



Smiths Beach Project Coastal Tourism Village, Yallingup WA

Smiths 2014 Pty Ltd

Offset Strategy

JBS&G 65771 | 162203 (Rev 4)

10 December 2025





We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.

Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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1. Introduction

Smiths 2014 Pty Ltd (the Proponent) has developed this Offset Strategy as part of the environmental review for the proposed Smiths Beach Project, Yallingup Coastal Tourism Village (the Proposal).

This Offset Strategy will be refined and updated to align with the approval conditions and requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Western Australia *Environmental Protection Act 1986* (EP Act) once issued.

For consistency, the terms “Proposal” and “Development Envelope” used throughout this document correspond to the “Proposed Action” and “Proposed Action Area” as defined in the Commonwealth EPBC referral.

1.1 Proposal Description

The Proposal is located within the City of Busselton, Western Australia, approximately 23 km west of Busselton CBD (Figure 1-1) and has a Development Envelope (DE) of 41.79 ha.

The Proposal is based on an environmentally sensitive and landscape led design approach that prioritises the area’s unique natural elements. The Proponent’s Design Vision embraces a strong sense of place, respects the local area with its unique flora and fauna, and takes a leading sustainable approach to all design and materials. Anchored by the Cape to Cape Track, the heart of the village will be the ‘Cape to Cape Welcome Centre’ - a highly curated and innovative ‘Welcome Centre’ providing tourist information, facilities and amenity within a central node for all visitors to the region.

The Proposal will include (but is not limited to) the following features (Figure 1-2):

- Tourist Development including hotel accommodation and wellness centre;
- Campground;
- Community Hub including café, bakery, general store and the ‘Cape to Cape Welcome Centre’;
- Facilities for the Surf Life Saving Club; and
- 61 Holiday Homes.

The Design Vision for the Proposal has been formulated to achieve the following key objectives:

- Landscape Led – allowing the landscape to define the appropriate location for development within the Development Envelope;
- Visual Integration – design and location of built form sensitively located within the landscape to minimise visual impact;
- Environmental Safeguard – protecting the Proposal from bushfire risk and coastal erosion processes; and
- Landscape Rehabilitation – regenerating degraded areas within the Development Envelope with endemic species.

The result is a built form that is sympathetic to and supports the surrounding landscape and vegetation. The Proposal will have a dispersed footprint, shaped around high-quality native vegetation. Importantly, the proposed design will result in the retention of significantly more native vegetation than what could be retained under the previously approved Structure Plan.

The construction phase of the Proposal is anticipated to commence in 2026 and forecast for completion in 2028, with the operational phase of the Proposal 2029 onwards.

1.1.1 Recovery Plans and/or Conservation Advice

The following recovery plans and conservation advice have been considered in the development of this strategy:

- Western ringtail possum (*Pseudocheirus occidentalis*) Recovery Plan (DPAW 2017);
- Conservation Advice for *Pseudocheirus occidentalis* - Western Ringtail Possum (DoEE 2018);
- Carnaby's Cockatoo (*Calyptorhynchus latirostris*) Recovery Plan (DPaW 2013);
- Forest Black Cockatoo (Baudin's Cockatoo *Calyptorhynchus baudinii* and Forest Red-tailed Black Cockatoo *Calyptorhynchus banksii naso*) Recovery Plan (DEC 2008);
- Approved Conservation Advice for *Calyptorhynchus banksii naso* (Forest Red-tailed Black Cockatoo) (including listing advice) (DEWHA 2009b); and
- Conservation Advice for *Calyptorhynchus baudinii* - Baudin's cockatoo (TSSC 2018).

1.2 Significant Residual Impacts

As part of the environmental impact assessment undertaken and in further consultation with both EPA and DCCEEW, clearing of vegetation within the Development Envelope will result in a significant residual impact to terrestrial fauna, specifically:

- Western Ringtail Possum (*Pseudocheirus occidentalis*; Critically Endangered under EPBC Act and BC Act);
- Baudin's Black Cockatoo (*Zanda baudinii*; Endangered under EPBC Act and BC Act); and

Carnaby's Black Cockatoo (*Zanda latirostris*; Endangered under EPBC Act and BC Act). Whilst the partial modification treatment of vegetation will allow retention of habitat values within the Development Envelope, in line with the Proposal's Design Vision, the offset package provided in this Offset Strategy has assumed a worst-case scenario regarding the impact of clearing and takes a conservative approach to offsetting this impact. This means that it has assumed the entire clearing requirement (both full and partially modified) will impact habitat of Western Ringtail Possum (WRP), Baudin's and Carnaby's black cockatoo. On this basis, the significant residual impacts required to be offset are as follows:

- 14.68 ha of WRP primary and secondary habitat;
- 5.19 ha of Baudin's Black Cockatoo foraging habitat; and
- 5.19 ha of Carnaby's Black Cockatoo foraging habitat.

1.3 Legislative Context

As the Proposal has the potential to impact matters that are protected under State and Commonwealth legislation, the offset requirements have been determined in accordance with both the Western Australian Offsets Framework and the Commonwealth EPBC Act Offset Policy.

The key legislative requirements, policies and guidance relating to environmental impact assessment and offsets for the Proposal derive from the Commonwealth EPBC Act and the WA EP Act are listed below, as well as the environmental impact assessment undertaken to date.

1.3.1 Commonwealth Environmental Impact Assessment (EPBC Act)

The Proposal was referred to the DCCEEW for its potential to impact Matters of National Environmental Significance (MNES) in 2021 and was determined to be a 'Controlled Action' under the EPBC Act (EPBC 2021/9141). The Proposal is being assessed as an accredited assessment under the EP Act in accordance with section 87 of the EPBC Act.

1.3.2 State Environmental Impact Assessment (Part IV, EP Act)

The Proposal was referred to the EPA under section 38 of the EP Act and on the 18 May 2022 the EPA determined that the Proposal would be assessed and set the level of assessment at Public Environmental Review (PER) with a proponent-prepared Environmental Scoping Document (ESD). The ESD had a two-week public review period between 29 May 2023 and 13 June 2023 while the review period for the Environmental Review Document (ERD) was eight weeks and occurred between 16 December 2024 and 10 February 2025.

1.3.3 Commonwealth Legislation and Policies

- Environment Protection and Biodiversity Conservation Act 1999;
- EPBC Act Environmental Offsets Policy (DSEWPaC 2012a);
- Offset Assessment Guide (DSEWPaC 2012b);
- Offset Calculator Guidelines (DSEWPaC 2012c);
- Guidance for delivering 'risk of loss' estimates when evaluating biodiversity offset proposals under the EPBC Act (Maseyk et al. 2017);
- EPBC Act Policy Statement 3.10: Significant impact guidelines for the vulnerable western ringtail possum (*Pseudocheirus occidentalis*) in the southern Swan Coastal Plain, Western Australia (DEWHA 2009a); and
- Referral guideline for 3 WA threatened black cockatoo species (DAWE 2022).

1.3.4 State Legislation and Policies

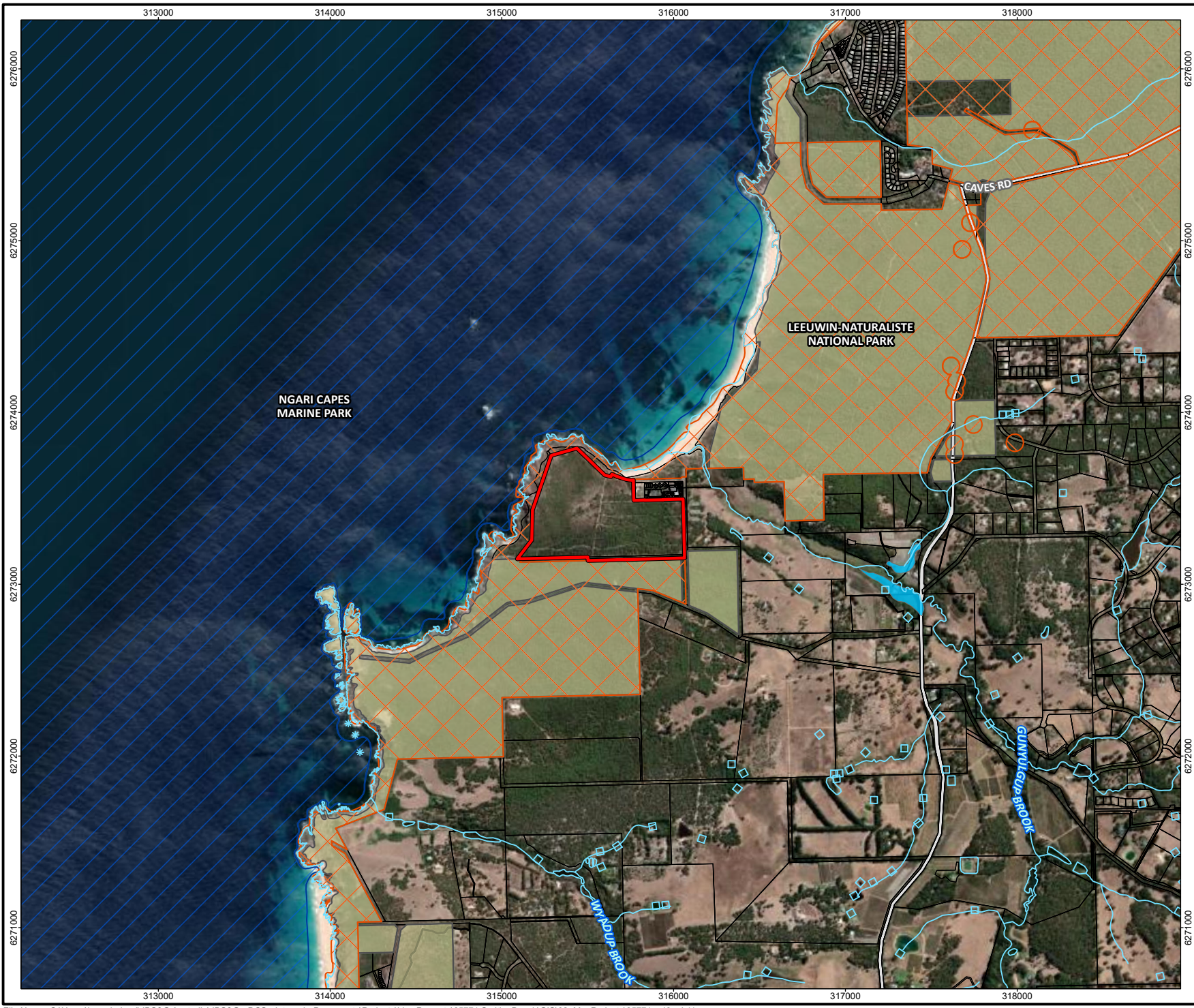
- Western Australia *Environmental Protection Act 1986*;
- Western Australian Environmental Offsets Policy (GoWA 2011);
- Western Australian Environmental Offsets Guidelines (GoWA 2014);
- Western Australian Environmental Offsets Calculator (GoWA 2021); and
- EPA Public Advice: Considering environmental offsets at a regional scale (EPA 2024).

1.4 Purpose and Scope of this Document

This document has been prepared to address the significant residual impacts of the Proposal after all practicable measures to avoid, minimise and rehabilitate impacts have been exhausted (further information on the application of the mitigation hierarchy is in Table ES 3 in the ERD Document (JBS&G 2024a).

The intent of the Offset Strategy is to outline the Proponent's broad approach and commitment to achieve a net positive environmental outcome for Western Ringtail Possums and Black Cockatoos in the region, consistent with the WA Offsets Framework, the Commonwealth's Offset Policy (DSEWPaC 2012a) and EPA's Public Advice on regional offsets (EPA 2024). It should be noted that site-specific Offset Management Plans will be developed to guide the on-ground implementation and management of each proposed offset site. Nonetheless, this Offset Strategy intends to provide sufficient detail to facilitate assessment and approval under both the EP Act and EPBC Act.

The proposed offset package and the approach to addressing the residual impacts is detailed in Section 2 of this report. Section 3 provides the conservation and management commitments associated with the proposed offsets. Section 4 provides an explanation of how the offset was calculated. Section 5 demonstrates how the Offset Strategy aligns with relevant State and Commonwealth guidance. Offset calculations are provided in Appendix F and Appendix G.



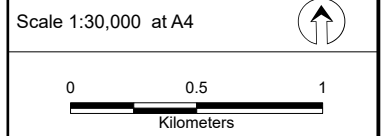
- Legend**
- Cadastral boundary (LGATE-002)
 - Environmentally Sensitive Areas (DWER-046)
 - Legislated lands and waters (DBCA-011)**
 - Marine Park
 - National Park
 - Geomorphic wetlands Leeuwin (DBCA-043)**
 - Palusplain
 - Hydrography (DWER-031)
 - Major road



Job No: 65771

Client: Smiths 2014 Pty Ltd

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**Lot 4131 Smiths Beach Road
Yallingup, WA**

REGIONAL CONTEXT

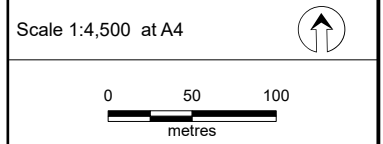
FIGURE 1-1



- Legend**
- Development envelope
 - Proposed full clearing
 - Proposed modified areas
 - Area to be placed into conservation (Area 1)
 - Public Open Space/Conservation Lot (Area 2)
 - Public Open Space (Area 3)
 - Public Open Space (Area 4)
 - Cadastral boundary (LGATE-002)
 - Roads (LGATE-195)
 - Minor road
 - Track



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**Lot 4131 Smiths Beach Road
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PROPOSAL ELEMENTS

FIGURE 1-2

2. Offset Strategy

As described in Section 1.1.1, the significant residual impacts resulting from implementation of the Proposal are the loss of:

- 14.68 ha of WRP primary and secondary habitat; and
- 5.19 ha of Baudin's and Carnaby's Black Cockatoo foraging habitat.

The quantum of offsets required to counterbalance at least 100 percent of the impacts listed above has been calculated using the Commonwealth's *Offsets Assessment Guide* and the associated offset calculator, and WA Offsets calculator and Environmental Offset Metric Guideline. Further detail on the calculation is Section 4 and in Appendix F and Appendix G.

In summary, the proposed approach involves revegetation and ongoing management of three parcels of land identified as suitable offset sites (see Figure 2-1):

- 12.84 ha within the proposed Mt Duckworth site (Section 2.3.1; Figure 2-4)
- 2.97 ha within the proposed Gunyulgup site (Section 2.3.2; Figure 2-5)
- 15 ha within the proposed Ludlow site (Section 2.3.3; Figure 2-6)

A description of each site and the rationale for the selection follows in Section 2.3.

In addition to the revegetation and ongoing management of the sites listed above, protection of a portion of suitable WRP habitat the Development Envelope via a conservation covenant contributed to the overall offsets required.

Indirect offsets have also been proposed including funding support for research into WRP (Section 2.5).

Furthermore, the Proponent maintains that the should the partially modified vegetation approach be endorsed through the bushfire and planning process still underway that the Proposal design and Development Envelope will continue to provide habitat value for these species. When considered alongside the proposed offsets, this approach is expected to more than adequately counterbalance the associated impacts.

2.1 Offset Strategy Aim and Objectives

This Offset Strategy aims to secure a net positive environmental outcome for WRP, Baudin's and Carnaby's Black Cockatoo habitat, through revegetation and restoration of values in areas that have been subject to historical degradation.

The objective of the Offset Strategy is to:

Establish an ecologically diverse and stable vegetation community with similar structure and composition within the revegetation area to that of the surrounding native vegetation, including species known to be primary foraging and breeding plants for Western Ringtail Possum and Baudin's and Carnaby's Black Cockatoo.

Based on the calculations set out in Appendix F and Appendix G, at least 30.81 ha will be revegetated within the proposed sites, to offset the loss of 14.68 ha of WRP habitat and 5.19 ha of Baudin's and Carnaby's Black Cockatoo habitat. The result of restoration works is anticipated to be the creation of additional habitat which will continue to be protected long-term within the Leeuwin-Naturaliste National Park and State Ludlow Forest (soon to be included in the Tuart Forest National Park). Additionally, the protection of suitable WRP on site which is proposed to be protected in perpetuity for the purpose of conservation will also contribute to offset the loss of up to 14.68 ha of WRP habitat within the development footprint.

The provision of funding to researchers for the WRP is anticipated to support improved understanding of the species and ultimately contribute to more effective conservation and management of the species.

2.2 Policy Context and Rationale for Approach

The proposed approach to offsetting the residual impacts to terrestrial fauna habitat aligns with relevant policy (alignment with policy is further detailed in Section 5) and a shifting focus to restoration of habitat rather than land acquisition for the offsetting of fauna habitat.

The WA Offsets Framework considers three types of offsets – land acquisition, on-ground management, and research. This Offset Strategy adopts on-ground management and research methods as the most effective approach to counterbalance resulting impacts to fauna habitat.

