Black Cockatoo Habitat Tree Assessment
Collie Green Steel Recycling Mill

Prepared for Green Steel of WA Pty Ltd
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EXECUTIVE SUMMARY

Onshore Environmental Consultants Pty Ltd (Onshore Environmental) completed a black cockatoo habitat tree assessment of the proposed Collie Green Steel Recycling Mill situated east of the Collie townsite on the 11th and 12th of October 2023 and 22nd of February 2024. The proposed mill will be constructed within privately owned farmland comprising a mixture of cleared annual pasture and remnant parkland cleared Jarrah *(Eucalyptus marginata)* Forest. A spur line to the existing rail currently servicing the nearby coal mine will be constructed through adjacent state forest where habitat was described as Jarrah-Sheoak *(Allocasuarina fraseriana)* Forest. The site will be accessed via the Collie-Williams Road to the north-west along an existing cleared corridor, with a water pipeline constructed along a powerline corridor also to the north-west of the mill site. Herein, the above areas will be referred to as the study area.

The study area occurs within the distribution zone of three black cockatoo species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the Western Australian *Biodiversity Conservation Act 2016* (BC Act):

- Forest Red-tailed Black-Cockatoo *(Calyptorhynchus banksii naso)* listed as Vulnerable under the Commonwealth EPBC Act and the BC Act;
- Baudin's Black Cockatoo *(Zanda baudinii)* listed as Endangered under the EPBC Act and the BC Act; and
- Carnaby's Black Cockatoo *(Zanda latirostris)* listed as Endangered under the EPBC Act and the BC Act.

The Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo were both directly observed along with foraging evidence within the study area. There was no evidence of Carnaby's Black Cockatoo recorded during the survey.

A total of 30 potential nesting trees[1] were recorded within the study area. One of these trees was classified as being *suitable* as it supported a hollow that may be utilised for nesting by black cockatoos. However, there was no evidence of this hollow being actively or historically used by black cockatoos. The remaining 29 trees were classified as *potential* nesting trees as they either did not support hollows or hollows were unsuitable for nesting by black cockatoos.

The study area was surrounded by significant areas of native vegetation (within a 12 km radius) with the majority of this native vegetation comprising state forest and likely to represent suitable foraging habitat for black cockatoos. Based on the foraging habitat scoring tool (DAWE 2022) the Jarrah-Sheoak Forest habitat and parkland cleared Jarrah Forest habitat were considered to represent high quality foraging habitat for black cockatoos.

The application of the offset habitat scoring habitat tool identified a total of 61.5 ha of high quality foraging habitat (Jarrah-Sheoak Forest and parkland cleared Jarrah Forest) and 87.4

[1] A potential nesting tree at the site is classified as having a diameter at breast height (DBH) >50 cm.

ha of low-quality foraging habitat (disturbed or cleared areas including paddocks, tracks and roads, powerline corridors).

Roosting evidence including droppings, feathers and branch clippings was recorded at one location within the parkland cleared Jarrah Forest habitat on farmland in the northern sector of the study area.

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1.0 INTRODUCTION

1.1 Background

Green Steel of WA Pty Ltd (GSWA) is proposing to develop the Collie Green Steel Recycling Mill situated approximately 7 km east of the Collie townsite in south-west Western Australia (Figure 1). The recycling mill will convert Western Australian scrap steel into rebar for both local, domestic, and international consumption. The site is situated adjacent to The Griffin Coal Mining Company's Ewington Coal Mine and the Bluewaters Power Station. The proposed green steel recycling mill will be constructed within a ~50 ha privately owned farmland lot, with a 1 km extension to the existing rail line constructed within adjacent state forest to the south. The site will be accessed via the Collie-Williams Road to the north-west along an existing cleared corridor, with a water pipeline constructed along a powerline corridor also to the north-west of the mill site.

The study area is within the distribution zone of Carnaby's Black Cockatoo, Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo, which are listed as rare or likely to become extinct under the Western Australian BC Act, and have been given the status of Endangered or Vulnerable under the Commonwealth EPBC Act[2]. As per the referral guideline for the three WA threatened black cockatoo species (DCCEEW 2022), Onshore Environmental was commissioned to undertake a black cockatoo habitat tree assessment of the study area (Figure 1). The assessment aimed to identify the presence of breeding habitat (i.e. known, suitable, or potential nesting trees) and assess foraging and night roosting habitat potential within the study area.

1.2 Regional Context

The study area is located on the border of the Northern and Southern Jarrah Forest (JF1 and JF2) sub-regions of the Interim Biogeographic Regionalisation for Australia (IBRA7). Both subregions occur on the duricrusted plateau of the Yilgarn Craton with vegetation comprised of Jarrah-Marri forest on laterite gravels grading to Wandoo woodlands on clayey soils in the east. The climate of the sub-regions is Warm Mediterranean (Hearn *et al*. 2002).

The vegetation of the Southern Jarrah forest is described as "Jarrah-Marri forest in the west grading to Marri and Wandoo woodlands in the east. There are extensive areas of swamp vegetation in the south-east, dominated by Paperbarks and Swamp Yate. The understorey component of the forest and woodland reflects the more mesic nature of this area.

The Northern Jarrah forest also supports Jarrah-Marri forest in the west with vegetation in valleys including Bullish and Blackbutt. Wandoo and Marri woodlands occur to the east with breakaways of Powder-bark Wandoo. The subregion also contains low *Banksia* woodland on extensive sand sheets (Williams and Mitchel 2001).

[2] Conservation codes are listed in Appendix 1.

