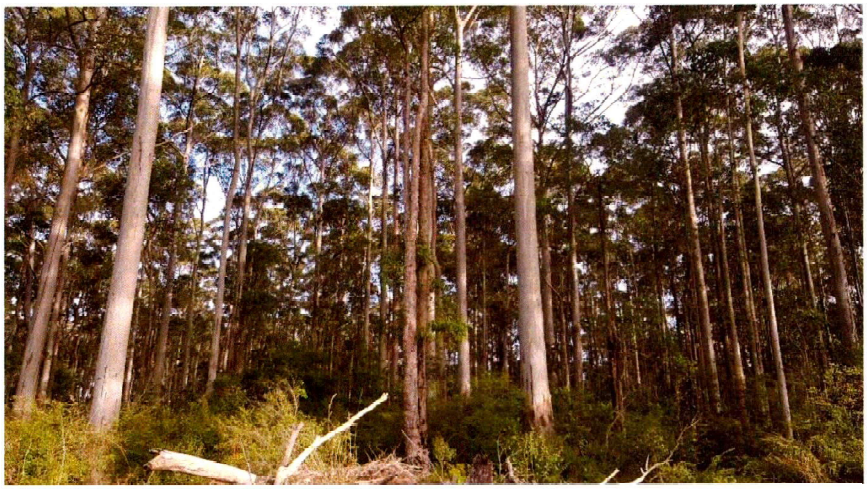
6.

Black Cockatoo

Habitat Tree Assessment



Lots 9766-9768 and 9770

Glenoran

September 2020

Version 2

On behalf of:

[redacted]

Prepared by:

[redacted]

TABLE OF CONTENTS

SUMMARY

1. INTRODUCTION 1
2. SCOPE OF WORKS 1
3. METHODS 2
4. SURVEY CONSTRAINTS 3
5. RESULTS 3
6. CONCLUSION 4

TABLES

TABLE 1: Summary of Observations

FIGURES

FIGURE 1: Air Photo & Trees Inspected

APPENDICES

APPENDIX A: Habitat Tree Details

SUMMARY

This report details the results of a black cockatoo habitat tree assessment carried out over various sections of Lot 9766, 9767, 9768 and 9770, Glenoran.

Waugh's Forest Services (on behalf of the landowner) is proposing to apply for a permit to clear native vegetation from within the Lots to the Department of Water and Environmental Regulation (DWER) in the near future.

At the time of the assessment the exact area of clearing had yet to be finalised but will be within the areas shown on the attached figure (Figure 1). The area consists of six native vegetation remnants (labelled A-F) with a total area of about 57 hectares (the survey area). It is understood that the landowner is proposing to clear 41 hectares of vegetation from within this total area for the purpose for establish avocado orchards.

An inspection of the survey area was carried out by Greg Harewood (Zoologist - 17 years' experience) on the on the 5 June 2020. The assessment involved a series of transects across the survey 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 survey 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.

The vast majority of the trees present within the survey 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.

Three trees were identified within the survey area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. Upon closer inspection with a drone none of the hollows/potential hollows were found to be suitable for black cockatoos to use for nesting.

This report should be forwarded to DWER when the permit to clear is applied for.

1. INTRODUCTION

This report details the results of a black cockatoo habitat tree assessment carried out over various sections of Lot 9766, 9767, 9768 and 9770, Glenoran.

Waugh's Forest Services (on behalf of the landowner) is proposing to apply for a permit to clear native vegetation from within the Lots to the Department of Water and Environmental Regulation (DWER) in the near future.

It is anticipated that DWER will request a survey for potential black cockatoo breeding habitat within the areas to be cleared and therefore this survey has been undertaken to provide the required information to allow for the application to proceed when it is submitted.

At the time of the assessment the exact area of clearing had yet to be finalised but will be within the areas shown on the attached figure (Figure 1). The area consists of six native vegetation remnants (labelled A-F) with a total area of about 57 hectares (the survey area). It is understood that the landowner is proposing to clear 41 hectares of vegetation from within this total area for the purpose for establish avocado orchards.

2. SCOPE OF WORKS

The scope of works are based on specifications typically provided by DWER when they request additional information on black cockatoo breeding habitat this being:

Information Requirements

- A black cockatoo habitat tree assessment / survey is required for the entire application area.

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.

- 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).

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

3. METHODS

An inspection of the survey area was carried out by Greg Harewood (Zoologist - 17 years' experience) on the 5 June 2020.