In the southwest of WA, offsets are commonly delivered via land acquisition, which aims to provide protection of existing biodiversity values. According to a 2019 review of WA's Offsets Framework (GoWA 2021), while land acquisition offsets have been found to most reliably deliver offset outcomes and are easier to demonstrate compliance, this mechanism simply changes the tenure of existing vegetation, and as such results in net loss of native vegetation and does not necessarily include ongoing management and monitoring to ensure a positive outcome (GoWA 2021). Furthermore, there is growing evidence that habitat protection by land acquisition alone may not be feasible due to a lack of availability, cost effective, or result in the best environmental outcome for some threatened species and communities. For this reason, the EPA (and DCCEEW) favours rehabilitation and restoration of habitat rather than land acquisition for threatened fauna species such as Black Cockatoos of the Swan Coastal Plain.

Direct offsets are those actions that provide a measurable conservation gain for an impacted protected matter (Commonwealth) and are designed to provide on ground improvement, rehabilitation and conservation of habitat outside of the project area (WA). A minimum of 90 percent of the offset requirements for any given impact must be met through direct offsets. This Offset Strategy proposes to use direct and on-ground management methods to offset 90 percent of the identified residual impact, with a local research component as an additional measure to achieve the required 100 percent quantum.

Across the three proposed sites described in section 2.3, the restoration efforts will target degraded areas, many of which currently contain bare ground or invasive species and are designed to improve habitat quality over time in line with science-based completion criteria. This approach is consistent with both the WA's and the Commonwealth's emphasis on nature positive outcomes and habitat enhancement beyond averted loss alone.



- Legend**
- Development envelope
 - Site boundary
 - Legislated lands and waters (DBCA - 011)
 - National Park
 - Towns
 - Highway
 - Major road



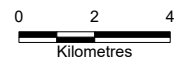
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Multiple sites
Yallingup, WA

PROPOSED OFFSET SITES IN RELATION TO PROJECT AREA

FIGURE 2-1

2.3 Offsite Offset Sites

The proposed offsite offset sites were selected through a process of ongoing consultation with Department of Biodiversity, Conservation and Attractions (DBCA) officers who identified potential revegetation opportunities on land managed under the *Conservation and Land Management Act 1984* (CALM Act). These sites were further considered by the Proponent to determine their suitability as offsets in relation to the residual impact related to the Proposal. While DBCA has not provided commentary on the adequacy of the offset package, the Proponent has committed to ongoing consultation with DBCA to ensure the proposed revegetation aligns with DBCA's expectations.

The criteria adopted to analyse offset site suitability draws upon the broad guidance in the EPA's (2024) *Public Advice: Considering environmental offsets at a regional scale* and the WA Offset Framework¹. The following were key factors in the selection of offset sites for this Offset Strategy:

- Proximity to impact site;
- 'Like for like' values;
- Site condition;
- Context and connectiveness in the landscape;
- Potential for restoration of local environmental values;
- Potential for regional scale benefits; and
- Land tenure, management and security.

As part of the selection process, officers from DBCA's Southwest branch visited two shortlisted offset sites (Mount Duckworth and Gunyulgup) on 6 November 2024 to confirm suitability for revegetation and provide their feedback on the management requirements at each of the two sites. During this consultation, a third site within the Ludlow State Forest was identified as a potential revegetation opportunity and is also proposed for inclusion in the offset package.

Table 2-1 below summarises the results of the analysis for the three selected sites.

Table 2-1 Analysis of the three proposed offset sites

Criteria	Mount Duckworth	Gunyulgup	Ludlow
Proximity to 'impact site'	4.6 km northeast of the Development Envelope	0.6 km east of the Development Envelope	44 km northeast from the Development Envelope
Land tenure, management and security	Leeuwin-Naturaliste National Park, managed by DBCA	Leeuwin-Naturaliste National Park, managed by DBCA	Ludlow State Forest which will transition to national park tenure under DBCA's stewardship in the future.
Like for like values	Located within the same genetic management unit as the Development Envelope as identified in White et al. (2021). This will provide a direct "like-for-like" counterbalance to the residual	Located within the same genetic management unit as the Development Envelope as identified in White et al. (2021). This will provide a direct "like-for-like" counterbalance to the	The offset site is located within critical habitat for both WRP and Black Cockatoo species, however the WRP are likely to be a different sub-population and fall within a different

¹ <https://www.epa.wa.gov.au/policies-guidance/wa-environmental-offsets-policy-framework>

Criteria	Mount Duckworth	Gunyulgup	Ludlow
	<p>impacts within the same population of WRP and Black Cockatoos.</p> <p>The proximity means habitat types and functions are comparable to those being impacted by the Proposal.</p>	<p>residual impacts within the same populations of WRP and Black Cockatoos.</p> <p>The proximity means habitat types and functions are comparable to those being impacted by the Proposal.</p>	<p>genetic management unit to that recorded in the Development Envelope due to the distance as identified in White et al. (2021).</p> <p>While geographically further from the Proposal, this site contributes to the offset package due to its unique regional conservation value, its known role in supporting WRP recovery efforts and by helping to secure the species' viability at a population level, despite the genetic variation.</p>
Site condition	Historically cleared for grazing. Some remnant Peppermint. Largely 'Degraded' condition with substantial areas of bare ground available for revegetation.	Historically cleared for grazing. Some remnant Peppermint and Paperbark. Largely 'Degraded' condition with substantial areas of bare ground available for revegetation.	Remnant Tuarts with Pine that will be harvested prior to revegetation works.
Context and connectiveness in the landscape	Adjacent to good quality native vegetation within conservation reserve, with the ability to reestablish connectivity within the National Park through targeted revegetation.	Adjacent to good quality native vegetation within conservation reserve, with the ability to reestablish connectivity within the National Park through targeted revegetation.	Adjacent to good quality native vegetation within conservation reserve, with the ability to reestablish connectivity within the National Park through targeted revegetation.
Potential for restoration of local environmental values	DBCA has advised it is suitable for restoration.	DBCA has advised it is suitable for restoration.	DBCA has advised it is suitable for restoration.
Potential for regional scale benefits	<p>DBCA-managed land means the restoration of degraded areas within the park will directly contribute to regional biodiversity conservation efforts.</p> <p>Restoration in the southern Swan Coastal Plain management zone aligns with regional conservation priorities and addresses critical habitat loss by expanding and enhancing areas where WRP and black cockatoo are known to occur.</p>	<p>DBCA-managed land means the restoration of degraded areas within the park will directly contribute to regional biodiversity conservation efforts.</p> <p>Restoration in the southern Swan Coastal Plain management zone aligns with regional conservation priorities and addresses critical habitat loss by expanding and enhancing areas where WRP and black cockatoo are known to occur.</p>	Contributes to regional biodiversity and conservation efforts and support existing reserve management plan.

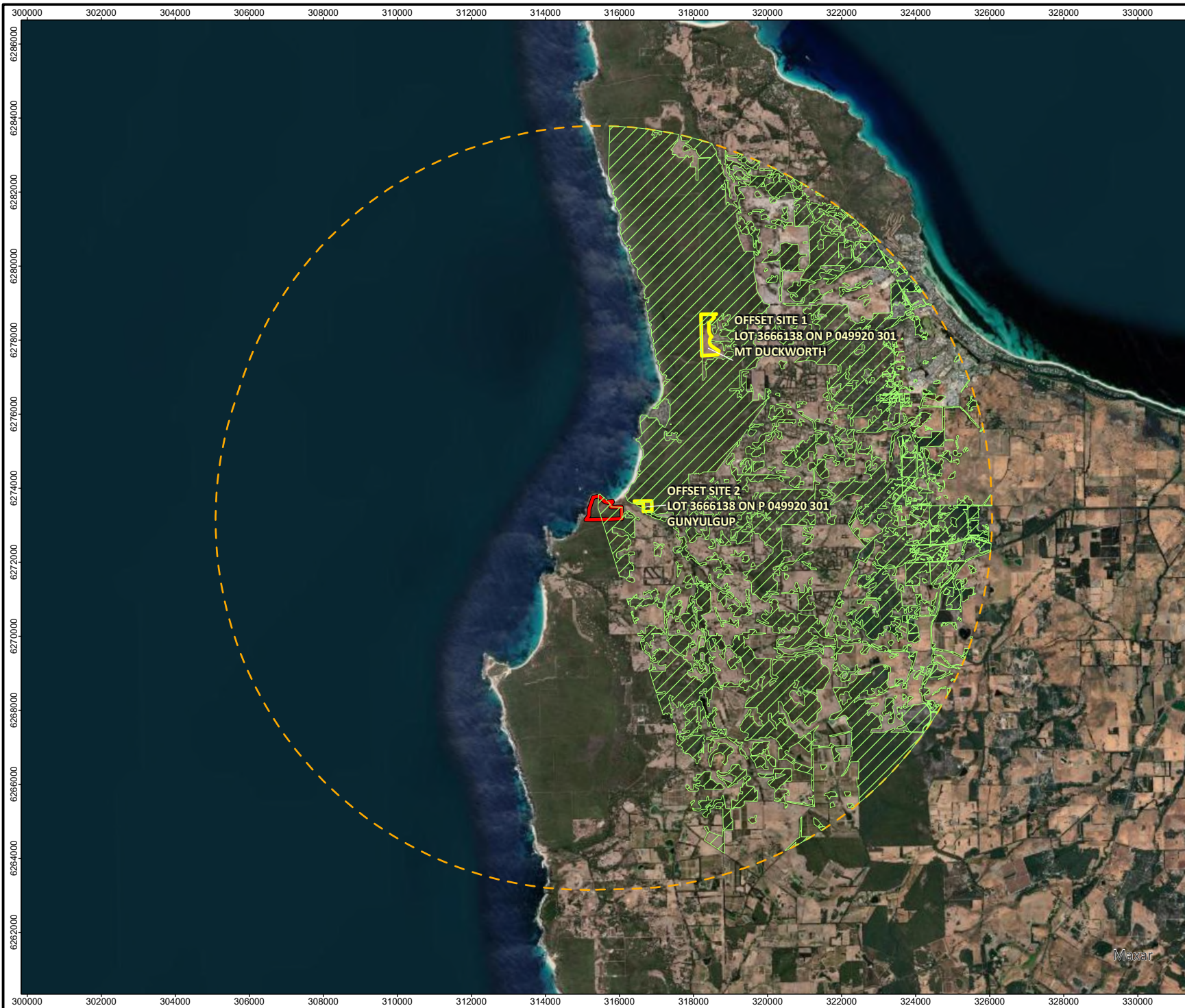
As Table 2-1 demonstrates, the proposed Mount Duckworth and Gunyulgup offsets sites are both located in close proximity to the Development Envelope 'impact site', presenting the opportunity to offset 'like for like' values within the Leeuwin-Naturaliste National Park (the same conservation reserve that surrounds the Development Envelope). The Leeuwin-Naturaliste National Park is known to support seasonal and permanent populations of WRP, Baudin's and Carnaby's Black Cockatoo (DPAW, 2015).

Like the impact site, the Mount Duckworth and Gunyulgup sites sit on the Leeuwin-Naturalist Ridge, which acts as a contemporary refuge for the declining populations of WRP (DPAW, 2015). The two sites form part of the same ecological linkage as the impact site (ecological linkage no.86) which supports the movement of avian species between patches of national park in the region.

Both sites are within the regions mapped as suitable habitat for WRP and foraging habitat of Black Cockatoo within a 10 km radius of the Development Envelope (Figure 2-2; and Figure 2-3).

The Mount Duckworth and Gunyulgup sites were assessed for suitability and ultimately approved for use as offsets by the Commonwealth government for the approved Structure Plan (ref EPBC 2007/3483). During that assessment process, it was determined that the sites provided habitat suitable for WRP and Baudin's Black Cockatoo and were considered suitable for targeted restoration (EPBC 2007/3483).

The proposed Ludlow site is currently within a state forest, however, has been identified to be incorporated into the Tuart Forest National Park following timber harvesting and rehabilitation. According to DBCA, the Tuart Forest National Park is home to WA's largest remaining wild population of the endangered WRP (DBCA 2024), and the Ludlow-Busselton area has long been known as the last substantial stronghold for WRP left on the Swan Coastal Plain (DPAW, 2014). The surrounding Tuart Forest National Park also provides habitat for Black Cockatoos and several species of Caladenia orchids.



- Legend**
- Development envelope
 - Site boundary
 - Western Ringtail Possum Habitat
 - Suitability (DBCA-049) [10 km radius]
 - Development envelope 10km radius



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 Client: Smiths 2014 Pty Ltd
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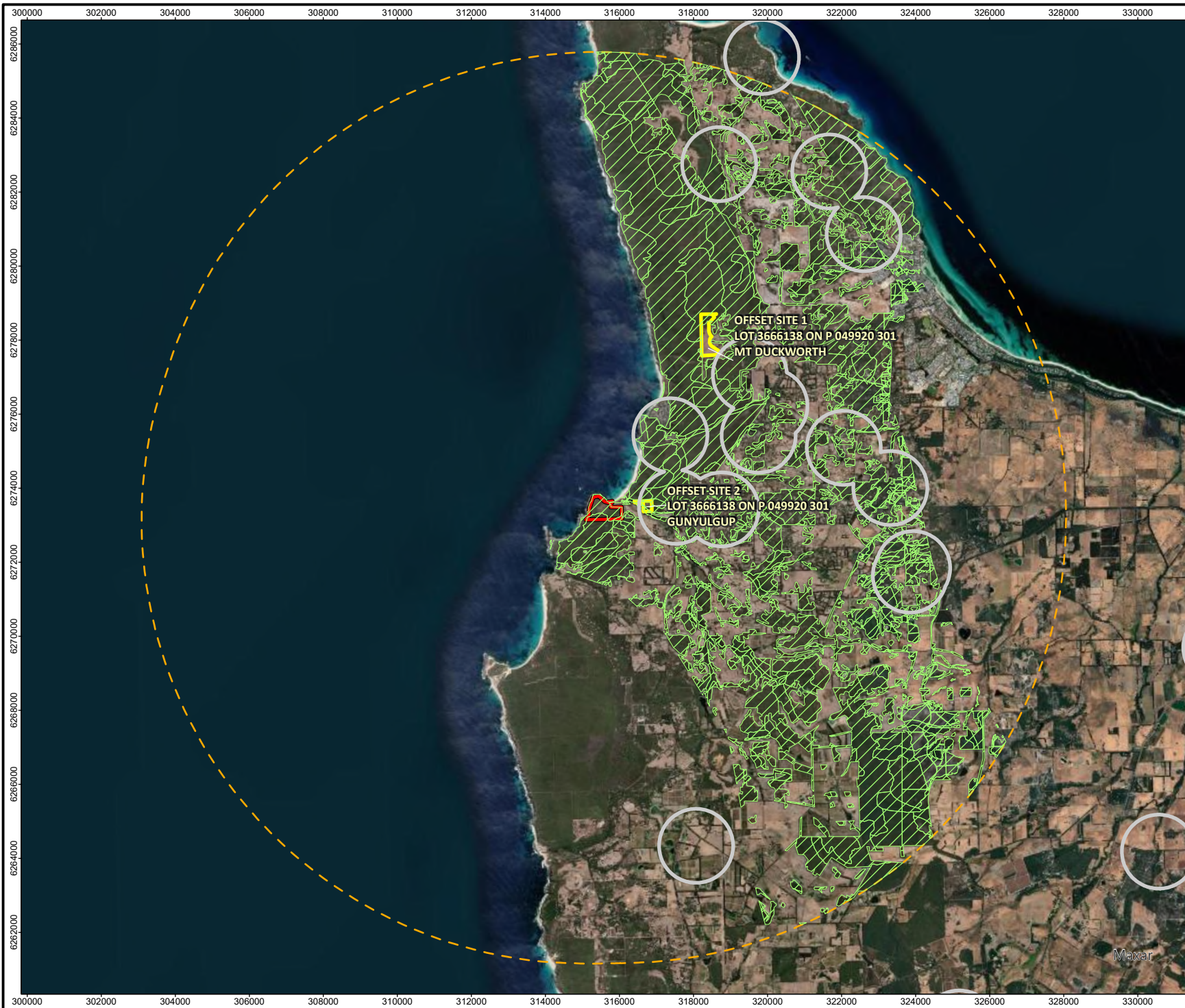
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**Lot 4131 Smiths Beach Road
 Yallingup, WA**

**FAUNA HABITAT - WESTERN RINGTAIL
 POSSUM - REGIONAL 10 KM RADIUS**

FIGURE 7 - 10

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 Image Reference: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



- Legend**
- Development envelope
 - Site boundary
 - Black Cockatoo Roosting Sites (DBCA_064)
 - Carnabys Cockatoo Areas requiring investigation as feeding habitat in the Jarrah Forest IBRA Region (DBCA-056) [12km radius]
 - Development envelope 12km radius



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**Lot 4131 Smiths Beach Road
Yallingup, WA**

**FAUNA HABITAT - BLACK COCKATOOS
REGIONAL 12 KM RADIUS**

FIGURE 7 - 11

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 Image Reference: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

2.3.1 Offset Site 1: Mount Duckworth

The proposed Mount Duckworth offset site is approximately 30 ha in total and is located approximately 4.6 km northeast of the Development Envelope in the City of Busselton (Figure 2-4; Appendix C). The site lies within the Leeuwin-Naturaliste National Park, home to a range of threatened and conservation significant species including Carnaby's and Baudin's Black Cockatoo and WRP. The site is unique due to its large size and accessibility.

