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Dear [redacted]

Technical Memorandum: Threatened Black Cockatoo Habitat Assessment and Significant Impact Assessment (2025-028)

We wish to share the findings of the Threatened Black Cockatoo Habitat Assessment and Significant Impact Assessment related to the Basic Fauna and Reconnaissance Flora surveys completed at Wokalup, WA (see Trace 2025). The black cockatoo habitat assessment was completed as per the referral guidelines (DAWE 2022) to assess the presence of breeding, roosting, and foraging habitat. A Significant Impact Assessment is required as per Matters of National Environmental Significance (MNES) Significant Impact Guidelines 1.1 (DoE 2013) to determine whether the proposed action is likely to have a significant impact on threatened black cockatoos as per the EPBC Act 1999.

Trace consultants found evidence for potential black cockatoo breeding and high-quality foraging habitats along the proposed work alignment. Therefore, it is likely to require a referral to the minister. However, if the proposed impact mitigation methods were adopted and followed (see Section 9.0), it may eliminate the need to refer the proposed actions to the minister as per referral guidelines (DAWE 2022).

It is recommended that you read and interpret the information presented in this document in conjunction with the separately submitted final report documenting the basic fauna and reconnaissance flora surveys. Please feel free to contact us if you have any questions and/or need further clarification.

Yours sincerely,

[redacted]

1.0 Background

The Harvest Road Group seeks consent to clear a narrow strip of native vegetation along a 4.2km of road verge for power cable installation in Wokalup, WA. The Harvest Road Group commissioned Trace Enterprises to prepare an Environmental Assessment Report describing the environmental values of the survey area and assessing the potential environmental impacts of the proposed development. The basic fauna survey conducted on April 15th 2025 (see Trace 2025), recovered evidence for a high likelihood of occurrence for three (3) species/taxa of threatened black cockatoos in the survey area: Baudin's black cockatoo (*Zanda baudinii*), Carnaby's black cockatoo (*Zanda latirostris*), and Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*).

2.0 Black Cockatoo Taxa

Carnaby's black cockatoo (*Zanda latirostris*)

Nationally endangered (EPBC Act 1999), Carnaby's black cockatoo is a WA endemic and restricted to Southwestern WA. It is listed as endangered under the WA BC Act 2016 (SPRAT 2025) and globally, as endangered by the IUCN Red List of Threatened Species (IUCN 2025). It may occur in its foraging habitat and night roosts located in Swan Coastal Plain (SCP) at any time of year, with the main period being from January to July; some individuals occur all year. Localised breeding may occur from July to December. The Harvey survey area lies well within this species' known breeding and foraging range (DAWE 2022).

Baudin's black cockatoo (*Zanda baudinii*)

Nationally endangered, Baudin's black cockatoo is a WA endemic and restricted to Southwestern WA. It is listed as endangered under the WA BC Act 2016 (SPRAT 2025) and globally, as critically endangered by the IUCN Red List of Threatened Species (IUCN 2025). It is unlikely to occur in much of the SCP, especially western and northern areas. Foraging may occur in SCP from March to September. Breeding may occur in the southern SCP. The Harvey survey area lies within this species' known foraging and wintering areas (DAWE 2022).

NOTE: Without closer inspection of bill morphology and vocalisations, it is very hard to separate Carnaby's Black Cockatoo (*Zanda latirostris*) from Baudin's Black Cockatoo (*Z. baudinii*). Additionally, both species are likely in the survey area, and no black cockatoos were directly observed visually or auditorily during the fauna survey. Therefore, this report treats both species as White-tailed black cockatoo (*Zanda latirostris* OR *Z. baudinii*). Note that the survey area lies well within possible White-tailed black cockatoo breeding and foraging ranges (see Trace 2025).

Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*)

Nationally vulnerable, Forest red-tailed black cockatoo is one of five subspecies of *Calyptorhynchus banksii*, and this subspecies is a WA endemic and restricted to Southwestern WA (Menkhorst et al. 2019). It is listed as vulnerable under the WA BC Act 2016 (SPRAT 2025). This black cockatoo is more widespread than the two (2) previous species and can be found in foraging habitats and night roosts at any time of the year. Breeding habitat may occur in some locations containing suitable breeding tree species, including the Perth metropolitan area. The Harvey survey area lies within this species' known foraging and wintering areas (DAWE 2022).

3.0 Legislative Context

Baudin's black cockatoo (*Zanda baudinii*), Carnaby's black cockatoo (*Zanda latirostris*), and Forest red-tailed black cockatoo (*Calyptorhynchus banksii naso*) are nationally protected as Endangered or Vulnerable under the EPBC Act 1999. Therefore, these threatened black cockatoos are considered a Matter of National Environmental Significance (MNES) as per the EPBC Act 1999.