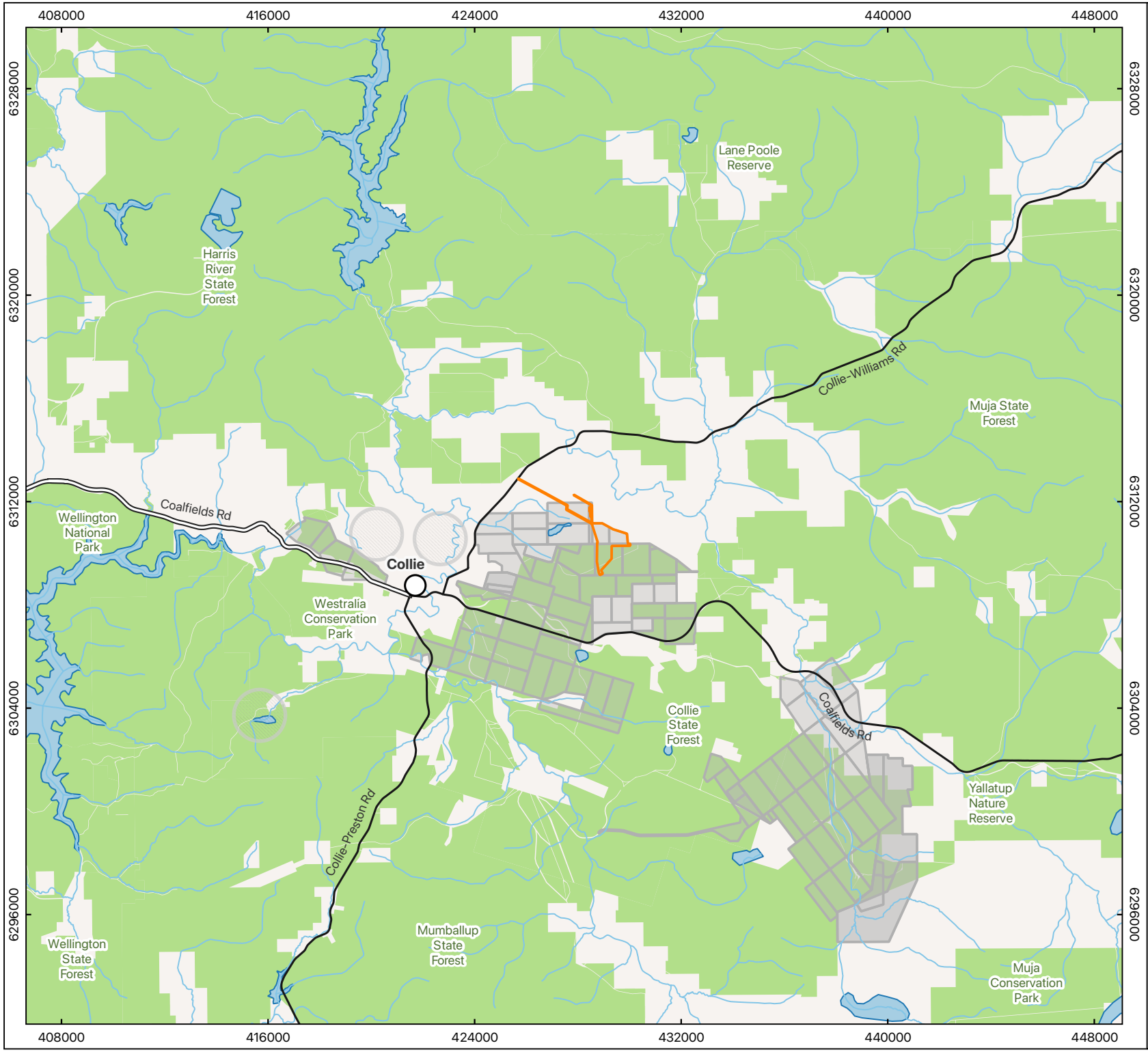

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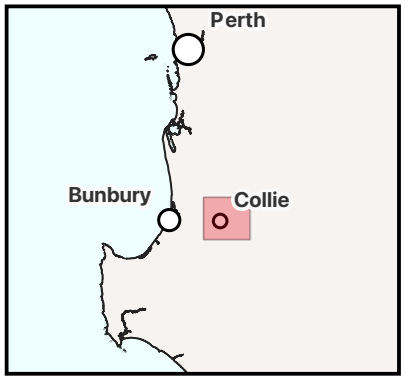
Figure 1
Location of the Study Area

Legend

- Study Area
- Griffin Coal Tenements
- DBCA Lands



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2.0 METHODOLOGY

2.1 Scope

The broad objective of the survey was to conduct targeted investigations into the status of black cockatoos within the study area. This included assessing their presence within the study area and the extent and condition of foraging, breeding and roosting habitat.

Key components of the approach to achieving these objectives were to:

- Conduct desktop searches of Commonwealth and State fauna databases to identify which black cockatoo species were likely to occur and provide information on known roost sites.
- Undertake field investigations to:
    - assess the presence and abundance of black cockatoos within the study area through direct observation or foraging evidence;
    - describe habitat within the study area;
    - assess known, suitable and potential nesting trees for black cockatoos; and
    - evaluate foraging habitat for black cockatoos by using relevant assessment tools.

2.2 Legislation and Guidance Statements

The black cockatoo habitat assessment was carried out in a manner that was compliant with EPA requirements for the environmental surveying and reporting of vertebrate fauna in Western Australia:

- Statement of Environmental Principles, Factors and Objectives (EPA 2020a);
- Technical Guidance - Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020b); and
- Environmental Factor Guideline Terrestrial Fauna (EPA 2016).

Other guidelines relevant to the survey include:

- DEWHA (2010) Survey Guidelines for Australia's Threatened Birds; and
- Department of Agriculture, Water and Environment (DAWE 2022) Referral guidelines for three WA threatened black cockatoo species.

2.3 Survey Methodology

The field survey was undertaken by Principal Ecologist Ms Jessica Waters on the 11th and 12th of October 2023 (steel mill and rail line) and Principal Botanist Dr Jerome Bull on the 22nd of February 2024 (access road and water pipeline corridors). The field assessment aimed to document ecological values for Carnaby's Black Cockatoo, Baudin's Black Cockatoo and

Forest Red-tailed Black Cockatoo (referred to collectively as black cockatoos) within the study area, based on the definitions of breeding habitat, foraging habitat, and night roosting habitat as per the EPBC Act referral guidelines for black cockatoos (DAWE 2022).

2.3.1 Assessment of Breeding Habitat

The DCCEEW provides guidelines for the study of actions that may result in impact to black cockatoos (for assessment under the EPBC Act). The survey and analysis reported here has been conducted with reference to the existing guidelines (DAWE 2022).