Like the Development Envelope, the Mount Duckworth site falls within the Southern Jarrah Forest IBRA subregion (JF2) (Hearn et al., 2002; Beard 1990). The vegetation of this subregion comprises jarrah-marri forest in the west, shifting to marri and wandoo woodlands in the east (McKenzie et al., 2002).

The Leeuwin-Naturaliste National Park is an A Class reserve established to protect approximately 22,000 ha of the Leeuwin Naturalist Ridge geological feature and its biological values. The National Park provides a refuge for native flora and fauna and is known to contain populations of WRP and habitat for Black Cockatoos. The Mount Duckworth site lies within the known breeding distribution of Baudin's cockatoo, and within critical habitat for both Black Cockatoo species and WRP and DBCA records shown nearest records of Black Cockatoos and WRP within 120m east and 1.6 km south east of the site respectively.

Surveys of the National Park adjacent to the offset sites were undertaken in 2008 for the purpose of control sites for the previously approved offset for Location 413 Smiths Beach (see Appendix B). The vegetation adjacent to the Mount Duckworth offset site consisted of Peppermint/Jarrah/Marri Low Open Forrest in Good to Very Good condition. The soils of the site are deep yellow/brown sand.

While surrounded by good quality native vegetation, the large proposed offset site consists of extensive patches of cleared land and remnant vegetation in poor condition as a result of long-term degradation from grazing and unmanaged vehicle access.

To further understand the baseline environment on site, the Proponent engaged revegetation specialists with experience in the South West of WA, Tranen Revegetation Systems (Tranen), to review the proposed offset sites. Tranen undertook a site visit in May 2025, and determined that the primary remnant vegetation on the site include stands of Peppermint (*Agonis flexuosa*), Coastal Bitter Bush (*Adriana quadripartite*) and Grass tree (*Xanthorrhoea preissii*). Tranen advised that the site reflects the surrounding region regarding typical weed infestation, with annual grasses and broadleaf growing in winter and Arum Lily (*Zantedeschia aethiopica*) taking over shaded and damp areas. Appendix C provides representative photos taken at the site during Tranen's site visit.

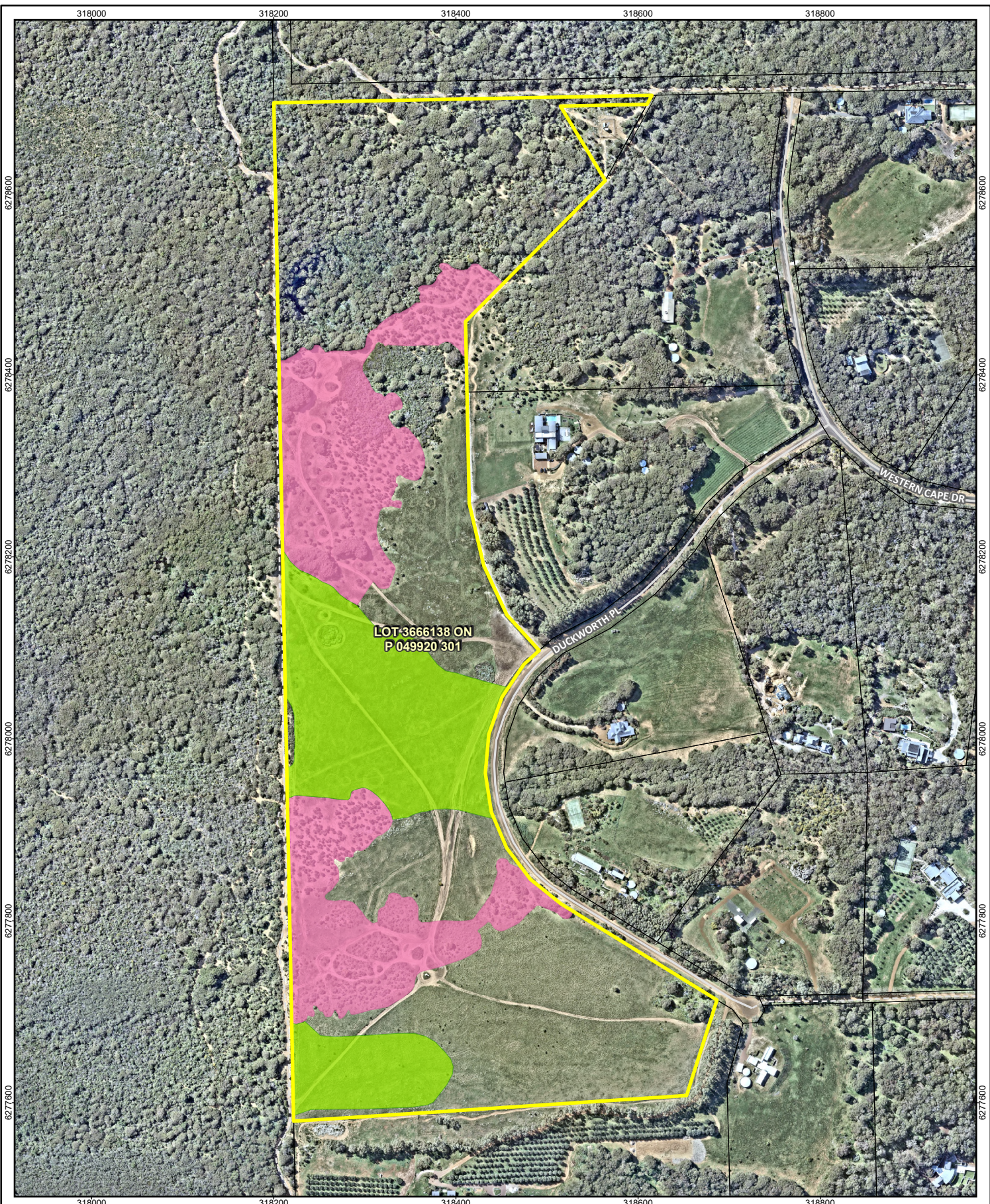
Like the Development Envelope, the offset site includes remnant Peppermint which provides primary breeding habitat for WRP and some foraging and roosting habitat for Black Cockatoos.

The site's degraded condition, with substantial areas of bare ground, present an excellent opportunity for targeted revegetation with appropriate species. The intent is to restore essential ecosystem functions to areas where there is sparse existing remnant vegetation by infill planting and rehabilitate areas of bare ground by broad scale revegetation.

Sections of the site suitable for revegetation and the proposed treatments were identified in collaboration with DBCA during a site visit.

Figure 2-4 provides an indicative illustration of the portions designated for rehabilitation through revegetation and those which will undergo infill planting, totalling 12.85 ha.

Implementing revegetation efforts within the Leeuwin-Naturaliste National Park will provide additional critical habitat and food sources for threatened species known to inhabit the area, restore connectivity, and align with regional conservation priorities by contributing to the recovery of the habitat and population of species.



Legend Site boundary Cadastral boundary Infill planting Revegetation Minor road Track	Scale: 1:5,500 at A4		2320 Caves Road Yallingup, WA OFFSET SITE 1 - MT. DUCKWORTH
	Coord. Sys. GDA2020 MGA Zone 50		
	Job Number: 59550		FIGURE 2-4
	Client: Linc Property Real Estate Pty Ltd		
	Version: A	Date: 07-Oct-2025	
	Drawn By: jcrute	Checked By: YSeesaha	

2.3.2 Offset Site 2: Gunyulgup

The proposed Gunyulgup offset site is approximately 2.97 ha and is located approximately 0.6 km east of the Development Envelope (Appendix D and Figure 2-5). The Gunyulgup site is within one of 2 patches of the Leeuwin-Naturaliste National Park that surround the Development Envelope. The ecological linkage (no.86) that passes through the Development Envelope also passes through this site. The unique value of this site is the proximity to the Development Envelope.

Like the Development Envelope, the Gunyulgup site falls within the Southern Jarrah Forest IBRA subregion (JF2) (Hearn et al., 2002; Beard 1990). The vegetation of this subregion comprises jarrah-marri forest in the west, grading to marri and wandoo woodlands in the east (McKenzie et al., 2002).

The Leeuwin-Naturaliste National Park is an A Class reserve established to protect approximately 22,000 ha of the Leeuwin Naturalist Ridge geological feature and its biological values. The National Park provides a refuge for native flora fauna and is known to contain populations of WRP and habitat for Black Cockatoos. Gunyulgup site lies within the known breeding distribution of Baudin's cockatoo, and within critical habitat for both Black Cockatoo species and WRP and DBCA records shown nearest records of Black Cockatoos and WRP within 1.1 km and 650 m east of the site respectively.

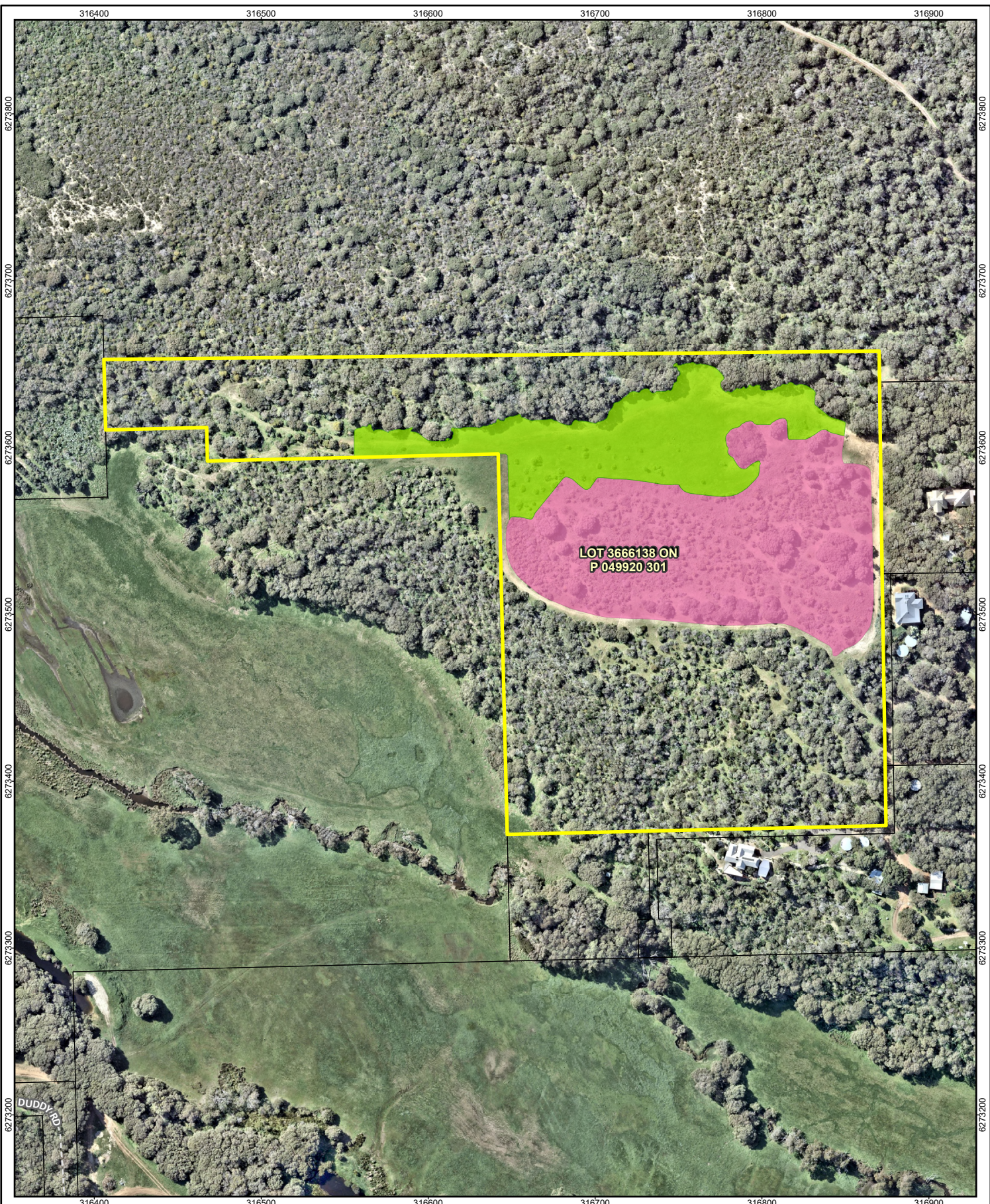
Given the proximity and the similar vegetation types it is considered that the offset site and surrounds provides similar habitat values to the Development Envelope.

Surveys of the National Park adjacent to the offset sites were undertaken in 2008 for the purpose of control sites for the previously approved of offset for Location 413 Smiths Beach (Appendix B). The vegetation adjacent to the Gunyulgup offset site consisted of Peppermint Low Woodland/Closed Forrest in Good to Very Good condition. The soils on the site are deep yellow/ brown sand.

Conversely, the Gunyulgup offset site is a largely bare patch historically cleared for grazing. Tranen undertook a site visit in May 2025, and determined that the primary remnants on the site include Peppermint (*Agonis Flexuosa*), Paperbark (*Melaleuca lanceolata*), Wattle (*Acacia saligna*), shrubs (*Hibbertia cuneiformis*), and sedges (*Lepidosperma gladiatum*). The site reflects the neighbouring region regarding weeds, with annual grasses and broadleaf in winter and Arum lilies in shaded and damp areas.

On November 6, 2024, DBCA conducted a site visit to assess its suitability for the proposed activities and to identify areas best suited for revegetation. DBCA confirmed its suitability, and highlighted, as shown in Figure 2-5, the northern section with minimal ground cover that will require broadscale revegetation and the targeted infilling to enhance vegetation cover in the southern portion.

The revegetation of the site will restore connectivity in the immediate vicinity of the Development Envelope, provide a continuous habitat for native fauna and improve fauna movement along ecological linkage no 86. Implementing revegetation efforts within the Leeuwin-Naturaliste National Park will provide additional critical habitat and food sources for threatened species known to inhabit the area, restore connectivity, and align with regional conservation priorities by contributing to the recovery of the habitat and population of species.



Legend Site boundary Cadastral boundary Infill planting Revegetation Track	Scale: 1:3,000 at A4				2320 Caves Road Yallingup, WA
	Coord. Sys. GDA2020 MGA Zone 50				
	Job Number: 59550				FIGURE 2-5
	Client: Linc Property Real Estate Pty Ltd				
	Version: A	Date: 07-Oct-2025			
	Drawn By: jcrute	Checked By: YSeesaha			

2.3.3 Offset Site 3: Ludlow

The proposed 15 ha Ludlow offset site within the Ludlow State Forest was identified by DBCA as suitable for revegetation (Figure 2-6

Figure 2-6: Ludlow Offset Site (Appendix E)) and is approximately 44 km east of the Development Envelope. The unique value of this site is the location within a region that contains significant populations of WRP.

The proposed Ludlow site lies within critical habitat for the Western Ringtail Possum and is a strong example of the Swan Coastal Plain zone described in the Recovery Plan. This zone includes “the peppermint woodlands and peppermint/tuart forests on the southern extremity of the Swan Coastal Plain, extending from north of Bunbury to Augusta, but principally around Busselton” (DPAW 2017).

The site represents ‘core habitat’ within the southern Swan Coastal Plain, as mapped in the Commonwealth’s (2009) *Significant impact guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia*. The region contains both the largest population and highest density populations of WRP, which are likely to be critical to the survival of the species (DEWHA, 2009).

The region is also known to support Carnaby’s and Baudin’s Black Cockatoos, with Tuart as one of the primary roosting, breeding and foraging habitats for both species (DAWE 2022), as well as habitat for multiple species of *Caladenia* orchids. The Ludlow State Forest is largely made up of tall Tuart Woodland over pasture, Banksia (*Banksia attenuata*) Woodland or Open Peppermint Forest (DPAW, 2014), reflecting the preferred habitat of WRP (eucalypt woodland or forest with a Peppermint midstorey) and Black Cockatoos. There are also some marri (*Corymbia calophylla*) and jarrah (*E. marginata*) found in the northern parts (DPAW, 2014).