The Referral Guidelines for threatened black cockatoos in WA (DAWE 2022) provide guidance on what actions are likely and unlikely to require referral to the Minister of Environment because they could have a significant impact on black cockatoos. It is required that EPBC Act 1999 Significant Impact Guidelines 1.1 be followed to determine any potential significant impacts of the proposed actions on threatened black cockatoos (DoE 2013).

4.0 Significant Impact

A person who proposes to take an action that will have, or is likely to have, a **significant impact** on a Matter of National Environmental Significance (MNES) must refer that action to the Minister for a decision on whether assessment and approval is required under the EPBC Act 1999 (DoE 2013).

> A **significant impact** is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. You should consider all of these factors when determining whether an action is likely to have a significant impact on matters of national environmental significance (DoE 2013).

Significant Impact Guidelines 1.1 (DoE 2013) recommends a self-assessment to decide whether the proposed action is likely to significantly impact any MNES. The black cockatoo habitat assessment is considered the self-assessment for the proposed vegetation clearing at Wokalup site.

5.0 Significant Impact Criteria for Threatened Species

The proposed vegetation clearing at Wokalup site may pose a significant impact on nationally threatened black cockatoos and their **critical habitat**.

> A **critical habitat** of a species refers to areas that are necessary for activities such as foraging, breeding, roosting, or dispersal; for the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators); to maintain genetic diversity and long term evolutionary development, or for the reintroduction of populations or recovery

Significant impact criteria for Critically Endangered and Endangered species (DoE 2013)

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

1) lead to a long-term decrease in the size of a population
2) reduce the area of occupancy of the species
3) fragment an existing population into two or more populations
4) adversely affect habitat critical to the survival of a species
5) disrupt the breeding cycle of a population
6) modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
7) result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat
8) introduce disease that may cause the species to decline, or
9) interfere with the recovery of the species.

Significant impact criteria for Vulnerable species (DoE 2013)

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

1) lead to a long-term decrease in the size of an important population of a species
2) reduce the area of occupancy of an important population
3) fragment an existing important population into two or more populations
4) adversely affect habitat critical to the survival of a species
5) disrupt the breeding cycle of an important population
6) modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline
7) result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat
8) introduce disease that may cause the species to decline, or
9) interfere substantially with the recovery of the species.

6.0 Black Cockatoo Habitat Assessment

The black cockatoo breeding, roosting and foraging habitat is defined as follows.

Breeding habitat

Black cockatoo "breeding habitat" is defined as trees of species known to support black cockatoo breeding within the range of the species which either have a suitable nest hollow or have a DBH of 500mm or greater (e.g. Marri and Jarrah) or 300mm (e.g. Wandoo and Salmon Gum) (DAWE, 2022). See Appendix 1 for a summary of black cockatoo habitat information (DAWE 2022).

Roosting habitat

Black cockatoo "roosting habitat' is defined based on the presence of black cockatoos in the survey area in the evening and early morning and if there are scats or moulted feathers under the roosting area. See Appendix 1 for a summary of black cockatoo habitat information (DAWE 2022).

Foraging habitat

Black cockatoo "foraging habitat" is defined based on the food plant species on the site and evidence of feeding such as direct observation of birds feeding or chewed nuts and cones. See Appendix 1 for a summary of black cockatoo habitat information (DAWE 2022).

The desktop assessment suggested that three (3) species of threatened black cockatoos are highly likely to occur in the proposed project area. Additionally, nearby records exist for black cockatoo breeding and roosting within 5km of the survey area (DBCA data). Therefore, a black cockatoo habitat assessment was conducted, focusing on potential breeding, roosting, and foraging habitats along the proposed project transect line. While traversing on foot, black cockatoo habitat information was electronically recorded using a field data collection device as georeferenced data points, and photographs were taken. The extent, type, and quality of the vegetation present, including the presence and extent of plants known to be used by black cockatoos, was recorded as per the referral guideline for threatened black cockatoos (DAWA 2022).

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Foraging habitat was examined, recorded, and scored in accordance with the scoring system developed by Bamford (2020) for the assessment of the foraging value of vegetation. See Appendix 2 details of the scoring system. Context adjustments for threatened black cockatoo foraging habitat within the survey area were completed based on the template provided by DAWE (2022, see Appendix 3).

7.0 Black Cockatoo Habitat Assessment Results

Three (3) taxa of threatened black cockatoos are expected in the survey area. No threatened black cockatoos were directly observed during the field survey. About 2.35ha of the survey area represented potential black cockatoo habitat (see Map 1 and Map 2). Definitive evidence of black cockatoos using the survey area as a foraging habitat and the presence of potential breeding trees were uncovered during the field survey.