The suitability of habitat for breeding was assessed by recording known, suitable and potential nesting trees for black cockatoos within the study area. A ranking system developed by Onshore Environmental was utilised, with scores later converted to match categories described within the EPBC Act referral guidelines for black cockatoos (DAWE 2022, Table 1). The field survey focused on identifying breeding habitat for black cockatoos by targeting habitat trees that had a DBH of 50 cm or greater (or 30 cm or greater for *Eucalyptus wandoo)*. The survey focused on identifying trees of a size and structure likely to support large hollows and therefore all trees >50 cm were not identified and marked. Target tree species included Marri, Jarrah 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 examined using binoculars to identify the presence of hollows and evidence of use by black cockatoos (e.g. chewing around hollow entrance, scarring and scratch marks on trunks and branches).

Where suitable or chewed hollows were identified, trees were further inspected using a drone where possible to further assess the suitability of hollows for nesting and to confirm signs of use. The following data was recorded:

- tree location;
- tree species;
- DBH; and
- Nest tree rank and corresponding category defined in the EPBC Act referral guidelines for black cockatoos (DAWE 2022, Table 1).

Additionally, in order to determine approximate densities of potential future breeding habitat (i.e. trees with a DBH ≥50 cm, or ≥30 cm for *Eucalyptus wandoo*), tree density counts were conducted at randomly located points throughout the study area. Tree counts provide an indication of the current and future value of fauna habitats for use as black cockatoo breeding habitat. Tree counts were conducted within 0.25 hectare plots and tree numbers within these plots were then extrapolated to provide an average density per hectare.

Table 1 Ranking system used for the assessment of potential nest trees for black cockatoos (adapted from Bamford Consulting Ecologists 2021) and equivalent category defined in the federal referral guideline (DAWE 2022).

Adapted from Bamford Consulting Ecologists (2021)		Referral guideline for 3 WA threatened black cockatoo species (DAWE 2022)	
Category	**Description**	**Category**	**Description**
Used	Black cockatoo breeding activity recorded	Known nesting trees	Trees (live or dead but still standing) which contains a hollow where black cockatoo breeding has been recorded or which demonstrates evidence of breeding (i.e. showing evidence of use through scratches, chew marks or feathers).
Chewed	Hollow of suitable size and orientation for use by black cockatoos and shows evidence of chew marks on edge of hollow or trunk indicating likely recent or historical usage.		
Suitable	Tree with a hollow of suitable size and orientation considered to be of sufficient depth for use by black cockatoos. However, there is no evidence of use.	Suitable nesting trees	Trees with suitable nesting hollows present, although no evidence of use. Note that any species of tree may develop suitable hollows for breeding.
		Suitable nest hollow	Any hollow with dimensions suitable for use for nesting by black cockatoos. Characteristics of hollows used by each species is available in the SPRAT database. Suitable nest hollows are only found in live trees with a DBH of at least 500 mm.
Potentially suitable	Tree contains a hollow that 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 or other birds; • orientation of the hollow; • and/or the presence of branches or other obstructions. While these hollows are not currently high-quality nest sites they have the potential to become nest sites in the future and may support other species of conservation significance.	Potential nesting trees	Trees that have a suitable DBH to develop a nest hollow, but do not currently have hollows. Trees suitable to develop a nest hollow in the future are 300-500 mm DBH. Note that many species of eucalypt may develop suitable hollows for breeding.
Unsuitable	Tree contains 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 black cockatoo nest sites in the longer term.		

2.3.2 Assessment of Foraging Habitat

Vegetation within the study area was assessed for foraging value. Black cockatoos forage widely in suitable vegetation in the southwest region and leave distinctive marks on dropped feeding material such as Marri fruit. Targeted searches were made for these signs throughout the study area.

Results from the field survey were used to calculate foraging habitat scores using two different methodologies:

- the foraging quality scoring tool template recommended within the EPBC Act referral guidelines for Black-Cockatoos (DAWE 2022); and
- the foraging habitat score recently developed by the DCCEEW in consultation with species experts in Western Australia and used to calculate the value of an offset site.

Foraging Habitat Quality Score - EPBC Act referral guidelines for black cockatoos (DAWE 2022)

The foraging quality scoring tool has been developed to allow habitat quality to be quantified. The assessment of foraging habitat tool identifies habitat as high-quality foraging habitat (score of 5-10) or lower quality foraging habitat (score of 0-4). If the survey area contains native vegetation used for foraging at any time by one or more of the black cockatoo species, and is larger than one hectare in size, it is considered at face value to be of very high quality, important for recovery and therefore as having a score of ten.

The scoring tool then considers the following five contextual factors that may lessen the quality of that habitat (Appendix 2):

- Foraging potential;
- Connectivity;
- Proximity to breeding;
- Proximity to night roosting; and
- Impacts from significant plant disease.

To provide a final habitat quality score points are subtracted (from the starting score of ten) for each of the contextual factors where the required evidence is not proven to occur at the site.

Offset Habitat Scoring System - DCCEEW in consultation with species experts in Western Australia

The score used to calculate the value of an offset provides a numerical value that reflects the significance of vegetation as foraging habitat for each of the black cockatoo species, and was recently developed by the DCCEEW in consultation with species experts in Western Australia. The foraging value of the vegetation depends upon the type, percentage foliar cover and health of trees and/or vegetation condition, and can be influenced by the context of the site such as the availability of foraging habitat nearby. The scoring system has three components drawn from the DCCEEW offset calculator (DCCEEW 2020, see Appendix 3):

- A score between zero and seven relating to site condition;
- A score between zero and three relating to site context; and

- Species stocking rate which is related to confirmation of presence or absence at the site for each of the three species of black cockatoo.

Site condition is considered the key factor in determining the quality of habitat for the three black cockatoo species. Species stocking rate is considered only in terms of presence or absence of the species and does not add to the total score. The species, or strong indicators of the species, must be present for an offset to be considered suitable.

2.3.3 Assessment Night Roosting Habitat

DAWE (2022) defines known roosting trees as a tree (generally the tallest), native or introduced known to be used for night roosting or which demonstrates evidence of roosting. Potential roosting trees are defined as tall trees of any species within close proximity to water sources. Night roosting habitat is defined as habitat that contains one or more known or potential roosting trees. Known roosting trees are typically situated close to important water sources within areas of high-quality foraging habitat. The availability of night roosting habitat within the study area was assessed during the field survey. Any evidence of roosting was noted during the field survey (e.g. branch clippings, droppings or moulted feathers) as well as the presence of black cockatoos within the study area or nearby at dawn and dusk.