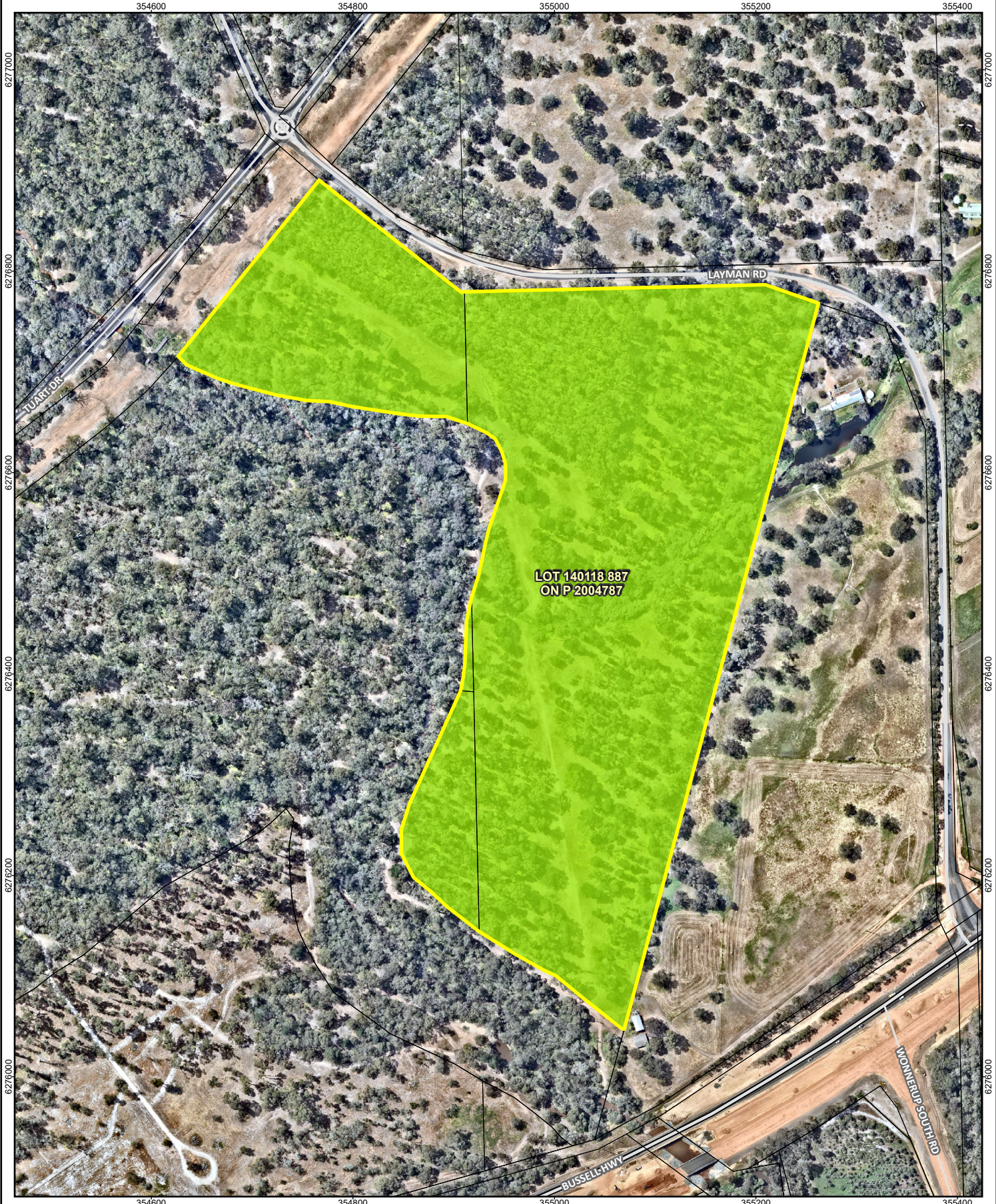
The Ludlow State Forest also contains patches of pine plantations with relict native Tuart, which is how the offset site has been described. Tranen undertook a site visit in May 2025 and confirmed that the primary remnants on the site include Tuart, Peppermint (*A. flexuosa*), and Paperbark (*Melaleuca raphiophylla*). The site includes 4.5 ha of mature re-growth Tuart plantation. Tranen also confirmed that reference sites in the adjacent areas and surrounding National Park are Tuart Woodland with pines.

While it is acknowledged that the native vegetation composition and structure at the Ludlow site is different to the impacted vegetation in the Development Envelope, the restoration of the site can provide additional habitat security for significant populations of WRP.

The EPA’s (2024) Public Advice on considering environmental offsets at a regional scale encourages offsets that contribute to broader environmental outcomes, including resilience, connectedness and enhancement of high value environmental areas, particularly where those areas play a critical role in species recovery or ecosystem function. The Tuart Forest National Park is one of the most significant remaining strongholds for WRP and contributes to the long-term persistence of the species at a regional and species level, particularly through ongoing revegetation and coordinated offset investment in the area (DPAW, 2014).

The Ludlow State Forest is a proposed addition to Tuart Forest National Park and falls within the Tuart Forest National Park Management Plan. The addition of Ludlow State Forest into National Park and the rehabilitation following harvesting of plantation timber was recommended by the EPA in the 1970s, and the intention was set out in the Forest Management Plan 2014–2023. Given the costs associated with rehabilitation and other constraints, this has yet to occur.

Incorporating this land into a proposed offset supports the State and Commonwealth government with the responsibility and cost of revegetation, aligns with regional conservation objectives, enhancing habitat connectivity and strengthening protection measures for key species within a formally managed conservation reserve. Parts of the Ludlow State Forest are also being revegetated for WRP habitat as part of the Bunbury Outer Ring Road offset package, making this addition a further contribution to the regional conservation efforts.



Legend Site boundary Cadastral boundary Revegetation Highway Major road Minor road Track	Scale: 1:5,000 at A4		 0 25 50 metres		2320 Caves Road Yallingup, WA		
	Coord. Sys. GDA2020 MGA Zone 50					OFFSET SITE 3 - LUDLOW STATE FOREST	
	Job Number: 59550					FIGURE 2-6	
	Client: Linc Property Real Estate Pty Ltd						
	Version: A		Date: 07-Oct-2025				
	Drawn By: jcrute		Checked By: YSeesaha				

2.4 Onsite Conservation

Approximately 3.95 ha of habitat for WRP has been identified as an offset to be placed into conservation estate (via conservation covenant) as per Figure 2-7 and habitat enhanced via revegetation. Once established, this revegetation will strengthen linkages between the National Park and the onsite conservation area, supporting safer movement and broader ecological connectivity for WRP and other fauna species. Figure 2-7 identifies areas proposed for revegetation.

This onsite conservation area will provide important secondary foraging and dispersal habitat for the WRP. The conservation area is located immediately adjacent to the Leeuwin–Naturaliste National Park to the south, separated by a firebreak. While this separation introduces a break in canopy continuity, WRP are known to occasionally travel across short ground distances, meaning individuals entering from the south are still likely to be able to access foraging habitat within the conservation area however it does make them more vulnerable to predation. The Foreshore Management Plan (FMP; JBS&G 2024b) developed for the Proposal includes provisions to progressively revegetate and restore these cleared areas, which will enhance habitat connectivity over time.

2.5 Research

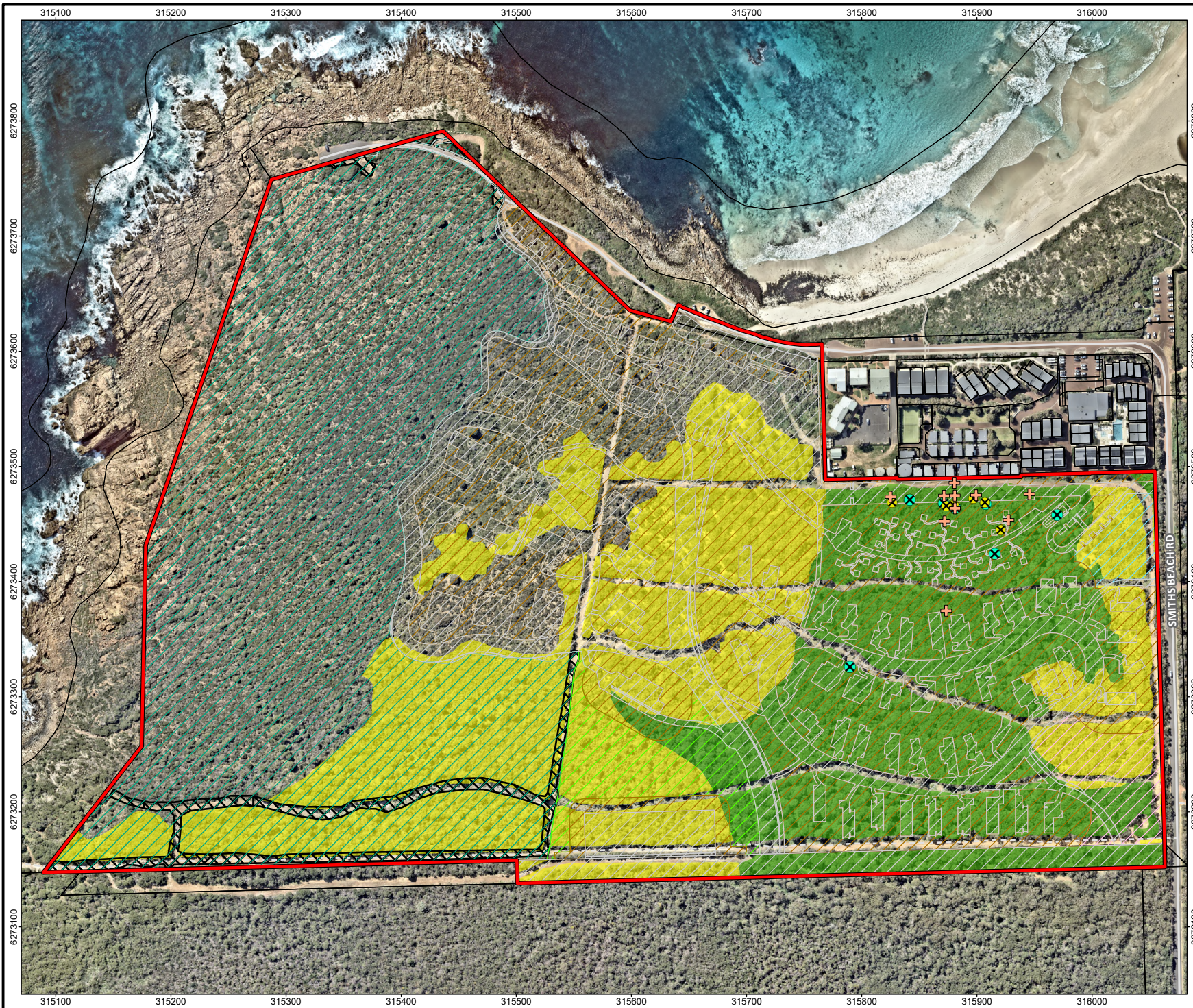
In addition to the above on-ground offsets, the Proponent will undertake research aimed at improving understanding of local WRP populations.. The proposed research will be targeted at knowledge gaps to enhance recovery efforts for the local WRP population and be developed to align with the Recovery Plan for the species.

To further enhance environmental and community outcomes, the Proponent will provide funding support for local community groups and Karri Karrak engagement, including:

- Education workshops;
- Development of learning materials for schools and the broader community; and
- Opportunities for school and community participation in revegetation activities.

These activities will be localised and focused on the Development Envelope, surrounding areas and associated local offset sites, including Mt Duckworth and Gunyulgup.

Furthermore, the progress of the three revegetation offsets will be monitored and evaluated periodically, with the environmental outcomes made public to contribute to the scientific knowledge and restoration success in the local area (see below for more information of management commitments).



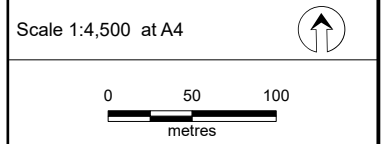
- Legend**
- Development envelope
 - Proposed full clearing
 - Proposed modified areas
 - Area to be placed into conservation (Area 1)
 - Public Open Space/Conservation Lot (Area 2)
 - Public Open Space (Area 3)
 - Public Open Space (Area 4)
 - Cadastral boundary (LGATE-002)
 - Revegetation within Area 1
 - Western Ringtail Possum habitat category (Bamford Consulting Ecologists, 2024)
 - Primary breeding, foraging and dispersal habitat
 - Secondary foraging and dispersal habitat
 - Roads (LGATE-195)
 - Minor road
 - Track
 - Western Ringtail Possum (Biologic)
 - + Drey
 - Western Ringtail Possum (Bamford Consulting Ecologists)
 - x Drey
 - x Maternity drey



Job No: 59550

Client: Smiths 2014 Pty Ltd

Version: A	Date: 7/10/2025
Drawn By: jcrute	Checked By: RM



**Lot 4131 Smiths Beach Road
Yallingup, WA**

**WRP HABITAT WITHIN PROPOSED
ONSITE CONSERVATION AREA**

FIGURE 2-7

3. Conservation and Management Commitments

This section provides an overview of the management measures, implementation, monitoring and reporting planned for the three proposed offsite offset sites. Some high-level completion criteria are also included. Further details will be developed in collaboration with DBCA and a revegetation specialist and detailed in site-specific Offset Management Plans (OMPs) for each proposed offset location. The onsite conservation area will be managed via the FMP (JBS&G 2024b) developed and conditioned through the planning process.

3.1 Seed resource

The species mix will be refined through the OMPs in consultation with DBCA and a revegetation specialist. To ensure the revegetation achieves a 'like for like' outcome aimed at WRP and Black Cockatoo habitat, the composition will be selected to reflect adjacent native vegetation, and best suit the preferred habitat for those fauna, likely to include canopy key species such as marri, jarrah and peppermint and a mid – and under-storey mix with both WRP and Black Cockatoo preferred foraging species.

Seed will be harvested from within a 50 km radius as is typically required for revegetation projects and seed collection activities will be documented. The Proponent will salvage and utilise the native seed resource from the Development Envelope impact area and will establish a seed bank prior to clearing for use at offset sites. In this case, the Proponent will employ a licenced and accredited native seed supplier, with local facilities for collection, processing, long-term storage, banking/management, testing, and treatments for native seed management. This will be undertaken as proactive step to minimise delays due to seed collection and best reflect the species lost at the impact site. In the alternative, seeds will be collected from National Park adjacent to the offset sites (pending approval), or tubestock purchased from suitable nurseries.

3.2 On ground restoration activities

Management measures will be implemented with the aim to restore habitat, enhance biodiversity, improve habitat connectivity and contribute to regional conservation efforts and ecological values within the proposed offset sites. This will be achieved through the development and implementation of a site-specific Offset Management Plans (OMPs) to be developed in consultation with DBCA (to ensure it aligns with DBCA expectation, policy and management of National Parks) and a specialist revegetation contractor with expertise in the Southwest region already contracted by the Proponent.

In summary, key on-ground activities will include site preparation works, installation and plant establishment and post-installation monitoring and maintenance. While detail will be further addressed in OMPs, it is anticipated that the following actions may be required in the first 2 years:

- Preliminary weed control;
- Preliminary feral animal control;
- Fence installation;
- Firebreak management;
- Slashing and management of existing vegetation;
- Earthworks;
- Soil amendment;
- Ripping;
- Direct seeding; and
- Seedling (tube stock)planting.

Following installation, ongoing maintenance and monitoring will occur from Year 3 to Year 10:

- Weed control;
- Infill planting where required;
- Feral animal management; and
- Fence maintenance.

The measures which will be addressed in the OMPs include:

- Conducting baseline surveys to validate previous ecological data and guide species selection for revegetation and planting design;
- Selection of reference sites in the adjacent existing vegetation (Leeuwin-Naturaliste National park and Ludlow State Forest) to guide revegetation completion criteria and ongoing monitoring for success;
- Installation of fencing to prevent damage to revegetation efforts by grazing animals and unauthorised access to the site with design to allow for native wildlife movement in consultation with DBCA;
- Implementation of rabbit and fox control methods, including baiting and exclusion barriers, with ongoing monitoring to minimise pest impacts;
- Undertaking pre-planting weed management using mechanical and targeted herbicide methods, with ongoing maintenance to protect existing vegetation and revegetation;
- Selection of native species aligned with conservation priorities, focusing on those providing foraging nesting, and shelter resources for WRP and Black Cockatoos. This species list will be informed following baseline surveys and in consultation with DBCA; and
- Using a mix of tube-stock planting and direct seeding, guided by DBCA and revegetation specialist and timed for optimal seasonal conditions.

DBCA has provided initial feedback on each location, including tailored management measures for each proposed offset site. These site-specific recommendations will be integrated into the respective OMPs.

The OMPs will also include further detail on the following:

- Achievable goals and timeframes for the ongoing maintenance and improvement of habitat within the offset sites;
- Proposed management activities to achieve the above goals within the timeframes;
- Milestones and completion criteria;
- Contingency plans, should the revegetation work be unsuccessful/fail to meet completion criteria;
- Indicative monitoring and reporting methods and timeframes; and
- Long-term management and funding arrangements.

3.3 Implementation

Management measures set out in the OMPs, including site preparation, planting, monitoring and reporting will be funded and implemented by the Proponent. The Proponent will also assume responsibility for ongoing maintenance and management of the sites, governed by a formal management agreement with DBCA that outlines the roles and responsibilities of the Proponent for the duration of the offset (currently being finalised).

The Proponent will implement and manage the revegetation efforts until the completion criteria outlined below (and confirmed in OMPs) are achieved (with a 10-year minimum).

Further consultation with DBCA will occur to define the specifics of the agreement, including agreed completion criteria and future management options including formal handover to DBCA for inclusion into national parks.

It is anticipated that the first 2 stages of works, including planning and preparation works, as well as initial direct seeding and tubestock installation will take two years to complete. Maintenance and monitoring will occur from year 1 to 10 (minimum) on an ongoing basis, with the frequency discussed in Section 3.4.

3.4 Monitoring

Progress will be evaluated against completion criteria to measure the success of the offsets. Monitoring and maintenance activities will be undertaken until the completion criteria are achieved, ensuring the success of the offset implementation. Monitoring programs will be conducted regularly to assess plant health, survival rates, weed presence, and pest activity, with the frequency and duration detailed in the OMPs.