Breeding habitat

The majority of the mature Marri (*Corymbia calophylla*) trees located along the proposed work alignment (see Map 1 and Map 2) met the definition of potential breeding habitat due to their DBH being ≥500mm. However, none of the trees had hollows suitable for black cockatoo breeding.

Roosting Habitat

No evidence for black cockatoo roosting habitats was recovered during the field survey. An isolated moulted white-tailed black cockatoo tail feather (see Trace 2025) was recovered from the survey area. However, sufficient evidence to support black cockatoo roosting was not recovered.

Foraging Habitat

Although black cockatoos were not observed during the field survey, evidence for the black cockatoo foraging (i.e. chewed Marri nuts) was recovered (see Figure 1 and Figure 2). Collectively, about 2.35ha of the survey area was identified as potential black cockatoo foraging habitat (see Map 1 and Map 2). The survey area supported small clusters and individual trees of mature and fruit-bearing Marri trees (*Corymbia calophylla*; total area 1.12ha), which is a preferred foraging species for Baudin's and Forest red-tailed black

cockatoos (see Map 1 and Map 2). Tracks of *Eucalyptus* spp. (predominantly Flooded gum, *Eucalyptus rudis*; total area 1.23ha) were also present in the survey area, which supports black cockatoo foraging (see Map 1 and Map 2).

A summary of Foraging Values and corresponding areas for each black cockatoo species is presented in Table 1 and the overall context adjusted threatened black cockatoo foraging habitat within the survey area is presented in Table 2. The overall appraisal is presented at the end of the Table 2.

Table 1 Foraging values and corresponding areas (ha) for three (3) threatened black cockatoo species within the survey area.

NOTE: The foraging values were generated based on the scoring system proposed by Bamford (2020, see Appendix 2).

Foraging value	Area (ha) for Carnaby's black cockatoo	Area (ha) for Baudin's black cockatoo	Area (ha) for Forest red-tailed black cockatoo
0 - No foraging value			
1 - Negligible to low foraging value		1.23 (52%)	1.23 (52%)
2 - Low foraging value	1.23 (52%)		
3 - Low to Moderate foraging value	1.12 (48%)		
4 - Moderate foraging value		1.12 (48%)	1.12 (48%)
5 - Moderate to High foraging value			
6 - High foraging value			
Total Area (Ha)	2.35	2.35	2.35

Table 2 Context adjustments for threatened black cockatoo foraging habitat within the survey area.

NOTE: The context adjustments for black cockatoo foraging habitat were completed based on the foraging quality scoring tool developed by DAWE (2022, see Appendix 3).

Score adjustment	Description	Carnaby's black cockatoo	Baudin's black cockatoo	Forest red-tailed black cockatoo
Starting score (10)	Site condition = 6 Site context = 3 Species stocking rate = 1	10	10	10
Moderated starting score	The moderated score based on the foraging value, vegetation condition, and presence of preferred foraging species.	6 Proteaceae plants rare. But healthy small-fruited Eucalypts present. 52% low and 48% low-moderate foraging values.	8 Clusters of healthy Marri trees and other Eucalypts present with evidence for feeding (i.e. chewed Marri nuts). But 52% negligible - low and 48% moderate foraging values.	8 Clusters of healthy Marri trees and other Eucalypts present with evidence for feeding (i.e. chewed Marri nuts). But 52% negligible - low and 48% moderate foraging values.
Foraging potential (-2)	Contains suitable foraging species. No evidence of feeding debris.	-2		
Connectivity (-1)	No other foraging habitat within 12 km of survey area.			
Proximity to breeding (-2)	Survey site is more than 12 km from breeding habitat.			
Proximity to roosting (-1)	Survey site is more than 20 km from a known night roosting habitat.			
Proximity to water (-1)	Survey site is more than 2 km from a watering point.			

Score adjustment	Description	Carnaby's black cockatoo	Baudin's black cockatoo	Forest red-tailed black cockatoo
Impact from significant plant diseases (-1)	Disease present (e.g. *Phytophthora cinnamomi* or marri canker).			
Total Score		4	8	8
Appraisal	Foraging values for each species (see Table 1) show that the survey area supports preferred foraging species for Baudin's and Forest red-tailed black cockatoos. However, only about 52% of the potential habitat (Marri) has a moderate foraging value, while the rest (Eucalypts) have a negligible to low foraging value. Therefore, the moderated starting score was lowered by -2 to account for the overall foraging habitat quality for Baudin's and Forest red-tailed black cockatoos. Species stocking rate was treated as 1 due to the finding of feeding debris for both species in the survey area (see Figure 1 and Figure 2). Preferred foraging species for Carnaby's black cockatoo are virtually absent in the survey area, and the remaining foraging species (Marri and Eucalypts) provide only a low-moderate foraging value for this species. Therefore, the moderated starting score was lowered by -3 to account for the overall foraging habitat quality for Carnaby's black cockatoos. The species stocking rate was treated as 0 (i.e. -1) due to the lack of direct observations/feeding debris in the survey area. Context adjustor for foraging potential was adjusted by -2 due to a lack of feeding debris for Carnaby's black cockatoos. Other factors were not impacted due to the presence of additional foraging habitats, breeding habitats, roosting habitats, and watering points within the specified distances in DAWE (2022). No signs of significant plant diseases were observed during the survey. **Therefore, the survey area represents high-quality native foraging habitat (a score of 5-10, see Appendix 4) for Baudin's and Forest red-tailed black cockatoos, while low-quality native foraging habitat (a score of 0-4) for Carnaby's black cockatoo.**			