Known night roosting habitat is recorded within databases managed by the DBCA, the Western Australian Museum and Birdlife Australia (Great Cocky Count). These records were accessed to determine if known sites occurred nearby to the study area and to assess regional context. Database searches were undertaken to determine known roosting locations within a 20 km radius of the study area (DBCA 2022).

2.4 Constraints

The survey provides an assessment at the time of survey with no seasonal component. The survey was conducted within the recommended survey timing for assessment of breeding and foraging habitat for black cockatoos (DAWE 2022). Black cockatoos may utilise 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 in the future.

Trees were examined from the ground and as internal dimensions are difficult to determine the survey may overestimate or underestimate the number of suitable or known hollows 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. Where possible a drone was utilised to further investigate hollows if required. The study area was extensively ground truthed, however due to the large numbers of trees all potential nesting trees over 50 cm DBH were not marked. The focus of the survey was to identify trees that were likely to contain suitable or known nesting hollows.

No significant access or timing restrictions impacted the survey, and the study area was adequately surveyed.

3.0 RESULTS

3.1 Fauna Habitat Types

Four broad habitat types were recorded within the study area: Jarrah-Sheoak Forest (39.2 ha or 26% of the study area), parkland cleared Jarrah Forest remnant (22.0 ha or 15% of the study area), Melaleuca Scrub (0.24 ha or 0.2% of the study area) and paddocks/disturbed areas (87.4 ha or 59% of the study area). Native vegetation within the southern half of the study area was dominated by Jarrah (*Eucalyptus marginata*) and Sheoak (*Allocasuarina fraseriana*) Forest on lateritic hill crests and slopes (Plate 1, Figure 2). Lower slopes and footslopes within this habitat supported Candlestick Banksia (*Banksia attenuata)* and small areas of Moonah (*Melaleuca preissiana*) on the flats. Parkland cleared areas comprised Jarrah Forest with all understorey strata removed through grazing (Plate 2), and adjacent paddocks supported cleared annual pasture (Plate 3). Two dams occurred within the cleared paddocks and were used for watering stock. The access road corridor in the north was cleared with a few small stands of parkland Jarrah-Marri Forest occurring adjacent to the alignment. Similarly, the water pipeline corridor occurred along a previously cleared powerline corridor with a localised area of native regeneration (*Melaleuca* Scrub, see Plate 4); the western section of the corridor was surrounded by state forest supporting a mixture of Jarrah-Marri Forest and *(Eucalyptus wandoo)* Wandoo Woodland.

Plate 1 Jarrah-Sheoak Forest fauna habitat type.

Plate 2 Parkland cleared Jarrah Forest fauna habitat type.

Plate 3 Cleared/disturbed fauna habitat type.

Plate 4 ***Melaleuca*** **Scrub fauna habitat type.**

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Figure 2
Location of significant fauna within the study area

Legend

- Study Area

Foraging Evidence

- Baudins's Cockatoo
- Forest Red-tailed Black Cockatoo

Observations

- Baudins's Cockatoo
- Forest Red-tailed Black Cockatoo
- Western Brush-wallaby
- Roosting Evidence

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Figure 2
Location of significant fauna within the study area

Legend

Study Area

Foraging Evidence

- Baudins's Cockatoo
- Forest Red-tailed Black Cockatoo

Observations

- Baudins's Cockatoo
- Forest Red-tailed Black Cockatoo

0 250 500 m

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3.2 Presence of Black Cockatoos

3.2.1 Carnaby's Black Cockatoo

Carnaby's Black Cockatoo is one of two white-tailed black cockatoos listed as Endangered under the EPBC Act and 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 generally occurs within the Wheatbelt region in hollows provided by 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 Cockatoo to the west and south with breeding recorded from the Darling Scarp and as far south as Capel (Johnstone and Kirby 2019).

No evidence of this species was recorded from the study however they are considered likely to utilise the study area for foraging occasionally.

3.2.2 Baudin's and Forest Red-tailed Black Cockatoo

Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo (FRTBC) occur in the forested areas of the south-west with a generalised distribution between Perth to Albany and inland to Kojonup. Baudin's Black Cockatoo is listed as Endangered while the Forest Red-tailed Black Cockatoo is listed as Vulnerable under both the EPBC Act and BC Act. Both species have a diet comprising mainly seeds of Marri, with Baudin's Black Cockatoo also consuming seeds from Proteaceous species. Forest Red-tailed Black Cockatoos also consume Jarrah seeds and a range of other plant species that hold seeds in woody capsules. Habitat within the study area was suitable for foraging by both species. The study area is within the currently known breeding range for both species (DAWE 2022). Nests are known to occur within 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 Cockatoo breed between August and December (Johnstone *et. al.* 2011). The timing of breeding for the Red-tailed Black Cockatoo is less defined with breeding having been recorded in all months with peaks in winter to autumn and spring (Johnstone and Kirby 2019).

Forest Red-tailed Black Cockatoos were observed directly or identified from calls on eleven occasions from within the study area during the survey, with an additional three observations made from state forest adjacent to (outside) the study area (Figure 3). Additionally, foraging evidence on Marri nuts was observed at 34 locations within the study area (Figure 3).

Baudin's Black Cockatoos were observed on two occasions from within the northern sector of the study area, with a third observation made from state forest vegetation outside the water pipeline corridor (Figure 3). Foraging evidence from Baudin's Black Cockatoo was also recorded at five locations within the study area (Figure 3).

Roosting evidence including droppings, feathers and branch clippings were recorded at one location within the parkland cleared Jarrah Forest habitat on farmland in the northern sector of the study area (Figure 3). Baudin's Black Cockatoos and Forest Red-tailed Black Cockatoos were observed in the late afternoon and early morning at nearby areas.