The indicative monitoring schedule is expected to include biennial monitoring in spring and autumn, using quadrats established in adjacent, good-condition reference vegetation (control sites) to assess the success of the revegetation, compared with quadrats within the revegetated areas.

The Proponent is committed to transparent reporting and improving regional understanding, and additional details on reporting of monitoring results will be included in the OMPs.

3.5 Ongoing Maintenance and Contingency Measures

Maintenance activities will be implemented as needed, based on monitoring outcomes to ensure ecological resilience, for a minimum of 10 years. It is anticipated that the following will be implemented if required:

- Supplementary planting;
- Soil wetting or irrigation; and
- Additional pest or weed or unauthorised access control, including in the adjacent National Park if advised to be required by DBCA.

Adaptive management strategies will be employed to allow for adjustments in response to environmental conditions and monitoring results. Site specific adaptive management frameworks, with triggers for corrective actions will be included in the OMPs.

3.6 Completion Criteria

Completion criteria specific to each site will be provided in the OMPs. The following provides an indicative list of completion criteria to support the assessment and approval of the Proposal and this offset strategy.

The primary goal is to ensure the revegetation of at least 30.81 ha within the three offset sites, to adequately offset the loss of 14.68 14.68 ha of WRP habitat and 5.19 ha of Baudin's and Carnaby's Black Cockatoo habitat.

To achieve the objective of establishing an ecologically diverse and stable vegetation community with similar structure and composition within the revegetation area to that of the surrounding native vegetation, the following is an indicative list of completion criteria (and units), typical for measuring quality of WRP/ Black Cockatoo offsets:

- Diversity / species richness (species counts);
- Strata composition (species counts);
- Density (stem/ha);
- Canopy cover (%);
- Native cover (%);

- Weed cover (%); and
- Pest protection.

As a part of the consideration of offset requirements, the Proponent has also considered a final habitat score for the offset sites following implementation of revegetation works. This will be further refined in the OMPs. The Proponent is committed to achieving the final habitat quality established through this process.

3.7 Reporting

Completion criteria for the revegetation program will be outlined in future OMPs, ensuring alignment with rehabilitation targets, regulatory requirements, and the ecological needs of impacted species and their habitats. Annual compliance reporting is anticipated to be required by the environmental approval. The annual compliance report will detail the progress toward implementation of the future OMPs as well as meeting performance and completion criteria and include all monitoring reports required by the plans.

4. Offset Assessment Guide

4.1 Offset calculations

As the significant residual impacts relate to MNES and in support of the referral under the EPBC Act (EPBC 2021/9141), the Commonwealth (2012b) *Offsets Assessment Guide* and the associated offset calculator (Appendix F) was used to assess the suitability of the proposed offset package to compensate for the loss of WRP and Black Cockatoo habitat. Calculations were also undertaken using the WA Offsets Calculator to assess suitability and are provided in Appendix G.

Justification of the values utilised in the offset calculations are included in Section 4.1.1 for WRP and Section 4.1.2 for Black Cockatoo foraging habitat. Justification of values used for quality of impacted habitat area are provided in Appendix A.

The following provides a description and the basis of the offset parameters outlined in Section 4.1.1 and Section 4.1.2:

- **Area of impact** – The area of habitat/community impacted;
- **Quality of impacted area** - The quality score for area of habitat/community being impacted - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability;
- **Time over which loss is averted** - This describes the timeframe over which changes in the level of risk to the proposed mitigation site can be considered and quantified;
- **Risk of loss (%) without offset** - This describes the chance that the habitat/community on the proposed offset will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future without an offset;
- **Risk of loss (%) with offset** - This describes the chance that the habitat/community on the proposed offset will be completely lost (i.e. no longer hold any value for the protected matter of concern) over the foreseeable future with an offset;
- **Confidence in result** - The level of certainty about the successful achievement of the proposed change in quality (habitat/community) or value (features/individuals);
- **Time until ecological benefit** - This describes the estimated time (in years) that it will take for the main benefit of the quality (habitat/community) improvement of the proposed offset to be realised;
- **Start quality** - The quality score for the area of habitat/community proposed as an offset - a measure of how well a particular site supports a particular threatened species or ecological community and contributes to its ongoing viability;
- **Future quality without offset** - The predicted future quality score (habitat/community) of the proposed offset without the offset; and
- **Future quality with offset** - The predicted future quality score (habitat/community) of the proposed offset with the offset.

4.1.1 Western Ringtail Possums

Table 4-1: EPBC Act offset calculator for WRP foraging habitat – Mt Duckworth Site

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	14.68	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD and updated mapping provided by Bamford (2024; refer to Figure 2-7).
Quality of impacted area	7	The value of 7 has been applied in the calculator based on the score obtained using the habitat quality scoring (HQS) tool for WRP foraging habitat as per Appendix A.
Revegetation of cleared areas at Mt Duckworth		
Time over which loss is averted	20	The maximum period over which loss can be averted through the offset calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	5.74	It is proposed that a total of 5.74 ha will be revegetated within severely degraded/cleared areas of the Mt Duckworth site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	10	Given the severely degraded condition of the site, a 10-year timeframe to achieve measurable ecological benefit is considered reasonable. The development of suitable WRP habitat requires the successful establishment and growth of key native species particularly mid- and upper-storey vegetation that provides food, shelter, and connectivity. Given these areas are severely degraded, initial efforts will focus on soil stabilisation, weed suppression and plant establishment. WRP are highly dependent on dense canopy cover and specific vegetation types for shelter and foraging. Structural attributes such as canopy interconnection and vertical layering essential for possum movement and refuge are unlikely to form within a shorter timeframe, particularly from a baseline of severe degradation. <i>Agonis flexuosa</i> (peppermint) will be planted and is a fast-growing species known to be an important food and nesting resource for WRP. Its capacity to quickly establish and contribute to canopy development will help accelerate early habitat value in parts of the site.

Offset Criteria	Response	Justification
Start quality	0	<p>There is no vegetation or suitable habitat currently present within these areas. The site inspection conducted by a revegetation specialist confirmed that these areas are predominantly cleared and in a severely degraded condition due to weed spread and unauthorised access. While they do not presently support habitat for WRP, the proposed restoration works aim to enhance habitat availability within the broader landscape of the Leeuwin-Naturaliste National Park, which is recognised as suitable habitat for the species.</p> <p>Refer to Appendix C for photos of the site.</p>
Future quality without offset	0	<p>Inclusion in the conservation estate under the CALM Act primarily offers statutory protection but does not equate to active ecological management in the case of Mt Duckworth.</p> <p>While the proposed Mt Duckworth site is protected as part of the Leeuwin-Naturaliste National Park, the limited funding and resources available to the DBCA raise concerns about the potential for these sites to be enhanced sufficiently to contribute to the park and protected matters' needs.</p> <p>It is expected that, without active management or intervention, these areas will remain in their current degraded state and continue to provide no habitat suitable for WRP. In the absence of restoration efforts, natural regeneration is unlikely due to the extent of disturbance, limited existing vegetation and potential ongoing pressures such as weed invasion or erosion.</p>
Future quality with offset	8	<p>Revegetation efforts are expected to achieve a habitat quality score of 8 for the WRP based on a combination of site-specific planning, ecological context and ongoing monitoring.</p> <p>The site is directly adjacent to the Leeuwin-Naturaliste National Park, which supports a known population of WRP. This proximity increases the likelihood of successful use of the site as habitat connectivity is improved through revegetation.</p> <p>Detailed OMPs will be prepared in consultation with the DBCA and ecological restoration experts. These plans will guide the selection of appropriate native species and planting designs that reflect the structure and composition of existing WRP habitat. Reference site data from within the adjacent national park will be used to inform realistic and ecologically relevant completion criteria, including species mixes, vegetation structure and canopy cover. These targets are intended to replicate the conditions known to support WRP populations.</p> <p>Ongoing monitoring will be undertaken to track vegetation establishment and confirm use of the site by WRP over time. Monitoring results will inform adaptive management to ensure that revegetation efforts continue to support the development of high-quality habitat.</p>
Confidence in result (% (bottom row)	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Site-specific OMPs will be developed in consultation with DBCA and restoration experts. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	18.52%	

Offset Criteria	Response	Justification
Infill planting within areas of remnant vegetation at Mt Duckworth		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	7.10	It is proposed that a total of 7.10 ha will be rehabilitated through infill planting where there is existing remnant vegetation in poor condition. The site visit identified the majority of this remnant vegetation to be patches of <i>Adriana quadripartita</i> , <i>Xanthorrhoea preissii</i> and <i>Agonis flexuosa</i> . Whilst there is
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	5	<p>A five-year time horizon is considered appropriate to realise ecological benefits in areas proposed for infill planting. Unlike full revegetation, these areas already contain a baseline of native vegetation, and infill efforts will target gaps to enhance species diversity, vegetation structure and habitat quality. While parts of the broader site are degraded, the infill areas particularly those in the northern section are in relatively better condition and are surrounded by more continuous native vegetation. This context supports faster establishment and greater likelihood of functional ecological outcomes.</p> <p>The surrounding intact vegetation in these areas is expected to aid in natural recruitment, improve habitat connectivity and facilitate quicker development of the structural complexity required for WRP use.</p> <p><i>Agonis flexuosa</i> (peppermint) will be planted and is a fast-growing species known to be an important food and nesting resource for WRP. Its capacity to quickly establish and contribute to canopy development will help accelerate early habitat value in parts of the site.</p> <p>Ongoing monitoring will confirm progress and guide adaptive management to ensure these benefits are achieved within the predicted timeframe.</p>
Start quality	3	A lower starting habitat quality score is appropriate for the areas proposed for infill planting due to their current ecological limitations. While these areas adjoin intact vegetation, areas proposed for infill planting are patchy and lack the structural complexity and species diversity required to support WRP. The vegetation in these areas is dominated by a limited suite of species, primarily <i>Adriana quadripartita</i> , <i>Xanthorrhoea preissii</i> and <i>Agonis flexuosa</i> , which do not alone provide the full range of resources (e.g. continuous canopy, shelter and foraging options) needed for WRP habitat. In contrast to adjoining high-quality habitat, the infill areas currently lack sufficient mid- and upper-storey development and canopy connectivity, which are critical components of suitable WRP habitat. The fragmented nature of vegetation cover in these

Offset Criteria	Response	Justification
		<p>patches also limits fauna movement and ecological function. As such, the existing condition does not yet reflect functional habitat and warrants a lower starting score. A score of 3 which reflects low habitat quality has been assigned. Refer to Appendix C for photos of the site.</p>
Future quality without offset	2	<p>In the absence of active management or offset intervention, a further decline in habitat quality from a current score of 3 to a future score of 2 is considered likely due to ongoing and unmanaged threats at the site. The area is subject to unauthorised access by four-wheel drives and motorbikes, which is causing soil compaction, erosion and physical disturbance of vegetation (refer to Appendix C for photos) . These pressures directly damage existing native vegetation and inhibit natural regeneration, particularly in already patchy areas with limited canopy cover. In addition, the site assessment indicated that the site is experiencing progressive weed invasion, which further suppresses native recruitment and alters vegetation structure, reducing habitat suitability for the WRP. Without intervention, these cumulative impacts are expected to lead to further fragmentation, reduced plant diversity and long-term habitat degradation, resulting in a transition from low-quality habitat to one with very limited or negligible ecological function.</p>
Future quality with offset	8	<p>A future habitat quality score of 8 has been assigned to areas proposed for infill planting, reflecting the strong likelihood that these areas will develop into high quality habitat for the WRP as a result of targeted restoration efforts. These areas are located adjacent to or within a matrix of continuous native vegetation which increases connectivity and natural recruitment potential.</p> <p>Infill planting will be strategically designed to address existing gaps in canopy cover, floristic diversity, and mid-storey structure, with a specific focus on enhancing habitat suitability for WRP. Revegetation efforts will be guided by site specific plans prepared in consultation with DBCA and restoration experts. These plans will draw on local reference sites to inform completion criteria, including species composition, canopy development, and habitat complexity, with the aim of aligning the vegetation condition with that of high quality occupied WRP habitat.</p>
Confidence in result (% (bottom row)	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> • The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; • Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements • Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; • Site-specific OMPs will be developed in consultation with DBCA and restoration experts. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will Incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones (e.g., Years 3, 5, and 10).
% of impact offset	23.87%	
Total % of impact offset at Mt Duckworth	42.39%	

Table 4-2: EPBC Act offset calculator for WRP foraging habitat – Gunyulgup Site

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	14.68	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD and updated mapping provided by Bamford (2024; refer to Figure 2-7).
Quality of impacted area	7	The value of 7 has been applied in the calculator based on the score obtained using the HQS tool for WRP foraging habitat as per Appendix A.
Revegetation of cleared areas at Gunyulgup		
Time over which loss is averted	20	The maximum period over which loss can be averted through the offset calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	1.03	It is proposed that a total of 1.03 ha will be revegetated within the severely degraded/cleared areas of the Gunyulgup site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	10	<p>Given the severely degraded condition of the site, a 10-year timeframe horizon to achieve measurable ecological benefit is considered reasonable and necessary. The development of suitable WRP habitat requires the successful establishment and growth of key native species particularly mid- and upper-storey vegetation that provides food, shelter, and connectivity. Given these areas are severely degraded, initial efforts will focus on soil stabilisation, weed suppression and plant establishment.</p> <p>WRP are highly dependent on dense canopy cover and specific vegetation types for shelter and foraging. Structural attributes such as canopy interconnection and vertical layering essential for possum movement and refuge are unlikely to form within a shorter timeframe, particularly from a baseline of severe degradation.</p> <p><i>Agonis flexuosa</i> (peppermint) will be planted and is a fast-growing species known to be an important food and nesting resource for WRP. Its capacity to quickly establish and contribute to canopy development will help accelerate early habitat value in parts of the site.</p> <p>Refer to Appendix D for photos of the site.</p>

Offset Criteria	Response	Justification
Start quality	0	<p>There is no vegetation or suitable habitat currently present within these areas. The site inspection conducted by a revegetation specialist confirmed that these areas are predominantly cleared and in a severely degraded condition due to weed spread and unauthorised access. While they do not presently support habitat for WRP, the proposed restoration works aim to enhance habitat availability within the broader landscape of the Leeuwin-Naturaliste National Park, which is recognised as suitable habitat for the species.</p>
Future quality without offset	0	<p>While the proposed Gunyulgup site is protected as part of the Leeuwin-Naturaliste National Park, the limited funding and resources available to the DBCA raise concerns about the potential for these sites to be enhanced sufficiently to contribute more meaningfully to the park and protected matters' needs.</p> <p>Inclusion in the conservation estate under the CALM Act primarily offers statutory protection but does not equate to active ecological management in the case of Gunyulgup.</p> <p>It is expected that, without active management or intervention, these areas will remain in their current degraded state and continue to provide no habitat suitable for WRP. In the absence of restoration efforts, natural regeneration is unlikely due to the extent of disturbance, limited existing vegetation and potential ongoing pressures such as weed invasion or erosion.</p>
Future quality with offset	8	<p>Revegetation efforts are expected to achieve a habitat quality score of 8 for the WRP based on a combination of site-specific planning, ecological context and long-term monitoring. This score has been assigned as it aligns with the habitat being impacted as a result of the Proposal. The site is directly adjacent to the Leeuwin-Naturaliste National Park, which supports a known population of Revegetation efforts are expected to achieve a habitat quality score of 8 for the WRP based on a combination of site-specific planning, ecological context and long-term monitoring. This score has been assigned as it aligns with the habitat being impacted as a result of the Proposal. The site is directly adjacent to the Leeuwin-Naturaliste National Park, which supports a known population of WRP. This proximity increases the likelihood of successful use of the site as habitat connectivity is improved through revegetation.</p> <p>Detailed OMPs are being prepared in consultation with the DBCA and ecological restoration experts Tranen. These plans will guide the selection of appropriate native species and planting designs that reflect the structure and composition of existing WRP habitat. Reference site data from within the adjacent national park will be used to inform realistic and ecologically relevant completion criteria, including species mixes, vegetation structure and canopy cover. These targets are intended to replicate the conditions known to support WRP populations.</p> <p>Ongoing monitoring will be undertaken to track vegetation establishment and confirm use of the site by WRP over time. Monitoring results will inform adaptive management to ensure that revegetation efforts continue to support the development of high quality habitat.</p>
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> • The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; • Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements • Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; • Site-specific OMPs will be developed in consultation with DBCA and Tranen. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will Incorporate adaptive management measures

Offset Criteria	Response	Justification
		including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.