Figure 1 Chewed Marri (*Corymbia calophylla*) nuts possibly by Forest red-tailed black cockatoos (*Calyptorhynchus banksii naso*) (© Trace Enterprises 2025).

Figure 2 Chewed Marri (*Corymbia calophylla*) nuts possibly by Baudin's black cockatoos (*Z. baudinii*) (© Trace Enterprises 2025).

8.0 Summary & Conclusions

Although not directly observed, the survey area provides habitat for threatened black cockatoos, consisting predominantly of suitable foraging habitat. No known roosting habitat nor any known or likely breeding habitat was recorded at the site, although trees that could be suitable for roosting and breeding occur in the survey area.

The available foraging habitat value for Carnaby's black cockatoo ranged between "low" and "low to moderate", while for Baudin's and Forest red-tailed black cockatoos, it ranged between "negligible to low" and "moderate".

The overall foraging habitat quality assessment with context adjustors showed that the survey area represents high-quality native foraging habitat (a score of 5-10) for Baudin's and Forest red-tailed black cockatoos, while low-quality native foraging habitat (a score of 0-4) for Carnaby's black cockatoo.

The Referral Guidelines (DAWE 2022) suggest referral of a project if the proposed actions involve loss of;

- any breeding habitat (i.e. known, suitable, or potential nesting trees),
- part of a night roosting site,
- more than 1ha of high-quality foraging habitat,
- more than 10ha of low-quality foraging habitat, or
- more than 1ha of exotic foraging habitat (e.g. Cape Lilac trees and pine trees).

The proposed cable installation at the Wokalup site by directional drilling method (~4.2km) has a relatively low impact on flora and vegetation. Although the amount of vegetation clearing has been significantly reduced, it is still likely required for drill setup, entry and exit holes, and flow holes (see Appendix 1: Scope of Works, Trace 2025).

The application of referral thresholds (DAWE 2022, see Appendix 4 for details) for three (3) threatened black cockatoos likely in the Wokalup site indicate that;

- The majority of the mature Marri (*Corymbia calophylla*) trees located along the proposed work alignment (see Map 1 and Map 2) met the definition of potential breeding habitat due to their DBH being ≥ 500mm. However, none of the trees had

hollows suitable for black cockatoo breeding. Due to the scarcity of nesting resources, the loss of any potential nesting habitat is likely to require a referral to the minister.

- Although the available foraging habitat for Carnaby's black cockatoos along the proposed work alignment (see Map 1 and Map 2) represents less than 10ha of low-quality native foraging habitat, the same 2.35ha area met the definition of high-quality native foraging habitat for both Baudin's and Forest red-tailed black cockatoos. Since the area of the high-quality foraging habitat is more than 1ha, it is likely to require a referral to the minister due to the critical nature of these resources at all stages of life for the black cockatoo species.

By adopting the following mitigation standards to avoid any significant impacts to threatened black cockatoo habitat at the Wokalup site, the proponent will be able to eliminate the need to refer the proposed actions to the minister as per the referral guidelines (DAWE 2022, DoE 2013).

9.0 Recommendations for Impact Mitigation

The potential black cockatoo breeding habitat and high-quality foraging habitat identified along the proposed work alignment represent critical habitat of threatened black cockatoos. Therefore, it is vital to avoid any impacts or damage to mature trees (especially Marri, *Corymbia calophylla*) due to proposed work at the Wokalup site.

Avoiding impacts to breeding habitat and high-quality foraging habitat may eliminate the need to refer proposed actions to the minister (DAWE 2022). Trace suggests the following impact mitigation methods to avoid impacts to the breeding habitat and high-quality foraging habitat of black cockatoos at the Wokalup site.

1) Do not clear or damage mature Marri (*Corymbia calophylla*) trees with a DBH of ≥ 300mm to preserve potential black cockatoo breeding habitat (see Map 1 and Map 2).
2) Do not clear or damage more than 1ha Marri (*Corymbia calophylla*) and native *Eucalyptus* spp. that may support high-quality black cockatoo foraging habitat (see Map 1 and Map 2).