The assessment involved a series of transects across the survey 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

Areas A and F within the survey area were found to contain patches of open forest/woodland mostly comprised of karri (*Eucalyptus diversicolor*) with very occasional marri (*Corymbia*

calophylla) and jarrah (*Eucalyptus marginata*) trees. Understory varies from being almost absent to consisting of dense shrubs. The vast majority of the trees present are relatively young and appear to represent regrowth from historical clearing events. Because of their relatively young age most trees do not contain hollows, or if present, what appear to be only small hollows that would be unsuitable for black cockatoos to use for nesting.

Vegetation within areas B, C, D and E consists mainly of a tall, dense shrubland associated with a drainage line and apart from two trees in area E, contains no woodland habitat.

During the survey three trees were identified within the survey 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/possible 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 Possible Hollows	Status	Justification
19	2+	Unsuitable Hollows	Drone pictures indicate hollows within this tree have no depth or are too small for black cockatoos.
20	2+	No Hollows	Drone pictures indicate hollows within this tree have no depth and are therefore are not suitable for black cockatoos.
21	2+	Unsuitable Hollows	Drone pictures indicate hollows within this tree have no depth or are too small for black cockatoos.

All three trees suspected of having possible large hollows were, upon closer inspection with a drone, found to be unsuitable for black cockatoos. This conclusion in most cases was based on the hollow being too shallow/open.

6. CONCLUSION

The assessment reported on here was undertaken to determine the presence of suitable black cockatoo breeding trees within the survey area.

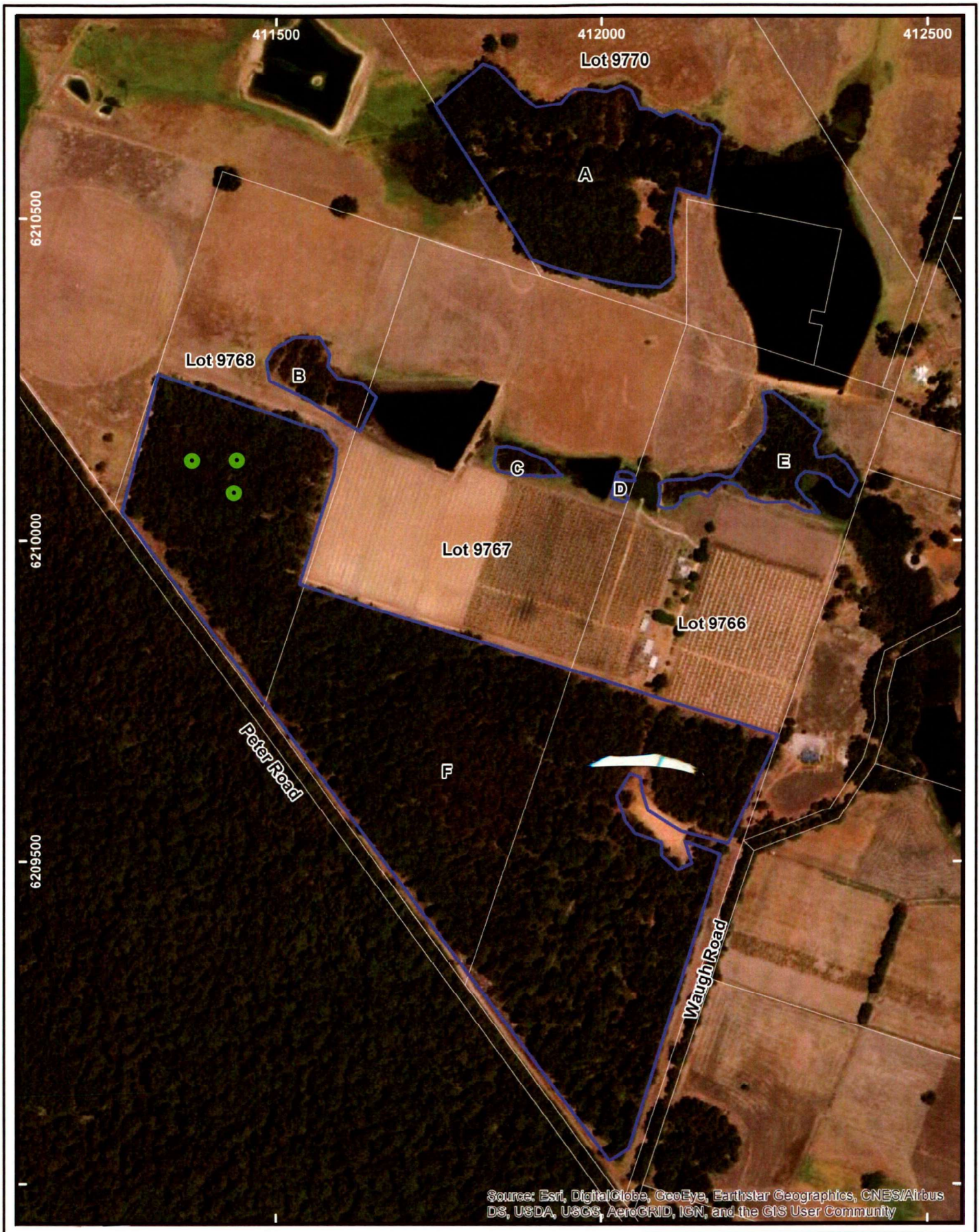
The vast majority of the trees present within the survey area were relatively young and as a consequence most do not contain hollows, or if present, what appeared to be only small hollows that would be unsuitable for black cockatoos to use for nesting.