% of impact offset **3.32%**

Infill planting within areas of remnant vegetation at Gunyulgup

Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	1.94	It is proposed that a total of 1.94 ha will be rehabilitated through infill planting where there is existing remnant vegetation is in poor condition. The site visit identified the majority of this remnant vegetation to be patches of <i>Hibbertia cuneiformis</i> , <i>Acacia saligna</i> , <i>Lepidosperma gladiatum</i> , <i>Melaleuca lanceolata</i> and <i>Agonis Flexuosa</i> .
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	5	<p>A five-year time horizon is considered appropriate to realise ecological benefits in areas proposed for infill planting. Unlike full revegetation, these areas already contain a baseline of native vegetation, and infill efforts will target gaps to enhance species diversity, vegetation structure and habitat quality. While parts of the broader site are degraded, the infill areas particularly those in the northern section are in relatively better condition and are surrounded by more continuous native vegetation. This context supports faster establishment and greater likelihood of functional ecological outcomes.</p> <p><i>Agonis flexuosa</i> (peppermint) will be planted and is a fast-growing species known to be an important food and nesting resource for WRP. Its capacity to quickly establish and contribute to canopy development will help accelerate early habitat value in parts of the site.</p> <p>The surrounding intact vegetation in these areas is expected to aid in natural recruitment, improve habitat connectivity and facilitate quicker development of the structural complexity required for WRP use.</p> <p>Ongoing monitoring will confirm progress and guide adaptive management to ensure these benefits are achieved within the predicted timeframe.</p>
Start quality	3	A lower starting habitat quality score is appropriate for the areas proposed for infill planting due to their current ecological limitations. While these areas adjoin intact vegetation, areas proposed for infill planting are patchy and lack the structural complexity and species diversity required to support WRP. The vegetation in these areas is dominated by a limited suite of species, primarily

Offset Criteria	Response	Justification
		<p><i>Hibbertia cuneiformis</i>, <i>Acacia saligna</i>, <i>Lepidosperma gladiatum</i>, <i>Melaleuca lanceolata</i> and <i>Agonis Flexuosa</i>, which do not alone provide the full range of resources (e.g. continuous canopy, shelter and foraging options) needed for WRP habitat. In contrast to adjoining high-quality habitat, the infill areas currently lack sufficient mid- and upper-storey development and canopy connectivity, which are critical components of suitable WRP habitat. The fragmented nature of vegetation cover in these patches also limits fauna movement and ecological function. As such, the existing condition does not yet reflect functional habitat and warrants a lower starting score. Given there is some foraging potential with these scattered species, a score of 3 which reflects a low habitat quality has been assigned.</p> <p>Refer to Appendix D for photos of the site.</p>
Future quality without offset	2	<p>In the absence of active management or offset intervention, a further decline in habitat quality from a current score of 3 to a future score of 2 is considered likely due to ongoing and unmanaged threats at the site. During the site visit evidence of adjacent residents actively maintaining low vegetation to maintain outlooks (significant evidence of pruning within the national park boundaries). There was also significant kangaroo tracks noted and an ongoing risk of grazing of remnant vegetation (refer to Appendix D). These pressures directly damage existing native vegetation and inhibit natural regeneration, particularly in already patchy areas with limited canopy cover. Without intervention, these cumulative impacts are expected to lead to further fragmentation, reduced plant diversity and long-term habitat degradation, resulting in a transition from low-quality habitat to one with very limited or negligible ecological function.</p>
Future quality with offset	8	<p>A future habitat quality score of 8 has been assigned to areas proposed for infill planting, reflecting the strong likelihood that these areas will develop into high quality habitat for the WRP as a result of targeted restoration efforts. These areas are located adjacent to or within a matrix of continuous native vegetation which increases connectivity and natural recruitment potential.</p> <p>Infill planting will be strategically designed to address existing gaps in canopy cover, floristic diversity, and mid-storey structure, with a specific focus on enhancing habitat suitability for WRP. Revegetation efforts will be guided by site specific plans prepared in consultation with DBCA and restoration experts. These plans will draw on local reference sites to inform completion criteria, including species composition, canopy development, and habitat complexity, with the aim of aligning the vegetation condition with that of high quality occupied WRP habitat.</p>
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> • The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; • Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements • Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; • Site-specific OMPs will be developed in consultation with DBCA and restoration experts. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	6.52%	

Offset Criteria	Response	Justification
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Total % of impact offset at Gunyulgup 9.84%

Table 4-3: EPBC Act offset calculator for WRP foraging habitat – Ludlow State Forest

Offset Criteria	Response	Justification
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Impact site

Area of impact (ha)	14.68	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD and updated mapping provided by Bamford (2024; refer to Figure 2-7).
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Quality of impacted area	7	The value of 7 has been applied in the calculator based on the score obtained using the HQS tool for WRP foraging habitat as per Appendix A.
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Portion of the Ludlow State Forest infill planting

Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Ludlow State Forest ensuring long-term conservation.
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Start area (ha)	15	It is proposed that a total of 15 ha will be revegetated within the Ludlow State Forest site to offset the significant residual impacts resulting from the Proposal.
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Risk of loss (%) without offset	0	The proposed offset site is situated within the Ludlow State Forest, soon to be added to the Tuart Forest National Park which is a protected area vested in the Conservation Commission.
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Risk of loss (%) with offset	0	The proposed offset site is situated within the Ludlow State Forest, soon to be added to the Tuart Forest National Park which is a protected area vested in the Conservation Commission.
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Confidence in result (%) (top row)	80	<p>80% has been nominated on the basis of:</p> <ul style="list-style-type: none"> Proposed offset site soon to be part of the Tuart Forest National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
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Time until ecological benefit	12	<p>A 12-year time horizon has been assigned to reflect the staged ecological uplift required to transform this site, currently supporting approximately 500 pine trees, into functional habitat for the WRP. The site adjoins Tuart Ludlow State Forest, a high-value remnant supporting regional biodiversity, which strengthens the long-term potential for habitat connectivity and WRP use. However, ecological benefits will not begin to accrue immediately due to the need to first harvest the pine trees and undertake site restoration. The proposed time horizon is based on the following indicative phases:</p> <ul style="list-style-type: none"> Years 0–2: pine removal and site preparation: this phase includes harvesting of non-native pine trees, ground disturbance and weed management. While essential to enable native revegetation, these
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Offset Criteria	Response	Justification
		<p>activities are expected to result in short-term habitat degradation, with loss of vertical structure and potential soil disturbance;</p> <ul style="list-style-type: none"> Years 2–5: revegetation and infill planting: following site preparation, native species will be introduced, based on a site-specific plan developed in consultation with DBCA and revegetation specialists. This plan will reflect reference site data and target species known to support WRP habitat, including <i>Agonis flexuosa</i>. During this period, early establishment of vegetation will occur, but habitat suitability for WRP will remain limited; and Years 5–12: Vegetation maturation and functional habitat development: from years 5 onward, the planted vegetation is expected to mature and increase in structural complexity. Canopy connectivity and shelter availability diversity are anticipated to improve substantially during this period. By year 12, the vegetation is expected to support the key attributes of WRP habitat, including mid- and upper-storey connectivity and foraging opportunities.
Start quality	5	<p>A moderate habitat quality score is appropriate for this site due to the presence of native vegetation species known to provide habitat value for the WRP, balanced against the limiting influence of widespread mature pine trees. The site supports a mix of <i>Eucalyptus gomphocephala</i> (Tuart), <i>Agonis flexuosa</i> (Peppermint), and <i>Melaleuca raphiophylla</i>, which collectively contribute important elements of WRP habitat such as canopy cover, shelter, and foraging resources. In particular, <i>Agonis flexuosa</i> is a key food source and nesting species for WRP and its presence is a strong indicator of potential habitat suitability.</p> <p>However, the ecological condition of the site is substantially constrained by the presence of approximately 300–500 large, mature pine trees, which form a dominant overstorey in many areas. These exotic trees provide little to no habitat value for WRP. Their density limits the growth and regeneration of native mid- and upper-storey species, reduces structural connectivity and compromises the overall functionality of the site as possum habitat.</p> <p>Refer to Appendix E for photos of the site.</p>
Future quality without offset	2	<p>Although mature pine trees (approximately 300–500 individuals) within the site do not provide direct habitat value for the WRP, their removal through harvesting is expected to result in a temporary decline in habitat quality. This is due to the scale of disturbance associated with felling and ground-based operations, which will lead to a sudden loss of canopy cover and vertical structure across a significant portion of the site. While this structure is ecologically not suitable for WRP, its removal will expose the site to increased sunlight, altered microclimatic conditions and a greater risk of weed invasion, all of which may suppress native regeneration in the short term. Furthermore, the disturbance may temporarily reduce shelter and connectivity in areas where native vegetation is interspersed with pine cover. As a result, a reduction in habitat quality is anticipated immediately following pine removal, prior to the implementation and maturation of revegetation and infill planting efforts aimed at restoring suitable WRP habitat. This short term decline is viewed as a necessary step to enable long term ecological improvement, with habitat quality expected to improve over time as native species establish and structural complexity is restored.</p>
Future quality with offset	8	<p>A future habitat quality score of 8 has been assigned to reflect the expected ecological uplift of the site following the removal of mature pine trees and implementation of targeted, site-specific revegetation. While pine removal will result in a short-term decline in habitat quality, the long-term ecological path is highly favourable due to the site’s location within the Ludlow State Forest, a region identified in the literature as providing critical habitat for the WRP (Jones et al., 1994; Wilson & Valentine, 2009). The site supports remnant native</p>

Offset Criteria	Response	Justification
		species such as <i>Eucalyptus gomphocephala</i> (Tuart), <i>Agonis flexuosa</i> (Peppermint) and <i>Melaleuca raphiophylla</i> , which are key components of WRP habitat and targeted revegetation will build on this existing ecological value by restoring canopy connectivity, structural complexity and floristic diversity. Revegetation will be guided by site-specific plans developed in consultation with DBCA and ecological restoration experts, using local reference sites to inform species selection and structural targets. The surrounding high-quality remnant vegetation and the site's position within a known WRP landscape corridor increase the likelihood of use by possums as habitat matures.
Confidence in result (% (bottom row))	80	A value of 80% has been chosen based on: <ul style="list-style-type: none"> The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; and Site-specific OMPs will be developed in consultation with DBCA and restoration experts. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	31.82%	

Table 4-4: EPBC Act offset calculator for WRP foraging habitat – on-site conservation area

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	14.68	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD and updated mapping provided by Bamford (2024; refer to Figure 2-7).
Quality of impacted area	7	The value of 7 has been applied in the calculator based on the score obtained using the HQS tool for WRP foraging habitat as per Appendix A.
Portion of the Ludlow State Forest infill planting		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected via a conservation covenant ensuring long-term conservation.
Start area (ha)	3.95	It is proposed that a total of 3.95 ha will be protected in perpetuity on-site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	It is assumed that the significance of the vegetation in its value as WRP habitat would require an approval to clear and therefore a 0% risk of loss has been applied.
Risk of loss (%) with offset	0	It is assumed that the significance of the vegetation in its value as WRP habitat would require an approval to clear and therefore a 0% risk of loss has been applied.

Offset Criteria	Response	Justification
Confidence in result (%) (top row)	80	<p>80% has been nominated on the basis of:</p> <ul style="list-style-type: none"> Proposed offset site soon to be protected in perpetuity either through transfer to DBCA as National Park or via application of a conservation covenant by the Proponent; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; and Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy outlined in the FMP (JBS&G 2024b).
Time until ecological benefit	0	<p>The area proposed for conservation currently supports established, mature vegetation that provides suitable habitat for WRP, including foraging resources. As the vegetation structure and habitat values are already present and functioning, no time lag is expected before ecological benefits are realised. Unlike revegetation or rehabilitation areas that require establishment and maturation periods before they deliver functional habitat, this conservation area represents an “as-is” protection measure. The key ecological benefit arises immediately from the protection and ongoing management of existing habitat, preventing its future loss or degradation.</p> <p>Accordingly, the time until ecological benefit is 0 years, as the conservation outcome is realised upon implementation of the protection and management commitments.</p>
Start quality	7	<p>The value of 7 has been applied in the calculator based on the score obtained using the HQS tool for WRP foraging habitat as per Appendix A.</p>
Future quality without offset	6	<p>If the area is not secured and managed for conservation, a decline in habitat quality is expected over time due to progressive degradation from indirect impacts associated with the proposed adjacent development and the absence of active management. For example, in the absence of weed control, invasive species are likely to spread from disturbed edges and access tracks, reducing native species richness and structural complexity that contribute to WRP foraging and shelter values.</p>
Future quality with offset	8	<p>Implementation of the FMP (JBS&G 2024) is expected to deliver measurable improvements in the condition and available WRP foraging and dispersal habitat within the conservation area. The FMP includes revegetation of existing firebreaks and cleared edges, which will strengthen habitat connectivity with the adjacent Leeuwin–Naturaliste National Park to the south. This will enhance opportunities for WRP to safely disperse and access additional foraging resources, while reducing the need for ground movement and associated predation risk. In addition, targeted weed control measures will reduce competition with native species and promote the regeneration of native understorey vegetation, improving overall vegetation structure and habitat quality. Collectively, these actions will enhance the ecological integrity and connectivity of the site, resulting in a moderate but measurable uplift in habitat function and justifying an increase in habitat quality relative to the current baseline condition.</p>
Confidence in result (%) (bottom row)	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements Proposed offset site is adjacent to the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; and Site-specific FMP will be implemented. This plan has been informed by site visits and tailored to the specific environmental conditions and restoration challenges of the site and will include adaptive management measures including defined performance indicators,

Offset Criteria	Response	Justification
		contingency actions, and independent monitoring and review at key milestones.
% of impact offset	6.07%	

Restoration of a total of 30.81 ha for WRP foraging habitat and protection of 3.95 ha within the onsite conservation area was determined to offset 90.12% using the Commonwealth offset calculator. The remaining 10% will be offset via indirect offsets (refer to 2.5).

4.1.2 Black Cockatoos

Table 4-5: EPBC Act offset calculator for Carnaby’s and Baudins Black Cockatoo foraging habitat – Mt Duckworth Site

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	5.19	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD.
Quality of impacted area	8	The value of 8 has been applied in the calculator based on the score obtained using the HQS tool for Black Cockatoo foraging habitat as per Appendix A.
Revegetation of cleared areas at Mt Duckworth		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	5.74	It is proposed that a total of 5.74 ha will be revegetated within severely degraded/cleared areas of the Mt Duckworth site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	10	Given the severely degraded condition of the site, a 10-year timeframe to achieve measurable ecological benefit is considered both reasonable and necessary. The creation of suitable habitat for Carnaby’s and Baudins Black Cockatoos depends on the successful establishment and growth of key native

Offset Criteria	Response	Justification
		<p>plant species, particularly those that provide foraging resources such as <i>Banksia</i>, <i>Hakea</i>, and <i>Eucalyptus</i> species.</p> <p>Initial efforts will focus on improving site conditions through soil stabilisation, weed control and the establishment of native vegetation. Even under ideal conditions, the development of a structurally complex and floristically diverse habitat that can support Black Cockatoos typically requires 10 years when starting from a baseline of severe degradation.</p> <p>Foraging habitat for Black Cockatoos requires the maturation of mid and upper storey vegetation to produce the flowers, seeds, and nuts that are key food sources. The time required for these plants to reach reproductive maturity and provide meaningful ecological function reinforces the need for a long-term restoration approach. While earlier benefits such as increased site stability and weed reduction may be observed, the full habitat value for Black Cockatoos will only emerge over time as the vegetation establishes, matures and begins to provide reliable food and shelter resources.</p>
Start quality	0	<p>There is no vegetation or suitable habitat currently present within these areas. The site inspection conducted by a revegetation specialist confirmed that these areas are predominantly cleared and in a severely degraded condition due to weed spread and unauthorised access. While they do not presently support habitat for Black Cockatoos, the proposed restoration works aim to enhance habitat availability within the broader landscape of the Leeuwin-Naturaliste National Park, which is recognised as suitable habitat for the species.</p> <p>Refer to Appendix C for site photos.</p>
Future quality without offset	0	<p>Inclusion in the conservation estate under the CALM Act primarily offers statutory protection but does not equate to active ecological management in the case of Mt Duckworth.</p> <p>While the proposed Mt Duckworth site is protected as part of the Leeuwin-Naturaliste National Park, the limited funding and resources available to the DBCA raise concerns about the potential for these sites to be enhanced sufficiently to contribute to the park and protected matters' needs.</p> <p>It is expected that, without active management or intervention, these areas will remain in their current degraded state and continue to provide no habitat suitable for Black Cockatoos. In the absence of restoration efforts, natural regeneration is unlikely due to the extent of disturbance, limited existing vegetation and potential ongoing pressures such as weed invasion or erosion.</p>
Future quality with offset	8	<p>Revegetation efforts are expected to achieve a habitat quality score of 8 for Carnaby's and Baudin's Black Cockatoos, based on site-specific planning, ecological context and a commitment to long-term monitoring and adaptive management.</p> <p>The site is directly adjacent to the Leeuwin-Naturaliste National Park, which supports known populations of Black Cockatoos. This proximity increases the likelihood of successful habitat use as revegetation improves landscape connectivity and expands the availability of foraging habitat in the region.</p> <p>Detailed OMPs will be developed in consultation with the DBCA and revegetation specialists. These plans will guide the selection of appropriate native species known to provide key food sources such as <i>Banksia</i>, <i>Hakea</i>, and <i>Eucalyptus</i> species as well as planting designs that promote the structure and function of high-quality cockatoo habitat.</p> <p>Reference site data from within the adjacent national park will be used to inform completion criteria, including floristic composition, vegetation structure, and foraging resource availability. These targets aim to replicate the conditions that support foraging and movement of Black Cockatoos across the landscape.</p> <p>Ongoing monitoring will track vegetation establishment, flowering and seed production and evidence of Black Cockatoo use. Monitoring results will inform</p>