Additionally, Trace recommends the following actions to preserve the overall quality of threatened black cockatoo habitat at the Wokalup site.

1) A qualified arborist should be on site during the drilling works for areas requiring tree trimming or pruning.
2) Utilise a hydrovac system during directional drilling to avoid damage to the root systems of mature Marri (*Corymbia calophylla*) and native *Eucalyptus* spp.
3) Engage an accredited Green Card trainer to deliver Green Card training to the field and key personnel to avoid the spread of Phytophthora dieback.

10.0 References

Bamford. (2022). INFINITE BLUE ENERGY; Arrowsmith Hydrogen Project Black-Cockatoo Assessment. A Report prepared by M.J. & A.R. Bamford Consulting Ecologist for Infinite Blue Energy. Pp. 19.

DAWE. (2022). Referral guideline for 3 WA threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black cockatoo, Department of Agriculture, Water and the Environment, Canberra.

PGV. (2023). WOODVALE MRS AMENDMENT- BLACK COCKATOO HABITAT ASSESSMENT. A Report prepared by PGV Environmental for Strategic Property Group. Pp. 24.

Trace. (2025). Basic Fauna & Reconnaissance Flora Surveys, Wokalup. A Report prepared by Trace Enterprises for Harvest Road Group. Pp. 93.

11.0 Maps


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2025-028 Harvest Road Group- Basic Fauna and Reconnaissance Flora Survey
Map 1: Threatened black cockatoo potential foraging habitat, and locations of chewed marri (Corymbia calophylla) nuts (Northern end).
Legend
Chewed Marri nuts
Foraging habitat
Corymbia calophylla
Eucalyptus spp.
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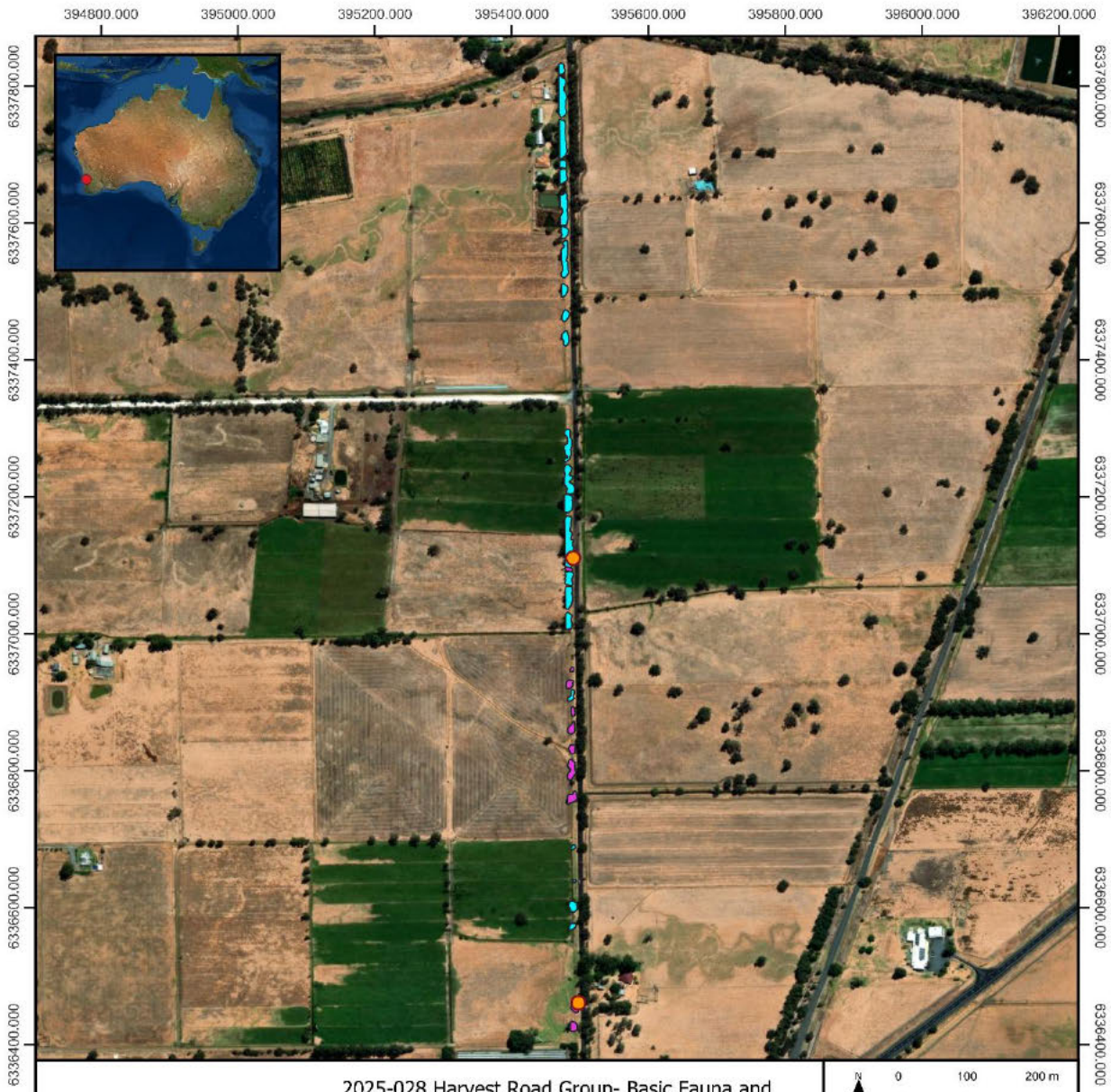
Data Sources: ESRI 2024; Trace Enterprises 2025
Coordinate System: GDA2020 / MGA zone 50
Scale: 1 : 8,400
Date Published: 28/04/2025
Cartographer: Hannah Anthony