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Figure 3
Fauna Habitats within the study area

Legend

- Study Area

Habitat Types

- Disturbed
- Jarrah-Sheoak Forest
- Paddock
- Parkland Cleared
- Road

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Figure 3
Fauna Habitats within the study area

Legend

- Study Area

Habitat Types

- Disturbed
- Jarrah-Sheoak Forest
- Paddock
- Parkland Cleared
- Melaleuca Scrub

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3.3 Breeding Habitat Assessment

3.3.1 Habitat Tree Assessment

A total of 30 trees with the potential to represent known, suitable or potential nesting trees were identified from within the boundary of the study area during the field survey (Appendix 4, Figure 4). These trees were further assessed for suitability as nesting hollows for black cockatoos as per criteria outlined in Table 1. One tree within the study area was classified as a *suitable nesting tree*, defined as supporting a hollow of suitable size and orientation considered to be of sufficient depth for use by black cockatoos (but with no conclusive evidence of being used). The remaining 29 trees were categorised as *potential nesting trees* (classified as potentially suitable or unsuitable). These trees supported hollows that were currently too small or of unsuitable orientation or depth to be used by black cockatoos for nesting, but with potential to become nest sites in the future.

Habitat trees occurring within native vegetation remnants bordering the access road corridor and within a 50 m buffer from the centreline of the water pipeline corridor (i.e. outside of the study area) were also assessed in February 2024. A total of 70 trees with the potential to represent known, suitable or potential nesting trees were recorded, including three *suitable nesting trees* and 67 *potential nesting trees* (Appendix 5, Figure 4).

3.3.2 Tree Density Assessments

The density of potential nesting trees (i.e. DBH >50 cm or >30 cm for *Eucalyptus wandoo*) were recorded from 13 quarter hectare plots distributed throughout the study area. The density of potential nesting trees averaged 9.3 trees per ha within Jarrah-Sheoak Forest habitat, and 4.0 trees per ha within the parkland cleared Jarrah Forest habitat. There were no potential nesting trees recorded from the Melaleuca Scrub habitat.

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Figure 4
Location of habitat trees within the study area

Legend

Study Area

Habitat Trees

Suitable nesting tree

Potential nesting tree

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GREEN STEEL WA

Figure 4
Location of habitat trees within the study area

Legend

Study Area

Habitat Trees

Suitable nesting tree

Potential nesting tree

0 250 500 m

1:15,000

Datum: GDA 94
Projection: MGA Zone 50

Date: 06/03/2024
Status: Final
Figure: 7
Sheet Size: A4
File Name Reference: GS_Fig4_trees.pdf
Drawn by: JW
Requested by: DB

3.4 Foraging and Roosting Habitat

3.4.1 Foraging Habitat Score (DAWE 2022)

Based on the foraging quality scoring tool (DAWE 2022, Appendix 2) the study area was given a score of ten for Forest Red-tailed Black Cockatoos and Baudin's Black Cockatoos, and a score of eight for Carnaby's Black Cockatoos (Table 2). Hence, the study area represents high quality foraging habitat for all three species of black cockatoo. Evidence of Forest Red-tailed Black Cockatoos and Baudin's Black Cockatoos feeding on Marri and Jarrah nuts was observed during the field survey. No evidence of foraging by Carnaby's Black Cockatoos was observed, resulting in a lower foraging score for this species (Table 2).

The study area was predominantly comprised of native Jarrah-Sheoak Forest with a range of other suitable foraging species that hold woody fruits also present including Marri (*Corymbia calophylla*) and *Banksia* species. Factors which may impact on the initial foraging score assigned to the study area including the presence of foraging evidence, availability of adequate foraging habitat in close proximity, proximity to breeding and roosting sites and the presence of disease are discussed below. No points were deducted based on the context of the site.

The availability and connectivity of nearby foraging habitat is important for successful breeding of black cockatoos (Saunders 1977, 1986). Approximately 68% (35,376.27 ha) of the land area within a 12 km radius of the study area comprised native vegetation (DPIRD 2017) (Figure 5). The vast majority of this native vegetation is likely to be Jarrah-Marri Forest and therefore represents suitable foraging habitat for black cockatoos. The study area was situated immediately adjacent to significant continuous areas of suitable foraging habitat present within the wider state forest. Based on the proximity and connectivity of significant foraging resources, no points were deducted for connectivity.

Database searches indicate that there are two known Carnaby's Black Cockatoo roost sites within a 12 km radius of the study area (DBCA 2022). The nearest documented roost site is situated to the north of the Collie townsite approximately 6 km west of the study area (Figure 5). Additionally, parkland cleared Jarrah Forest vegetation adjacent to the two farm dams within the study area provides potential roosting habitat, with evidence of roosting recorded from one location during the survey. Both Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo were observed in this habitat in the late afternoon and early morning.

Baudin's Black Cockatoo and Carnaby's Black Cockatoo are known to breed within a 50 km radius of the study area (DAWE 2022) and chewed hollows have been observed approximately 3 km east south-east of the study area (Onshore Environmental 2023). Additionally, there are large areas of suitable breeding habitat for all species within a 12 km radius. Based on this data, no points were deducted for proximity to roosting or breeding sites.

While dieback was present within the study area, no severe dieback or Marri canker disease was observed during the field survey, and no points were deducted for impacts resulting from significant plant disease.

Table 2 Scoring tool for determining quality of black cockatoo foraging habitat.

Score	Baudin's Cockatoo	Carnaby's Black Cockatoo	Forest Red-tail Black Cockatoo
Initial Score	10	10	10
Foraging evidence **Subtract 2** from your score if there is no evidence of feeding debris on your site.	0	-2	0
Connectivity **Subtract 2** from your score if you have evidence to conclude that there is no other foraging habitat within 12 km of your site.	0	0	0
Proximity to breeding **Subtract 2** if you have evidence to conclude that your site is more than 12 km from breeding habitat	0	0	0
Proximity to roosting **Subtract 1** if you have evidence to conclude that your site is more than 20 km from a known night roosting habitat.	0	0	0
Impact from significant plant disease **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.	0	0	0
Final Score	**10**	**8**	**10**

3.4.2 Offset Habitat Scoring

The foraging habitat scoring system for black cockatoos developed by DCCEEW to calculate the value of an offset site (Appendix 3) was also applied to the study area. The final foraging habitat score for the study area was calculated at nine (out of a possible score of ten) for each of the three species of black cockatoo within both Jarrah-Sheoak Forest habitat and parkland cleared Jarrah Forest habitat, and five (out of a possible score of ten) in the paddock habitat (Table 3, Figure 5).