Offset Criteria	Response	Justification
		adaptive management to ensure revegetation efforts continue to support the development of high-quality habitat over time.
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; and Site-specific OMPs will be developed in consultation with DBCA and revegetation specialists. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	78.53%	
Infill planting within areas of remnant vegetation at Mt Duckworth		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	7.10	It is proposed that a total of 7.10 ha will be rehabilitated through infill planting where there is existing remnant vegetation in poor condition. The site visit identified the majority of this remnant vegetation to be patches of <i>Adriana quadripartita</i> , <i>Xanthorrhoea preissii</i> and <i>Agonis flexuosa</i> . Whilst there is
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	<p>80% has been nominated based on:</p> <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	10	<p>A 10-year timeframe is considered appropriate to realise ecological benefits in areas proposed for infill planting for Carnaby's and Baudin's Black Cockatoos. Unlike full revegetation, these areas already contain remnant native vegetation, and infill efforts will target gaps to enhance species diversity, vegetation structure and the availability of key foraging resources.</p> <p>Site inspections identified remnant vegetation dominated by <i>Adriana quadripartita</i>, <i>Xanthorrhoea preissii</i>, and <i>Agonis flexuosa</i>, with opportunities to supplement these areas with native species known to provide food sources for Black Cockatoos, such as <i>Banksia</i>, <i>Hakea</i> and <i>Eucalyptus</i> species.</p>

Offset Criteria	Response	Justification
		<p>While parts of the broader site are degraded, the infill areas, particularly those in the northern section are in relatively better condition and are adjacent to more continuous patches of native vegetation. This proximity to intact habitat is expected to assist in natural recruitment, improve landscape connectivity and facilitate quicker development of vegetation structure capable of supporting foraging by Black Cockatoos.</p> <p>Ongoing monitoring will assess vegetation establishment, flowering and seed production and signs of use by Black Cockatoos. Results will inform adaptive management to ensure that ecological benefits are realised within the expected timeframe.</p>
Start quality	2	<p>A lower starting habitat quality score is considered appropriate for the areas proposed for infill planting due to their current ecological limitations in supporting Carnaby's and Baudin's Black Cockatoos. While these areas are adjacent to intact native vegetation, the infill areas are patchy and dominated by a narrow range of species primarily <i>Adriana quadripartita</i>, <i>Xanthorrhoea preissii</i>, and <i>Agonis flexuosa</i>. These species are not known to provide significant foraging value for Black Cockatoos and do not contribute meaningfully to their key habitat requirements.</p> <p>In contrast to adjoining high quality vegetation, the infill areas currently lack the diversity, mid- and upper-storey development and flowering and fruiting species needed to support Black Cockatoos. The fragmented nature of the vegetation limits its ecological function, particularly in terms of food availability and habitat connectivity.</p> <p>Refer to Appendix C for site photos.</p>
Future quality without offset	1	<p>In the absence of active management or offset intervention, a further decline in habitat quality from a current score of 2 to a future score of 1 is considered likely due to ongoing and unmanaged threats at the site. The area is subject to unauthorised access by four-wheel drives and motorbikes, which is causing soil compaction, erosion and physical disturbance of vegetation (refer to Appendix C for site photos.). These pressures directly damage existing native vegetation and inhibit natural regeneration, particularly in already patchy areas with limited canopy cover. In addition, the site assessment indicated that the site is experiencing progressive weed invasion, which further suppresses native recruitment and alters vegetation structure, reducing habitat suitability for the Black Cockatoos. Without intervention, these cumulative impacts are expected to lead to further fragmentation, reduced plant diversity and long-term habitat degradation, resulting in a transition from low-quality habitat to one with very limited or negligible ecological function.</p>
Future quality with offset	8	<p>A future habitat quality score of 8 has been assigned to areas proposed for infill planting targeted restoration of these areas will aim to develop high quality foraging habitat for Carnaby's and Baudin's Black Cockatoos. The infill zones are located adjacent to a broader matrix of intact native vegetation, which enhances landscape connectivity and increases the potential for natural recruitment and Black Cockatoo use.</p> <p>Infill planting will be designed to address current deficiencies in floristic diversity, with a specific focus on incorporating plant species known to provide key food resources for Black Cockatoos, including <i>Banksia</i>, <i>Hakea</i>, <i>Eucalyptus</i>, and <i>Grevillea</i> species.</p> <p>Revegetation efforts will be guided by detailed, site-specific plans developed in consultation with the DBCA and revegetation specialists. These plans will draw on local reference sites to inform realistic and ecologically relevant completion criteria particularly in terms of species composition, vegetation structure and flowering/fruiting potential with the goal of achieving habitat conditions aligned with those known to support and sustain foraging by Carnaby's and Baudin's Black Cockatoos.</p>

Offset Criteria	Response	Justification
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Site-specific OMPs will be developed in consultation with DBCA and revegetation specialist. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	84.99%	
Total % of impact offset at Mt Duckworth	163.52%	

Table 4-6: EPBC Act offset calculator for Carnaby’s and Baudins Black Cockatoo foraging habitat – Gunyulgup Site

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	5.19	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD.
Quality of impacted area	8	The value of 8 has been applied in the calculator based on the score obtained using the HQS tool for Black Cockatoo foraging habitat as per Appendix A.
Revegetation of cleared areas at Gunyulgup		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	1.03	It is proposed that a total of 1.03 ha will be revegetated within the severely degraded/cleared areas of the Gunyulgup site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated based on: <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	10	<p>Given the severely degraded condition of the site, a 10-year timeframe to achieve measurable ecological benefit is considered both reasonable and necessary. The creation of suitable habitat for Carnaby’s and Baudins Black Cockatoos depends on the successful establishment and growth of key native plant species, particularly those that provide foraging resources such as <i>Banksia</i>, <i>Hakea</i>, and <i>Eucalyptus</i> species.</p> <p>Initial efforts will focus on improving site conditions through soil stabilisation, weed control and the establishment of native vegetation. Even under ideal conditions, the development of a structurally complex and floristically diverse habitat that can support Black Cockatoos typically requires 10 years when starting from a baseline of severe degradation.</p> <p>Foraging habitat for Black Cockatoos requires the maturation of mid and upper storey vegetation to produce the flowers, seeds, and nuts that are key food sources. The time required for these plants to reach reproductive maturity and provide meaningful ecological function reinforces the need for</p>

Offset Criteria	Response	Justification
		<p>a long-term restoration approach. While earlier benefits such as increased site stability and weed reduction may be observed, the full habitat value for Black Cockatoos will only emerge over time as the vegetation establishes, matures and begins to provide reliable food and shelter resources.</p>
Start quality	0	<p>There is no vegetation or suitable habitat currently present within these areas. The site inspection conducted by a revegetation specialist confirmed that these areas are predominantly cleared and in a severely degraded condition due to weed spread and unauthorised access. While they do not presently support habitat for Black Cockatoos, the proposed restoration works aim to enhance habitat availability within the broader landscape of the Leeuwin-Naturaliste National Park, which is recognised as suitable habitat for the species.</p> <p>Refer to Appendix D for site photos.</p>
Future quality without offset	0	<p>Inclusion in the conservation estate under the CALM Act primarily offers statutory protection but does not equate to active ecological management in the case of Mt Duckworth.</p> <p>While the proposed Mt Duckworth site is protected as part of the Leeuwin-Naturaliste National Park, the limited funding and resources available to the DBCA raise concerns about the potential for these sites to be enhanced sufficiently to contribute to the park and protected matters' needs.</p> <p>It is expected that, without active management or intervention, these areas will remain in their current degraded state and continue to provide no habitat suitable for Black Cockatoos. In the absence of restoration efforts, natural regeneration is unlikely due to the extent of disturbance, limited existing vegetation and potential ongoing pressures such as weed invasion or erosion.</p>
Future quality with offset	8	<p>Revegetation efforts are expected to achieve a habitat quality score of 8 for Carnaby's and Baudin's Black Cockatoos, based on site-specific planning, ecological context and a commitment to long-term monitoring and adaptive management.</p> <p>The site is directly adjacent to the Leeuwin-Naturaliste National Park, which supports known populations of Black Cockatoos. This proximity increases the likelihood of successful habitat use as revegetation improves landscape connectivity and expands the availability of foraging habitat in the region.</p> <p>Detailed OMPs will be developed in consultation with the DBCA and revegetation specialists. These plans will guide the selection of appropriate native species known to provide key food sources such as <i>Banksia</i>, <i>Hakea</i>, and <i>Eucalyptus</i> species as well as planting designs that promote the structure and function of high-quality cockatoo habitat.</p> <p>Reference site data from within the adjacent national park will be used to inform completion criteria, including floristic composition, vegetation structure, and foraging resource availability. These targets aim to replicate the conditions that support foraging and movement of Black Cockatoos across the landscape.</p> <p>Ongoing monitoring will track vegetation establishment, flowering and seed production and evidence of Black Cockatoo use. Monitoring results will inform adaptive management to ensure revegetation efforts continue to support the development of high-quality habitat over time.</p>
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> • The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; • Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements

Offset Criteria	Response	Justification
		<ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; and Site-specific OMPs will be developed in consultation with DBCA and revegetation specialists. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	14.09%	
Infill planting within areas of remnant vegetation at Gunyulgup		
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Leeuwin-Naturaliste National Park ensuring long-term conservation.
Start area (ha)	1.94	It is proposed that a total of 1.94 ha will be rehabilitated through infill planting where there is existing remnant vegetation in poor condition. The site visit identified the majority of this remnant vegetation to be patches of <i>Hibbertia cuneiformis</i> , <i>Acacia saligna</i> , <i>Lepidosperma gladiatum</i> , <i>Melaleuca lanceolata</i> and <i>Agonis flexuosa</i> .
Risk of loss (%) without offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Leeuwin-Naturaliste National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	<p>80% has been nominated based on:</p> <ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and <p>Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.</p>
Time until ecological benefit	10	<p>A 10-year timeframe is considered appropriate to realise ecological benefits in the areas proposed for infill planting for Carnaby's and Baudin's Black Cockatoos. Unlike full revegetation, these areas retain patches of remnant native vegetation, predominantly <i>Hibbertia cuneiformis</i>, <i>Acacia saligna</i>, <i>Lepidosperma gladiatum</i>, <i>Melaleuca lanceolata</i>, and <i>Agonis flexuosa</i>. However, these species provide limited foraging value for Black Cockatoos and do not offer the full suite of habitat resources required to support regular use by the species.</p> <p>Infill planting will focus on introducing native species known to provide key foraging resources for Black Cockatoos, particularly <i>Banksia</i>, <i>Hakea</i>, <i>Eucalyptus</i>, and <i>Grevillea</i> species.</p> <p>The site context, being adjacent to intact native vegetation, increases the likelihood of natural recruitment, improves landscape connectivity and supports faster development of diverse vegetation capable of supporting foraging activity by Black Cockatoos.</p>

Offset Criteria	Response	Justification
		<p>Ongoing monitoring will assess vegetation establishment, flowering and seed production and signs of Black Cockatoo use. Monitoring results will guide adaptive management to ensure the intended ecological outcomes are achieved within the five-year period.</p>
Start quality	2	<p>A lower starting habitat quality score is considered appropriate for the areas proposed for infill planting due to their current ecological limitations in supporting Carnaby's and Baudin's Black Cockatoos. While these areas are adjacent to intact native vegetation, the infill areas are patchy and dominated by a narrow range of species primarily <i>Adriana quadripartita</i>, <i>Xanthorrhoea preissii</i>, and <i>Agonis flexuosa</i>. These species are not known to provide significant foraging value for Black Cockatoos and do not contribute meaningfully to their key habitat requirements.</p> <p>In contrast to adjoining high quality vegetation, the infill areas currently lack the diversity, mid- and upper-storey development and flowering and fruiting species needed to support Black Cockatoos. The fragmented nature of the vegetation limits its ecological function, particularly in terms of food availability and habitat connectivity.</p> <p>Refer to Appendix D for site photos.</p>
Future quality without offset	1	<p>In the absence of active management or offset intervention, a further decline in habitat quality from a current score of 2 to a future score of 1 is considered likely due to ongoing and unmanaged threats at the site. During the site visit evidence of adjacent residents actively maintaining low vegetation to maintain outlooks (significant evidence of pruning within the national park boundaries). There was also significant kangaroo tracks noted and an ongoing risk of grazing of remnant vegetation (refer to Appendix D for site photos). These pressures directly damage existing native vegetation and inhibit natural regeneration, particularly in already patchy areas with limited canopy cover. Without intervention, these cumulative impacts are expected to lead to further fragmentation, reduced plant diversity and long-term habitat degradation, resulting in a transition from low-quality habitat to one with very limited or negligible ecological function.</p>
Future quality with offset	8	<p>A future habitat quality score of 8 has been assigned to areas proposed for infill planting targeted restoration of these areas will aim to develop high quality foraging habitat for Carnaby's and Baudin's Black Cockatoos. The infill zones are located adjacent to a broader matrix of intact native vegetation, which enhances landscape connectivity and increases the potential for natural recruitment and Black Cockatoo use.</p> <p>Infill planting will be designed to address current deficiencies in floristic diversity, with a specific focus on incorporating plant species known to provide key food resources for Black Cockatoos, including <i>Banksia</i>, <i>Hakea</i>, <i>Eucalyptus</i>, and <i>Grevillea</i> species.</p> <p>Revegetation efforts will be guided by detailed, site-specific plans developed in consultation with the DBCA and revegetation specialists. These plans will draw on local reference sites to inform realistic and ecologically relevant completion criteria particularly in terms of species composition, vegetation structure and flowering/fruiting potential with the goal of achieving habitat conditions aligned with those known to support and sustain foraging by Carnaby's and Baudin's Black Cockatoos.</p>
Confidence in result (% (bottom row))	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> • The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; • Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements • Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA;

Offset Criteria	Response	Justification
		Site-specific OMPs will be developed in consultation with DBCA and revegetation specialist. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	23.22%	
Total % of impact offset at Gunyulgup	37.31%	

Table 4-7: EPBC Act offset calculator for Carnaby’s and Baudins Black Cockatoo foraging habitat – Ludlow State Forest

Offset Criteria	Response	Justification
Impact site		
Area of impact (ha)	5.19	This figure has been calculated based on the outcomes of the environmental impact assessment undertaken for the ERD.
Quality of impacted area	8	The value of 8 has been applied in the calculator based on the score obtained using the HQS tool for Black Cockatoo foraging habitat as per Appendix A.
Time over which loss is averted	20	The maximum period over which loss can be averted through the Offset Calculator has been applied due to the identified proposed offset site being protected being within the Ludlow State Forest ensuring long-term conservation.
Start area (ha)	15	It is proposed that a total of 15 ha will be revegetated within the Ludlow State Forest site to offset the significant residual impacts resulting from the Proposal.
Risk of loss (%) without offset	0	The proposed offset site is situated within the Ludlow State Forest, soon to be added to the Tuart Forest National Park which is a protected area vested in the Conservation Commission.
Risk of loss (%) with offset	0	The proposed offset site is situated within the Ludlow State Forest, soon to be added to the Tuart Forest National Park which is a protected area vested in the Conservation Commission.
Confidence in result (%) (top row)	80	80% has been nominated on the basis of: <ul style="list-style-type: none"> Proposed offset site soon to be part of the Tuart Forest National Park which is protected and managed by DBCA; Empirical data from previous studies and ecological models, enhancing the credibility of the predictions regarding the success of the revegetation initiatives; Supports an adaptive management approach, allowing for adjustments to be made in response to monitoring results and ensuring continuous improvement in the revegetation strategy; and

Offset Criteria	Response	Justification
		<ul style="list-style-type: none"> Allows for the identification and acknowledgment of potential risks and uncertainties, enabling proactive management strategies to be developed.
Time until ecological benefit	12	<p>A 12-year time horizon has been assigned to reflect the staged ecological uplift required to transform this site, currently supporting approximately 500 pine trees, into functional habitat for the Carnaby's and Baudins Black Cockatoos. The site adjoins Tuart Ludlow State Forest, a high-value remnant supporting regional biodiversity. However, ecological benefits will not begin to accrue immediately due to the need to first harvest the pine trees and undertake site restoration.</p>
Start quality	7	<p>A quality score of 7 is appropriate for this site based on its value to Carnaby's and Baudin's Black Cockatoos. The site supports a mix of <i>Eucalyptus gomphocephala</i> (Tuart), <i>Agonis flexuosa</i> (Peppermint) and <i>Melaleuca raphiophylla</i>, alongside approximately 500 scattered mature pine trees.</p> <p>Tuart trees provide important Black Cockatoo habitat features, offering both foraging opportunities and the potential for nesting hollows as they mature. While <i>Agonis flexuosa</i> and <i>Melaleuca raphiophylla</i> offer limited direct value, the site's foraging potential is enhanced by the presence of mature pine trees, which are a known introduced used food source for Carnaby's Black Cockatoo across the Swan Coastal Plain.</p> <p>However, the site's value is weakened by the lack of substantial native proteaceous plant species, which are core components of high quality Carnaby's and Baudins Black Cockatoo habitat. Additionally, pine trees, while offering food, do not support nesting, and their density may suppress regeneration of native mid-storey vegetation that would otherwise increase habitat diversity.</p> <p>Refer to Appendix E for site photos.</p>
Future quality without offset	4	<p>The removal of approximately 500 mature pine trees is expected to result in a short-term reduction in habitat quality, from moderate to low, due to the immediate loss of accessible foraging resources.</p> <p>The harvesting of pines will also cause disturbance across a large portion of the site, including noise, machinery movement and ground disturbance, which may temporarily reduce site suitability for foraging. While the pine overstorey may currently suppress some native vegetation regeneration, its removal will expose the site to increased sunlight, potential weed invasion and altered site conditions that may affect remaining native flora in the short term.</p>
Future quality with offset	8	<p>Planned infill planting will focus on the introduction of key Black Cockatoo food species, such as <i>Banksia</i>, <i>Hakea</i>, and <i>Eucalyptus</i> sp., aiming to restore higher quality, self-sustaining habitat over time. Habitat quality is therefore expected to increase gradually beyond year 3–5, as these species establish, flower and begin producing seed.</p> <p>The site's proximity to continuous remnant vegetation and its location within the Ludlow State Forest a region known to support Black Cockatoos further enhances its restoration potential. Targeted species selection will draw on local reference sites and be guided by site-specific restoration plans developed in consultation with DBCA and restoration experts.</p>
Confidence in result (%) (bottom row)	80	<p>A value of 80% has been chosen based on:</p> <ul style="list-style-type: none"> The offset sites were selected by DBCA, who has confirmed their suitability for revegetation and long-term management; Site visit conducted by Tranen Revegetation Specialists to inform site specific requirements

Offset Criteria	Response	Justification
		<ul style="list-style-type: none"> Proposed offset site being located within the Leeuwin-Naturaliste National Park which is protected and managed by DBCA; and Site-specific OMPs will be developed in consultation with DBCA and Tranen. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones.
% of impact offset	100.19%	

Restoration of a total of 30.81 ha for Black foraging habitat was determined to offset 301% using the Commonwealth offset calculator. While the revegetation areas will provide long-term habitat value for Black Cockatoos, it is acknowledged that not all planted species (e.g. peppermint trees) represent primary foraging resources. As such, the offset ratio presented in Table 4-5, Table 4-6 and Table 4-7 may be an overestimate specifically in relation to Black Cockatoos. Nonetheless, given the inclusion of key foraging species such as Jarrah and Marri, the revegetation areas are expected to substantially exceed the offset requirement for Black Cockatoos.