2025-028 Harvest Road Group- Basic Fauna and Reconnaissance Flora Survey

Map 2: Threatened black cockatoo potential foraging habitat, and locations of chewed marri (Corymbia calophylla) nuts (Southern end).

Legend

- Chewed Marri nuts

Foraging habitat

- Corymbia calophylla
- Eucalyptus spp.

Data Sources: ESRI 2024; Trace Enterprises 2025

Coordinate System: GDA2020 / MGA zone 50

Scale: 1 : 8,400

Date Published: 28/04/2025

Cartographer: Hannah Anthony

12.0 Appendices

Appendix 1 A summary of black cockatoo habitat information (DAWE 2022)

Habitat	Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black Cockatoo
Breeding	Generally in woodland or forest, but may also breed in partially cleared woodland or forest, including isolated trees. Nest in hollows in live or dead trees (many eucalypt species may provide suitable hollows), particularly Karri *(Eucalyptus diversicolor)*, Marri, Jarrah, Wandoo, Bullich *(E. megacarpa)* and Tuart.	Generally in woodland or forest, but also breeds in partially cleared woodland or forest, including isolated trees. Nest in hollows in live or dead trees (many eucalypt species may provide suitable hollows), particularly Salmon Gum, Wandoo, Tuart, Jarrah, Flooded Gum *(E. rudis)*, York Gum, Powderbark *(E. accedens)*, Karri and Marri.	Generally in woodland or forest, but may also breed in partially cleared woodland or forest, including isolated trees. Nest in hollows in live or dead trees (many eucalypt species may provide suitable hollows), particularly Marri, Karri, Wandoo, Bullich, Blackbutt *(E. patens)*, Tuart and Jarrah.
Night roosting	Generally in or near riparian environments or other permanent water sources. Any tall trees may provide roosting habitat, but particularly Jarrah, Flooded Gum, Blackbutt, Tuart and introduced eucalypts (Blue Gum *(E. globulus)*, Lemon Scented Gum *(Corymbia citriodora)*.	Generally in or near riparian environments or natural and artificial permanent water sources. Any tall trees may provide roosting habitat, but particularly Flat-topped Yate *(E. occidentalis)*, Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, introduced eucalypts and introduced pines.	Any tall trees may provide roosting habitat, but particularly tall Jarrah, Marri, Blackbutt, Tuart and introduced eucalypt trees or large trees on the edges of forests.
Foraging and common food items	Primarily seeds of Marri, rarely Jarrah, in woodlands and forest, and seeds of native proteaceous plant species (for example, *Banksia* spp. (includes *Dryandra* spp.) and *Hakea* spp.). During the breeding season feed primarily on native vegetation, particularly Marri (seeds, flowers, nectar and grubs). Also insects and insect larvae; pith of Kangaroo Paw (*Anigozanthos flavidus*); tips of *Pinus* spp.; *Macadamia* spp., almonds and pecans; seeds of apples and pears; and persimmons.	Native shrubland, kwongan heathland and woodland on seeds, flowers and nectar of native proteaceous plant species (*Banksia* spp., *Hakea* spp. and *Grevillea* spp.), as well as *Callistemon* spp. and Marri. Also seeds of introduced species including *Pinus* spp., *Erodium* spp., wild radish, canola, almonds, macadamia and pecan nuts; insects and insect larvae; occasionally apples and persimmons; and liquidambar.	Primarily seeds of Jarrah and Marri in woodlands and forest, and edges of Karri forests, including Wandoo and Blackbutt. Forages on *Allocasuarina* cones, fruits of Snottygobble (*Persoonia longifolia*) and Mountain Marri (*C. haematoxylon*). Other less important foods include Blackbutt, Bullich, *Allocasuarina fraseriana*, *Hakea* spp., Tuart, Redheart Moit (*E. decipiens*) and Bushy Yate (*E. lehmanni*). Also some introduced eucalypts such as River Red Gum (*E. camaldulensis*) and Rose Gum (*E. grandis*). On the Swan Coastal Plain, often feeds on introduced Cape Lilac (*Melia azedarach*), *E. caesia*, *E. erythrocorys*, Lemon-scented Gum and Kaffir Plum (*Harpephyllum caffrum*).