The foraging value score was based predominantly on projected foliage cover. Within the Jarrah-Sheoak Forest and parkland cleared Jarrah Forest habitats foliar cover was estimated at 40-50 percent, correlating with a high foraging value score (score of 6) for all species (Table 3). The paddock habitat supported few foraging species and was considered to have low foraging potential (score of 2). In total the study area contained 61.5 ha of high-quality foraging habitat and 87.4 ha of low-quality foraging habitat.

The 12 km buffer for regional foraging habitat is based on the maximum distance from a nest that breeding birds are likely to travel (DEC 2012). Approximately 68% (35,376.27 ha) of the land area within a 12 km radius of the study area is native vegetation (DPIRD 2017) (Figure 5). The vast majority of this native vegetation is likely to comprise Jarrah-Marri Forest of moderate to high foraging value. Therefore, a score of three (out of a possible score of three) was determined for all species for site context (Table 3).

In order to confirm presence of black cockatoos within an area the scoring tool requires that the species is seen or reported regularly (intervals of every few days or weeks for at least several months of the year) and/or there is abundant foraging evidence, e.g. chewed nuts that can be identified as this species. Based on the current survey effort and knowledge of the study area, the regular presence of Carnaby's Black Cockatoo was not confirmed within the study area. Due to the seasonal movements and mobility of Carnaby's Black Cockatoo further survey work would be required to confirm the extent to which this species utilises the study area. Abundant foraging evidence of the Forest Red-tailed Black Cockatoo and Baudin's Black Cockatoo were noted during the survey. These species are regularly sighted in the Collie area and are therefore confirmed as regularly being present within the study area.

Table 3 Foraging values of vegetation in the survey area for Baudin's, Carnaby's and Forest Red-tail Black Cockatoos, based upon vegetation characteristics, context and species density.

Score	Baudin's Cockatoo	Carnaby's Cockatoo	Forest Red-tail Black Cockatoo
Confirm presence/ absence of species	Yes	No	Yes
Foraging value Jarrah/Sheoak (39.2 ha)	6 (High)	6 (High)	6 (High)
Foraging value Parkland Cleared (22.2 ha)	6 (High)	6 (High)	6 (High)
Foraging value Paddocks (87.4 ha)	2 (Low)	2 (Low)	2 (Low)
Proximity of the site in relation to other habitat	3	3	3
Total Score - Jarrah/Sheoak and Parkland Cleared (61.5 ha)	**9**	**9**	**9**
Total Score - Paddocks / Disturbed (87.4 ha)	**5**	**5**	**5**

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Figure 5
Black Cockatoo foraging areas and roosting sites within 12km of the study area.

Legend

- Study Area
- Roosting Sites (1km Buffer)
- Native Vegetation Extent (DPIRD 2017)
- 12km buffer

0 2 4 6 km

1:150,000

Datum: GDA 94
Projection: MGA Zone 50

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Drawn by: JW
Requested by: DB

4.0 STUDY TEAM

The black cockatoo habitat tree assessment was planned, co-ordinated and executed by the following personnel:

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APPENDIX 1

Conservation codes for species and communities of conservation significance

Categories used under the EPBC Act		
Status	Code	Description
Critically Endangered	Cr	Taxa considered to be facing an extremely high risk of extinction in the wild in the immediate future
Endangered	En	Taxa considered to be facing a very high risk of extinction in the wild in the near future
Vulnerable	Vu	Taxa considered to be facing a high risk of extinction in the wild in the medium-term future
Migratory	Mi	Species that migrate to, over and within Australia and its external territories

Conservation Codes used under the BC Act		
Status	Code	Description
Critically Endangered	CR	Taxa rare or likely to become extinct, as critically endangered taxa
Endangered	EN	Taxa rare or likely to become extinct, as endangered taxa
Vulnerable	VU	Taxa rare or likely to become extinct, as vulnerable taxa
Presumed Extinct	EX	Taxa presumed to be extinct
Migratory	IA	Birds subject to international agreements relating to the protection of migratory birds
Conservation Dependent	CD	Taxa of special conservation need, being species dependent on ongoing conservation intervention
Special Protection	OS	Taxa in need of special protection

APPENDIX 2

Foraging Habiat Score (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 3

Offset Habitat Scoring System -
DCCEEW in consultation with species experts in Western Australia

Habitat Scoring System for WA black cockatoo foraging habitat

This habitat scoring system describes elements indicative of suitable foraging habitat[1] for the three WA black cockatoo species (Carnaby's Black Cockatoo, Baudin's Black Cockatoo and the Forest Red-tailed Black Cockatoo) in WA. Its use must be supported by survey information and reporting, undertaken by suitably qualified and experienced ecologists.

Appropriate scores will best fit a description. Where all components of the 'detail' column description are not met, this must be specified, and justification provided for that score to be accepted by the Department.

For an offset site to be considered by the Department, the offset site must have a start score of 1 for each indicator (e.g., there must be a species stocking rate score of at least 1).

Indicator	Score	Detail	Impact site	Offset start quality	Without offset	With offset
Site Condition						
	Foraging value	Details				
Vegetation condition and structure. Habitat features	**7**	Very High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>30% projected foliage cover), banksia and eucalypt woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths[2].				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.				
	6	High	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>25% projected foliage cover), banksia and eucalypt woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest and woodlands with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >40% projected foliage cover. Low percentage (< 10%) of tree deaths.				

[1] In some cases, an impact or offset site may contain or require both foraging and breeding habitat for one or more black cockatoos. Breeding habitat is species of trees known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow. For most species of trees, suitable DBH is 500 mm. For salmon gum and wandoo, suitable DBH is 300 mm.

[2] No tree deaths indicate robustness of habitat, unlikely for the habitat to decline in the medium-term. Tree deaths may be owing to disease, water stress, fire, etc.