Three trees were identified within the survey area as containing one or more possible hollows potentially suitable for black cockatoos to use for nesting purposes. Upon closer inspection

with a drone none of the hollows/potential hollows were found to be suitable for black cockatoos to use for nesting.

This report should be forwarded to DWER when the permit to clear is applied for.

FIGURES



Legend

- Survey Area
- Habitat Tree - Inspected with Drone
  No Potential Nest Hollows

N

0 100 200
Metres

Fauna Survey

Drawn: G Harewood
Date: Aug 2020
Scale: 1: 50,000
Projection/Coordinate System: UTM/MGA Zone 50

Lots 9766-68 and 9770
Glenoran

Air Photo & Trees Inspected

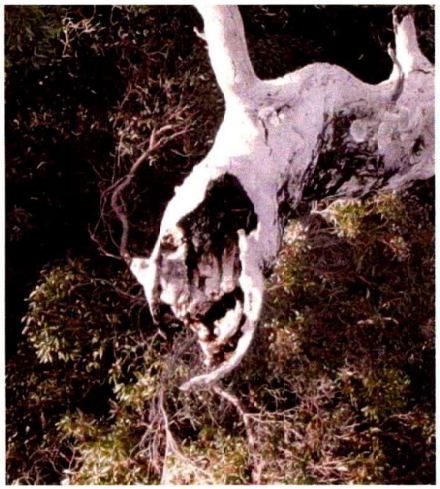
Figure: 1

APPENDIX A

Habitat Tree Details

WPT	Coordinates (MGA 94/Z50)	411434 mE	6210075 mN	Tree Species	Karri (dead)	Survey Date	05/06/2020
19	Comments	Karri with a number of possible side entry, spout and chimney like hollows. All of the hollows were found to have no depth. Some additional possible hollows only provided access into narrow branches. This tree does not contain any hollows suitable for black cockatoos to use for nesting.				Classification	Unsuitable Hollows

WPT	Coordinates (MGA 94/Z50)	411439 mE	6210125 mN	Tree Species	Karri (dead)	Survey Date	05/06/2020
20	Comments	Large dead Karri with a number of possible side entry, spout and chimney like hollows. All of the hollows were found to have no depth. This tree does not contain any hollows suitable for black cockatoos to use for nesting.				Classification	No Hollows



WPT	Coordinates (MGA 94/Z50)	411370 mE	6210124 mN	Tree Species	Karri (dead)	Survey Date	05/06/2020
21	Comments	Large dead Karri with a number of possible side entry, spout and chimney like hollows. All of the hollows were found to have little or no depth. This tree does not contain any hollows suitable for black cockatoos to use for nesting.				Classification	Unsuitable Hollows

DISCLAIMER

This fauna assessment report ("the report") has been prepared in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and Greg Harewood ("the Author"). In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. In accordance with the scope of services, the Author has relied upon the data and has conducted environmental field monitoring and/or testing in the preparation of the report. The nature and extent of monitoring and/or testing conducted is described in the report.

The conclusions 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 preparing the report. Also it should be recognised that site conditions, can change with time.

Within the limitations imposed by the scope of services, the field assessment and preparation of this report have been undertaken and performed in a professional manner, in accordance with generally accepted practices and using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

In preparing the report, the Author has relied upon data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise stated in the report, the Author has not verified the accuracy of completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. The Author will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to the Author.

The report has been prepared for the benefit of the Client and no other party. The Author assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including without limitation matters arising from any negligent act or omission of the Author or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

The Author will not be liable to update or revise the report to take into account any events or emergent circumstances or facts occurring or becoming apparent after the date of the report.