dec 2019
Scale: 1:5,000
Projection/Coordinate System: UTM/MGA Zone 50

Figure: 1

APPENDIX A

HABITAT TREE DETAILS

ID	Location Data (MGA 94/Z50)	408724 mE	6217194 mN	Species	Jarrah (dead)	Survey Date	12/12/2019
1	Comments	Dead jarrah stag. From ground level some of the upper branches appeared to have possible hollows. Drone pictures indicate the presence of one spout type hollow in a branch (pictured on left), but the branch itself was near horizontal and appeared to be too narrow in diameter to provide enough floor space for a nesting black cockatoo (i.e. less than ~20cm). No evidence of any use. Other branches did not contain hollows (e.g. picture on right) or if present, were too small.				Classification	Unsuitable Hollows

ID	Location Data (MGA 94/Z50)	408843 mE	6217160 mN	Species	Marri	Survey Date	12/12/2019
2	**Comments**	Marri with dead upper branches. From ground level appeared to have possible large chimney style hollow. Drone pictures indicate the presence of a very shallow hollow with well expose floor (pictured below). This hollow appears to be too shallow for black cockatoos to use for nesting purposes. No evidence of any use. Some smaller unsuitable hollows in branches.				**Classification**	Unsuitable Hollows

ID	Location Data (MGA 94/Z50)	409002 mE	6217194 mN	Species	Marri	Survey Date	12/12/2019
3	Comments	Marri. From ground level appeared to have possible large side entry style hollow. Drone pictures indicate the presence of a very shallow hollow with well expose floor with smaller openings on the opposite side (pictured below). This hollow appears to be too shallow for black cockatoos to use for nesting purposes. No evidence of any use.				Classification	Unsuitable Hollow

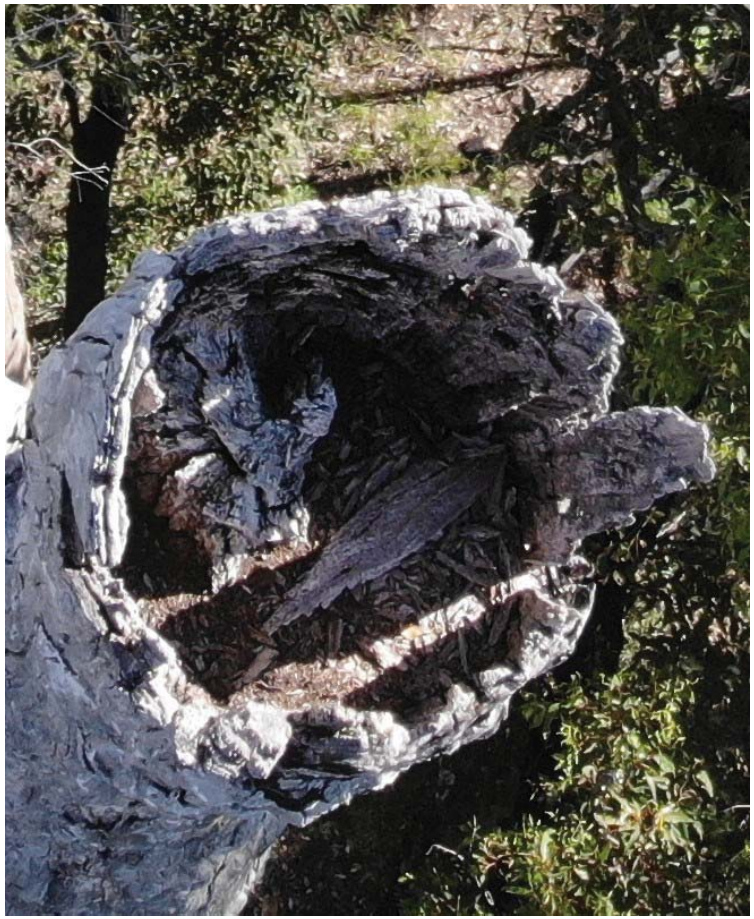
ID	Location Data (MGA 94/Z50)	408529 mE	6217436 mN	Species	Marri	Survey Date	12/12/2019
4	**Comments**	Marri with dead upper branches. From ground level some of the upper branches appeared to have possible hollows. Drone pictures indicate the presence of one spout type hollow in a branch (pictured below), but the hollow appeared to be very shallow and too narrow in diameter to provide enough floor space for a nesting black cockatoo (i.e. less than ~20cm). No evidence of any use. Other branches did not contain hollows or if present, were too small.				**Classification**	Unsuitable Hollows

ID	Location Data (MGA 94/Z50)	408317 mE	6217741 mN	Species	Marri (dead)	Survey Date	12/12/2019
5	**Comments**	Dead marri. From ground level appeared to have large chimney type hollow in broken off trunk. Drone pictures indicate the presence of very shallow, open hollow (pictured below), that appeared unsuitable for nesting black cockatoos. No evidence of any use.				**Classification**	Unsuitable Hollow

ID	Location Data (MGA 94/Z50)	408275 mE	6217764 mN	Species	Marri	Survey Date	12/12/2019
6	Comments	Marri that from ground level appeared to have large chimney type hollow and a side entry hollow. Drone pictures show the chimney type hollow (pictured on left) as being very open/shallow suggesting it would be unsuitable for black cockatoos. No evidence of any use. The side entry hollow (pictured on right) appeared to go in some distance but had little vertical depth which may limit its favourability for black cockatoos. Some possible chew marks around entrance but inconclusive if caused by black cockatoos or galahs.					Classification	Unsuitable Hollow + Chewed Hollow?

ID	Location Data (MGA 94/Z50)	408654 mE	6217371 mN	Species	Marri	Survey Date	12/12/2019
7	Comments	Marri that from ground level appeared to have large chimney type hollow. Drone pictures show the chimney type hollow as being present and having some depth suggesting it may be suitable for black cockatoos though the entrance was partly over hung with branches which could restrict access. No evidence of any use.				Classification	Unused Hollow

ID	Location Data (MGA 94/Z50)	408819 mE	6217340 mN	Species	Marri (dead)	Survey Date	12/12/2019
8	Comments	Dead marri that from ground level appeared to have large chimney type hollow and a side entry hollow. Drone pictures show the chimney type hollow (pictured on left) as being very open/shallow suggesting it would be unsuitable for black cockatoos. No evidence of any use. The side entry hollow (pictured on right) had marginal entrance size (~10cm) and had little vertical depth which may limit its favourability for black cockatoos. No evidence of any use.				Classification	Unsuitable Hollows



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