Appendix 2 Scoring System for the Assessment of Foraging Value of Vegetation for three (3) threatened black cockatoos (Bamford 2020)

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
0	No foraging value. No Proteaceae, eucalypts or other potential sources of food. Examples: • Water bodies (e.g. salt lakes, dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits) or with vegetation of no food value, such as some suburban landscapes. • Mown grass	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).	No foraging value. No eucalypts or other potential sources of food. Examples: • Water bodies (e.g. dams, rivers); • Bare ground; • Developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).
1	Negligible to low foraging value. Examples: • Scattered specimens of known food plants but projected foliage cover of these is < 2%. This could include urban areas with scattered foraging trees; • Paddocks that are lightly vegetated with melons or other known food-source weeds (e.g. *Erodium* spp.) that represent a short-term and/or seasonal food source; • Blue Gum plantations (foraging by Carnaby's Black-Cockatoos has been reported but appears to be unusual).	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. This could include urban areas with scattered foraging trees.	Negligible to low foraging value. Scattered specimens of known food plants but projected foliage cover of these < 1%. Could include urban areas with scattered foraging trees.
2	Low foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have < 10% projected foliage cover; • Woodland with tree banksias 2-5% projected foliage cover; • Open eucalypt woodland/mallee of small-fruited species; • Paddocks that are densely vegetated with melons or other known food-source weeds (e.g. *Erodium* spp.) that represent a short-term and/or seasonal food source.	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri and Jarrah) 1-5% projected foliage cover; • Urban areas with scattered foraging trees.	Low foraging value. Examples: • Woodland with scattered specimens of known food plants (e.g. Marri, Jarrah or Sheoak) 1-5% projected foliage cover; • Urban areas with scattered food plants such as Cape Lilac, *Eucalyptus caesia* and *E. erythrocorys*.
3	Low to Moderate foraging value. Examples: • Shrubland in which species of foraging value, such as shrubby banksias, have 10-20% projected foliage cover; • Woodland with tree banksias 5-20% projected foliage cover; • Eucalypt Woodland/Mallee of small-fruited species; • Eucalypt Woodland with Marri < 10% projected foliage cover.	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).	Low to Moderate foraging value. Examples: • Eucalypt Woodland with known food plants (especially Marri and Jarrah) 5-20% projected foliage cover; • Parkland-cleared Eucalypt Woodland/Forest with known food plants 10-40% projected foliage cover (poor long-term viability without management); • Younger areas of (managed) revegetation with known food plants 10-40% projected foliage cover (establishing food sources with good long-term viability).

[redacted]

Site Score	Description of Vegetation Values		
	Carnaby's Black-Cockatoo	**Baudin's Black-Cockatoo**	**Forest Red-tailed Black-Cockatoo**
4	Moderate foraging value. Examples: • Woodland/low forest with tree banksias (of key species *B. attenuata* and *B. menziesii*) 20-40% projected foliage cover; • Kwongan/ Shrubland in which species of foraging value, such as shrubby banksias, have 20-40% projected foliage cover; • Eucalypt Woodland/Forest with Marri 20-40% projected foliage cover.	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Eucalypt Woodland/Forest with diverse, healthy understorey and known food trees (especially Marri) 10-20% projected foliage cover. • Orchards with highly desirable food sources (e.g. apples, pears, some stone fruits).	Moderate foraging value. Examples: • Marri-Jarrah Woodland/Forest with 20-40% projected foliage cover; • Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Sheoak Forest with 40-60% projected foliage cover.
5	Moderate to High foraging value. Examples: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with 40-60% projected foliage cover; • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths; • Pine plantations with trees more than 10 years old (but see pine note below in moderation section).	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths.	Moderate to High foraging value. Examples: • Marri-Jarrah Forest with 40-60% projected foliage cover; • Marri-Jarrah Forest with > 60% projected foliage cover but vegetation condition reduced due to weed invasion and/or some tree deaths. • Sheoak Forest with > 60% projected foliage cover.
6	High foraging value. Example: • Banksia Low Forest (of key species *B. attenuata* and *B. menziesii*) with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).	High foraging value. Example: • Marri-Jarrah Forest with > 60% projected foliage cover and vegetation condition good with low weed invasion and/or low tree deaths (indicating it is robust and unlikely to decline in the medium term).