Vegetation condition and structure. Habitat features	**5**	Moderate to high	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland (>20% projected foliage cover), banksia and eucalypt woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with 30-40% projected foliage cover; OR > 60% projected foliage cover but veg. condition reduced due to tree deaths (up to 20%).				
	4	Moderate	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia or eucalypt woodlands with 20-30% projected foliage cover. Moderate percentage of tree deaths (30-40%).				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 20-30% projected foliage cover; OR Marri-Jarrah Forest with 40-60% projected foliage cover but vegetation condition reduced due to tree deaths (up to 30-40%).				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with: 20-30% projected foliage cover; OR 40-60% projected foliage cover but veg. condition reduced due to tree deaths (up to 30-40%).				
	3	Low to moderate	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia or eucalypt woodlands with 10-20% projected foliage cover.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 5-20% projected foliage cover.				
			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 5-20% projected foliage cover.				
	2	Low	Carnaby's Black Cockatoo				
			Native kwongan heath and shrubland, banksia and eucalypt woodlands with <10% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksias, marri.				
			Baudin's Black Cockatoo				
			Marri-Jarrah Forest or woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered foraging trees such as banksia, hakea, dryandra.				

Vegetation condition and structure. Habitat features			Forest Red-tailed Black Cockatoo				
			Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands with 1-5% projected foliage cover; OR Paddocks and/or urban areas with scattered food plants such as Cape Lilac, *Eucalyptus caesia* and *E. erythrocorys*.				
	1	Negligible to low	All species				
			Scattered specimens of known food plants but projected foliage cover of these is <2%. May include: paddocks or urban areas with scattered foraging trees.				
	0	None	All species				
			No Proteaceae, eucalypts or other potential sources of food. May include bare ground or developed sites devoid of vegetation (e.g. infrastructure, roads, gravel pits).				
			Totals				

Site Context								
Proximity of the site in relation to other habitat.	**3**	Site is within 6km of known breeding site.	or	Site is within 12km of other foraging resources with site condition of at least 3.				
	2	Site is within 12km of known breeding site.	or	Site is within 15km of other foraging resources with site condition of at least 4.				
	1	Site is within 15km of known breeding site.	or	Site is between 15km and 20km of other foraging resources with site condition of at least 5.				
	0	Site is further than 15km from known breeding site.	or	Site is further than 20km from other foraging resources.				
				Totals				

Final Totals				

Indicator		**Species Stocking Rate**[3]	**Impact Site**			**Offset Site**		
			CBC	**BBC**	**FRT**	**CBC**	**BBC**	**FRT**
Confirm presence/ absence of species.	**Yes**	Species is seen or reported regularly and/or there is abundant foraging evidence, e.g. chewed nuts can be identified as this species. Regularly is when the species is seen at intervals of every few days or weeks for at least several months of the year.						
	No	Species is recorded or reported very infrequently and there is little or no foraging evidence.						

[3] Species stocking rate is indicated by yes or no to confirm if any of the species is frequently present or not. If yes, the presence must be for the species being impacted by the proposal, not for a species that will not be impacted.

Legend	
	If the site scores between 0-2 (low to no value) for site condition, 0 for the site context score, or is **No** for species stocking rate, it is extremely unlikely to be considered as suitable habitat. This would not be appropriate to use as an offset site.

The metrics used to determine Site Condition, Site Context, and Species Stocking Rate were developed by the Department of Climate Change, Energy, the Environment, and Water in consultation with species experts in WA.

A standard habitat quality scoring system for a species allocates scores out of 3 for both site condition and site context, and out of 4 for species stocking rate. However, as black cockatoos are very mobile, this HQS uses a score out of 7 for site condition and a score out of 3 for site context. Site condition is considered the key factor in determining the quality of habitat for these black cockatoo species. Species stocking rate is considered only in terms of presence or absence of the species and does not add to the total score. Note that the species, or strong indicators of the species, must be present, consistent with the presence/usage description above, for an offset to be considered suitable.

APPENDIX 4

Details of habitat trees recorded from within the study area

Habitat trees recorded within the boundary of the study area

Waypoint	Easting	Northing	Onshore Nest Rank	Category (DAWE 2022)	Tree Species
GST- 1	429215	6310188	Suitable	Suitable nest hollow	Marri
GST- 2	428823	6309953	Potentially suitable	Potential nesting tree	Jarrah
GST- 3	429135	6310009	Potentially suitable	Potential nesting tree	Jarrah
GST- 4	429001	6309550	Potentially suitable	Potential nesting tree	Jarrah
GST- 5	428991	6309530	Potentially suitable	Potential nesting tree	Jarrah
GST- 6	429053	6310487	Potentially suitable	Potential nesting tree	Dead
GST- 7	429076	6310479	Potentially suitable	Potential nesting tree	Jarrah
GST- 8	429237	6310333	Potentially suitable	Potential nesting tree	Marri
GST- 9	429324	6309851	Potentially suitable	Potential nesting tree	Dead
GST- 10	428811	6309786	Potentially suitable	Potential nesting tree	Jarrah
GST- 11	429037	6309778	Potentially suitable	Potential nesting tree	Dead
GST- 12	428908	6309934	Unsuitable	Potential nesting tree	Dead
GST- 13	428884	6310000	Unsuitable	Potential nesting tree	Jarrah
GST- 14	428852	6310110	Unsuitable	Potential nesting tree	Jarrah
GST- 15	428884	6310163	Potentially suitable	Potential nesting tree	Dead
GST- 16	429351	6310793	Potentially suitable	Potential nesting tree	Jarrah
GST- 17	429347	6310793	Potentially suitable	Potential nesting tree	Dead
GST- 18	429428	6310769	Potentially suitable	Potential nesting tree	Marri
GST- 19	429522	6310478	Potentially suitable	Potential nesting tree	Jarrah
WP7030	428543	6311465	Potentially suitable	Potential nesting tree	Marri
7018	428457	6311640	Unsuitable	Potential nesting trees	Marri
7016	428462	6311688	Unsuitable	Potential nesting trees	Marri
7011	428474	6311742	Unsuitable	Potential nesting trees	Marri
7017	428477	6311647	Unsuitable	Potential nesting trees	Marri
7027	428487	6311481	Unsuitable	Potential nesting trees	Marri
7024	428494	6311518	Unsuitable	Potential nesting trees	Marri
7028	428496	6311466	Unsuitable	Potential nesting trees	Marri
7010	428512	6311743	Unsuitable	Potential nesting trees	Marri
7031	428523	6311450	Potentially suitable	Potential nesting trees	Marri
7032	428534	6311622	Unsuitable	Potential nesting trees	Marri