Appendix 3 Foraging quality scoring tool (DAWE, 2022)

Table A1 Foraging quality scoring tool template

Starting score		Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tailed Black-Cockatoo
10		**Start at a score of 10** if your site is native eucalypt woodlands and forest, and proteaceous woodland and heath, particularly Marri, within the range of the species, including along roadsides and parkland cleared areas. Can include planted vegetation. **This tool only applies to sites equal to or larger than 1 hectare in size.**	**Start at a score of 10** if your site is native shrubland, kwongan heathland or woodland, dominated by proteaceous plant species such as *Banksia* spp. (including *Dryandra* spp.), *Hakea* spp. and *Grevillea* spp., as well as native eucalypt woodland and forest that contains foraging species, within the range of the species, including along roadsides and parkland cleared areas. Also includes planted native vegetation. **This tool only applies to sites equal to or larger than 1 hectare in size.**	**Start at a score of 10** if your site is Jarrah or Marri woodland and/or forest, or if it is on the edge of Karri forest, or if Wandoo and Blackbutt occur on the site, within the range of the subspecies, including along roadsides and parkland cleared areas. **This tool only applies to sites equal to or larger than 1 hectare in size.**
Attribute	Sub-tractions	Context adjustor (attributes reducing functionality of foraging habitat)		
Foraging potential	-2	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	**Subtract 2** from your score if there is no evidence of feeding debris on your site.	**Subtract 2** from your score if there is no evidence of feeding debris on your site.
Connectivity	-2	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	**Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.
Proximity to breeding	-2	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.	**Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat.
Proximity to roosting	-1	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	**Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.
Impact from significant plant disease	-1	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.	**Subtract 1** if your site has disease present (e.g. *Phytophthora* spp. or Marri canker) and the disease is affecting more than 50% of the preferred food plants present.
Total score		*Enter score*	*Enter score*	*Enter score*
Appraisal		To support your habitat score, you should provide an overall appraisal of the habitat on the impact site and within 20km of the impact area to clearly explain and justify the score. It should include discussion on the foraging habitat's proximity to other resources (e.g. exact distance to proximate resources), frequency of use of proximate sites, the degree of evidence and description of vegetation type and condition.		

Appendix 4 Referral thresholds for black cockatoos (DAWE 2022)

Table 3 Referral thresholds for black cockatoos

Attribute	Referral threshold	Reasons
Breeding	Any loss of / impact upon known, suitable or potential nesting trees, and the habitat around these trees, is highly likely to require a referral to the minister. Loss of any potential nesting habitat is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of breeding habitat is a known threat to the 3 species[a] as a lack of tree hollows is a limiting factor. Habitat loss, habitat degradation, lack of recruitment, fire and competition are causing the scarcity of nesting resource[b].
High-quality native foraging habitat	Loss of greater than or equal to 1 ha of foraging habitat scoring 5-10 using the foraging quality scoring tool is likely to require referral to the minister. Foraging habitat quality is determined using the foraging quality scoring tool (see Appendix A) and takes into account context i.e. proximity of the impact site to important attributes.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources[c]. These resources are critical at all stages of life for the species.
Lower-quality native foraging habitat	Loss of greater than or equal to 10 ha of foraging habitat scoring 0-4 using the foraging quality scoring tool is likely to require referral to the minister. Foraging habitat quality is determined using the foraging quality scoring tool (see Appendix A) and takes into account context i.e. proximity of the impact site to important attributes.	As identified in the conservation planning documents, clearing of foraging habitat is a known threat to the 3 species. Habitat loss, habitat modification, climate change and fire are increasingly causing the scarcity of foraging resources. These resources are critical at all stages of life for the species.
Exotic foraging habitat	Loss of greater than or equal to 1 ha of predominantly exotic habitat (e.g. Cape Lilac trees and pine trees) known to be utilised by black cockatoos is likely to require a referral to the minister.	As identified in the conservation planning documents, clearing of exotic foraging habitat is a known threat to the 3 species, noting that its value in comparison to native habitat depends upon the context.
Night roosting habitat	Removal of any part of a known night roosting site is likely to require referral to the minister.	As identified in the conservation planning documents, clearing of night roosting habitat is a known threat to the 3 species.

Note: Referral threshold described may be a result of direct loss, as well as loss from indirect and facilitated impacts.

a Chapman (2008); Department of Parks and Wildlife (2013)

b Johnstone & Kirkby (2008); Saunders et al. (2014)

c Saunders (1990); Johnstone et al. (2017)