APPENDIX 5

Details of habitat trees recorded from outside the boundary of the water pipeline corridor and access road corridor (buffer) in the northern sector of the study area

Habitat trees recorded outside the boundary of the water pipeline corridor and access road corridor

Waypoint	Easting	Northing	Onshore Nest Rank	Category (DAWE 2022)	Tree Species
7035	425737	6312889	Unsuitable	Potential nesting trees	Jarrah
7036	425767	6312876	Unsuitable	Potential nesting trees	Jarrah
7037	425823	6312838	Unsuitable	Potential nesting trees	Jarrah
7039	425979	6312664	Potentially suitable	Potential nesting trees	Marri
6962	426256	6312615	Unsuitable	Potential nesting trees	Jarrah
6961	426297	6312601	Potentially suitable	Potential nesting trees	Jarrah
6960	426313	6312590	Unsuitable	Potential nesting trees	Marri
6951	426431	6312442	Unsuitable	Potential nesting trees	Wandoo
6958	426497	6312492	Unsuitable	Potential nesting trees	Marri
6955	426557	6312445	Unsuitable	Potential nesting trees	Wandoo
6956	426564	6312443	Unsuitable	Potential nesting trees	Wandoo
6957	426588	6312433	Unsuitable	Potential nesting trees	Wandoo
6954	426773	6312253	Suitable	Suitable nest hollow	Marri
6967	427554	6311514	Unsuitable	Potential nesting trees	Marri
6966	427566	6311534	Unsuitable	Potential nesting trees	Marri
6968	427567	6311504	Unsuitable	Potential nesting trees	Jarrah
6965	427568	6311533	Unsuitable	Potential nesting trees	Jarrah
6969	427583	6311474	Unsuitable	Potential nesting trees	Marri
6969	427583	6311474	Unsuitable	Potential nesting trees	Jarrah
6970	427591	6311473	Unsuitable	Potential nesting trees	Jarrah
6982	427601	6311635	Unsuitable	Potential nesting trees	Marri
6981	427602	6311614	Unsuitable	Potential nesting trees	Jarrah
6975	427606	6311516	Unsuitable	Potential nesting trees	Jarrah
6971	427607	6311470	Unsuitable	Potential nesting trees	Marri
6976	427608	6311542	Potentially suitable	Potential nesting trees	Jarrah
6974	427612	6311486	Unsuitable	Potential nesting trees	Marri
6973	427613	6311482	Unsuitable	Potential nesting trees	Jarrah
6983	427614	6311731	Unsuitable	Potential nesting trees	Marri
7008	427614	6311822	Unsuitable	Potential nesting trees	Marri
6978	427620	6311552	Unsuitable	Potential nesting trees	Marri
6972	427621	6311465	Unsuitable	Potential nesting trees	Marri
6977	427621	6311545	Unsuitable	Potential nesting trees	Marri
6980	427628	6311559	Unsuitable	Potential nesting trees	Marri
6979	427640	6311549	Potentially suitable	Potential nesting trees	Marri
7006	427654	6311784	Unsuitable	Potential nesting trees	Marri
6984	427659	6311706	Unsuitable	Potential nesting trees	Jarrah
7007	427660	6311779	Suitable	Suitable nest hollow	Marri
7005	427666	6311760	Unsuitable	Potential nesting trees	Jarrah
7004	427679	6311757	Unsuitable	Potential nesting trees	Marri
7003	427700	6311722	Potentially suitable	Potential nesting trees	Jarrah
6985	427740	6311660	Unsuitable	Potential nesting trees	Jarrah
7002	427740	6311732	Unsuitable	Potential nesting trees	Jarrah
7001	427763	6311736	Unsuitable	Potential nesting trees	Marri
6986	427765	6311665	Unsuitable	Potential nesting trees	Jarrah
6987	427767	6311647	Unsuitable	Potential nesting trees	Jarrah
6988	427770	6311639	Unsuitable	Potential nesting trees	Marri
6999	427771	6311702	Potentially suitable	Potential nesting trees	Jarrah
6989	427774	6311626	Unsuitable	Potential nesting trees	Jarrah

Waypoint	Easting	Northing	Onshore Nest Rank	Category (DAWE 2022)	Tree Species
6998	427793	6311693	Unsuitable	Potential nesting trees	Marri
7000	427793	6311730	Unsuitable	Potential nesting trees	Marri
6997	427801	6311678	Potentially suitable	Potential nesting trees	Marri
6996	427831	6311673	Suitable	Suitable nest hollow	Marri
6990	427839	6311594	Unsuitable	Potential nesting trees	Marri
6995	427847	6311694	Unsuitable	Potential nesting trees	Marri
6994	427850	6311682	Unsuitable	Potential nesting trees	Marri
6991	427853	6311591	Potentially suitable	Potential nesting trees	Marri
6992	427855	6311619	Unsuitable	Potential nesting trees	Marri
6993	427868	6311676	Unsuitable	Potential nesting trees	Marri
7022	428398	6311639	Unsuitable	Potential nesting trees	Marri
7012	428403	6311741	Unsuitable	Potential nesting trees	Marri
7023	428414	6311668	Unsuitable	Potential nesting trees	Marri
7021	428428	6311628	Unsuitable	Potential nesting trees	Marri
7013	428434	6311692	Potentially suitable	Potential nesting trees	Marri
7020	428435	6311636	Unsuitable	Potential nesting trees	Marri
7019	428440	6311642	Unsuitable	Potential nesting trees	Marri
7015	428447	6311683	Unsuitable	Potential nesting trees	Marri
7014	428448	6311702	Unsuitable	Potential nesting trees	Marri
7026	428455	6311497	Unsuitable	Potential nesting trees	Marri
7029	428463	6311462	Unsuitable	Potential nesting trees	Marri
7025	428476	6311516	Unsuitable	Potential nesting trees	Marri