4.2 WA Offsets Template

The WA Offset Template considers the same general offset concepts as the Commonwealth Offsets Assessment Guide. The assumptions used in the Commonwealth Offsets Assessment Guide as described in Section 4.1 remain relevant for the implementation of the WA Offset Template.

Section 4 of the WA Environmental Offsets Guideline (GoWA 2014) provides guidance for determining the suitability of offsets under the Policy. Table 4-8 provides a summary of the application of the WA Offsets Template to the Proposal for each environmental value.

Table 4-8: Application of the WA offset template

Impact on Terrestrial Fauna Environmental Factor	Significant Residual Impact	Offset Calculation Methodology		Likely Offset Success	Time Lag	Offset Quantification
		Type	Risk			
WRP	14.68 ha of critical WRP habitat, including primary breeding, foraging, and dispersal areas. This also accounts for the potential habitat loss in partially modified areas.	On ground management – Revegetation at three proposed offset sites located within the DBCA managed Leeuwin-Naturaliste National Park and Ludlow State Forest (soon to be included in the Tuart Forest National Park).	Low – all proposed offset sites are within conservation reserve areas.	High <ul style="list-style-type: none"> The proposed offset sites are highly suitable for revegetation within areas designated as National Parks. These locations ensure conservation efforts are safeguarded, supporting the long-term sustainability of WRP populations in the region. Site-specific OMPs will be developed in consultation with DBCA and restoration specialists. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will incorporate adaptive management measures including defined performance indicators, contingency actions, and independent monitoring and review at key milestones. 	5- 12 Years for revegetation management measures to provide an ecological benefit for WRP.	Restoration of a total of 30.81 ha for WRP foraging habitat was determined to offset 84% using the State offset calculator (refer to Appendix G).
		Legal protection and ongoing management	Low – the area is designated for conservation, with a commitment in place to secure	Moderate <ul style="list-style-type: none"> This onsite conservation area will provide important 	0 years for ecological benefit as habitat already exists. At least 5 years to recognise a habitat	Protection of 3.95 ha of suitable WRP habitat was determined to offset 6.2% using the State offset calculator (refer to Appendix G).

Impact on Terrestrial Fauna Environmental Factor	Significant Residual Impact	Offset Calculation Methodology		Likely Offset Success	Time Lag	Offset Quantification
		Type	Risk			
		of 3.95 ha of WRP habitat within the onsite conservation area	its legal protection for this purpose.	<p>secondary foraging and dispersal habitat for the WRP.</p> <ul style="list-style-type: none"> The conservation area is located immediately adjacent to the Leeuwin–Naturaliste National Park to the south, separated by a firebreak. While this separation introduces a break in canopy continuity, WRP are known to occasionally travel across short ground distances, meaning individuals entering from the south are still likely to be able to access foraging habitat within the conservation area however it does make them more vulnerable to predation. The FMP (JBS&G 2024b) developed for the Proposal includes provisions to progressively revegetate and restore these cleared areas, which will enhance habitat connectivity over time. Once established, this revegetation will strengthen linkages between the National Park and the onsite conservation area, supporting safer movement and broader ecological connectivity for WRP and other fauna species. 	quality improvement as a result of revegetation activities.	

Impact on Terrestrial Fauna Environmental Factor	Significant Residual Impact	Offset Calculation Methodology		Likely Offset Success	Time Lag	Offset Quantification
		Type	Risk			
		Contribution to research	Low - a financial contribution will be made to a research program aimed at improving understanding of local WRP populations.. This is considered low risk from an offset perspective, given the established research frameworks and alignment with recovery priorities.	Moderate to High The research program will be strategically aligned with recovery actions identified for the WRP and is expected to generate valuable data to inform conservation planning and management.	5-10 years depending on research project outcomes.	This component of the package will the remaining 10% required to be offset. While outcomes may be indirect and longer-term compared to on-ground revegetation, the contribution is likely to improve understanding of the species and support more effective future conservation outcomes.
Black Cockatoos	5.19 ha of Carnaby's and Baudins Black Cockatoo foraging habitat	On ground management – Revegetation at three proposed offset sites located within the DBCA managed Leeuwin-Naturaliste National Park and Ludlow State Forest (soon to be included in the Tuart Forest National Park).	Low – all proposed offset sites are within conservation reserve areas.	High <ul style="list-style-type: none"> The proposed offset sites are highly suitable for revegetation within areas designated as National Parks. These locations ensure conservation efforts are safeguarded, supporting the long-term sustainability of Black Cockatoo populations in the region. Site-specific OMPs will be developed in consultation with DBCA and restoration specialists. These plans will be informed by site visits and tailored to the specific environmental conditions and restoration challenges of each offset site and will Incorporate adaptive management measures including defined performance indicators, 	5- 12 Years for revegetation management measures to provide an ecological benefit for Carnaby and Baudins Black Cockatoos .	Restoration of a total of 30.81 ha for Black Cockatoo foraging habitat was determined to offset 301% using the State offset calculator (refer to Appendix G). Note, while the revegetation areas will provide long-term habitat value for Black Cockatoos, it is acknowledged that not all planted species (e.g. peppermint trees) represent primary foraging resources. As such, the offset ratio may be an overstatement in relation to Black Cockatoos specifically. Nonetheless, given the inclusion of key foraging species such as Jarrah and Marri, the revegetation areas are expected to substantially exceed the offset requirement for Black Cockatoos.

Impact on Terrestrial Fauna Environmental Factor	Significant Residual Impact	Offset Calculation Methodology		Likely Offset Success	Time Lag	Offset Quantification
		Type	Risk			

contingency actions, and independent monitoring and review at key milestones.

5. Consistency with State and Commonwealth Offset Principles

In developing the proposed offset package, the Proponent has aligned with the principles outlined in the WA Environmental Offsets Policy (GoWA 2011) and the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a). A summary of these principles is provided in Table 5-1 and Table 5-2.

Table 5-1: Assessment of Offsets against the Principles of the WA Environmental Offsets Policy (2011)

Principle	Assessment
<p>Environmental offsets will only be considered after avoidance and mitigation options have been pursued</p>	<p>The potential impacts from the Proposal have been reduced wherever possible, with measures applied during the design phase and the environmental assessment process.</p> <p>Additionally, measures to mitigate impacts on retained environmental matters have been implemented through the application of local, technical expertise relating to key species and habitats to ensure their efficacy. This been done by prioritising the use of existing disturbed areas and adjusting the Development Envelope to protect a total area of 19.26 ha of which contains 18.17 ha of native vegetation, which will be retained within conservation areas and public open spaces (POS). To minimise impacts to WRP and Black Cockatoo habitat the approach of partial modification rather than full clearing, with selective thinning and landscaping has been proposed (Subject to the outcomes of bushfire and planning processes). Strict controls will be implemented through the implementation of the Conservation Significant Fauna Management Plan (CSFMP) (JBS&G 2024) to prevent unauthorised clearing, manage weeds (e.g., Arum Lily, Bridal Creeper), and control the spread of <i>Phytophthora</i> dieback through vehicle inspections, certified materials, and on-site hygiene practices. Post-construction, educational signage will guide the public to stay on designated paths to further protect the conservation areas.</p>
<p>Environmental offsets are not appropriate for all projects</p>	<p>The Proposal has been designed in accordance with the mitigation hierarchy and, as such, has considered and implemented measures to avoid and minimise impacts prior to considering environmental offsets.</p> <p>Mitigation measures include the implementation of a CSFMP to address both direct and indirect impacts on MNES during construction and operation phases.</p> <p>Finally, this Offsets Strategy has been prepared to manage the significant residual impacts that persist following the implementation of these measures. There are occasions when the impact of a Proposal is so large that environmental offsetting is inappropriate. In this case, while the Proponent acknowledges that the Proposal will have a 'significant residual impact' (as defined by EPA), it is relatively small and based on the Offset Guidance and calculations, effectively offset by the quantum of revegetation proposed.</p> <p>The environmental offsets proposed will deliver a net conservation benefit for impacted species, namely WRP and Baudin's and Carnaby's Black Cockatoos. The strategy emphasises restoration and ecological connectivity, focusing on the rehabilitation of degraded areas, known to be used by WRP and Black Cockatoos, to mitigate cumulative impacts and support regional recovery efforts, aligning with broader conservation goals to achieve nature-positive outcomes.</p>
<p>Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted</p>	<p>The Proponent has considered several options through the process of developing an Offsets Strategy and package to counterbalance the significant residual impacts of the Proposal, noting that this Offset Strategy aligns with the existing approved action (EPBC 2007/3483).</p> <p>The proposed Offset Strategy primary focus is on revegetating three DBCA managed sites, which is a practical and economically viable approach to achieving long-term ecological benefits for the region. By targeting areas that are already degraded and in need of restoration, the strategy minimises costs associated with land acquisition and management. Furthermore, the revegetation process aligns with existing regional conservation programs, allowing for potential collaboration and shared resources, further enhancing cost-efficiency.</p> <p>The proposed offsets are considered relevant and proportionate to the significance of the impact, as the offset requirements were calculated using the EPBC Offsets Calculator and</p>

Principle	Assessment
	<p>the WA Offsets Template. This approach ensures relevance by securing or rehabilitating the same environmental values impacted by the Proposal, while proportionality is achieved by accounting for the conservation status, extent, and quality of the impacted matters.</p> <p>The revegetation sites have been strategically selected to support the habitat needs of WRP and Black Cockatoos by restoring foraging resources, breeding potential, and ecological connectivity. In addition to replacing lost habitat, the restoration efforts align with regional and national recovery objectives for this species.</p>
<p>Environmental offsets will be based on sound environmental information and knowledge</p>	<p>The location of the proposed offsets has been determined based on the best available scientific knowledge of the site's values, derived site assessments conducted by experienced professionals. Baseline data collection and analysis have been implemented to identify offsets that effectively support biodiversity conservation, including active involvement of the DBCA. By integrating scientific research, local ecological insights, habitat needs, and potential threats, a comprehensive understanding of the ecological requirements has been achieved.</p>
<p>Environmental offsets will be applied within a framework of adaptive management</p>	<p>The Offsets Strategy is designed around an outcome-based objective aimed at compensating for the residual impacts on protected matters, namely the WRP and Black Cockatoos. A comprehensive OMP, in consultation with DBCA, will be developed for each offsite offset site, incorporating specific monitoring requirements and contingency measures to address any potential failures to meet completion criteria. Furthermore, the FMP (JBS&G 2024) outlines key measures to be implemented in the retained WRP habitat within the conservation area. This will utilise early indicators and triggers to guide adaptive management. Proposed offsets will follow an iterative cycle of actions, monitoring, and review, allowing for adjustments based on monitoring results that indicate potential shortfalls. The establishment of outcome-based completion criteria ensures that actions remain flexible and can be amended as needed to achieve the desired results, thereby effectively fulfilling the required offset obligations.</p> <p>Additionally, the OMP will include reporting requirements to both government agencies and the public. Where this reporting identifies any potential inadequacies in the strategy/plan, consultation will be undertaken with DBCA and other relevant stakeholders to obtain advice and implement any required amendments to achieve more desirable outcomes.</p>
<p>Environmental offsets will be focused on longer term strategic outcomes</p>	<p>Environmental offsets will emphasise long-term strategic outcomes, particularly as the proposed offset sites are situated within (or adjacent to) the Leeuwin-Naturaliste National Park and Ludlow State Forest (soon to be added to the Tuart Forest National Park), both protected areas managed by the DBCA. This alignment with conservation priorities safeguards the ecological integrity of this significant habitat.</p> <p>The establishment of suitable habitats will not only benefit the impacted species but will also enhance habitat availability for the diverse fauna present within the national park. This strategic approach fosters greater biodiversity and strengthens ecosystem resilience, ensuring that the offsets contribute meaningfully to the long-term health and sustainability of the park's natural systems.</p>

Table 5-2: Assessment of the proposed offsets against the principles of the EPBC Act Environmental Offsets Policy (DSEWPaC 2012a)

Principle	Discussion
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter	The proposed Offset Strategy will provide a net positive conservation outcome that maintains or improves the viability of WRP and Black Cockatoos habitat and population in the region. The Offset Strategy provides 100% offset for the protected matters impacted and therefore meets this principle.
Suitable offsets must be built around direct offsets but may include other compensatory measures	Direct offsets are those that deliver measurable conservation outcomes for the specific environmental values impacted. This Offset Strategy primarily relies on on-ground management, including revegetation activities designed to enhance habitat quality. These actions constitute direct offsets. In the case of Black Cockatoos, the full residual impact has been offset through direct measures, with over 100% achieved. To address the shortfall in direct offsets for the WRP, a financial contribution will be made to a targeted research initiative aimed at supporting the local species' recovery.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter	The Offset Strategy relates to three protected matters, the critically endangered WRP and the endangered Baudin's and Carnaby's Black Cockatoo. The level of protection is a metric in the EPBC Offsets Calculator to estimate the quantity of offset required. The Offset Strategy is built around direct offsets, involving on-ground management of three suitable offset sites. This Offset Strategy has taken all regulatory requirements relevant to WRP and Black Cockatoos into consideration to align with the level of statutory protection applicable to the species.
Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter	The EPBC Offsets Calculator has been utilised to determine the required size of offsets necessary to compensate for the residual impacts on the protected matters. This assessment has informed the extent of the revegetation efforts needed for the Offset Strategy and the extent of indirect offsets required.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding	<p>The FMP (JBS&G 2024) and site specific OMPs will incorporate thresholds, triggers, and corrective actions to ensure that all proposed management strategies are effectively implemented. Should monitoring indicate that certain actions are not achieving desired outcomes, appropriate responses will be activated.</p> <p>An 80% confidence level has been incorporated into the offset calculator to account for associated risks, ensuring a robust assessment of the required offsets.</p>
Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under schemes or programs	On-ground management activities are planned for the proposed offset sites to enhance their contribution to the National Parks they are part of, further supporting species protection. A comprehensive revegetation program will be outlined in the OMPs, including measures such as fencing, weed management, and feral animal control to ensure the success of restoration efforts.
Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable	The provision of this direct offset is based on completed offset assessment guide calculations, incorporating evidence-based justification for all inputs, consistent with DBCA regional objectives with an obvious improvement within 5-12 years.
Suitable offsets must have transparent governance arrangements, including being able to be readily measured, monitored, audited and enforced.	The site-specific OMPs will have agreed goals and completion criteria, a detailed monitoring and auditing program with contingency actions and reporting and responsibilities for action clearly identified.

6. Conclusion

This Offset Strategy outlines the proposed approach to address the significant residual impacts of the Proposal on the protected matters and flora and vegetation and terrestrial fauna values, specifically the loss of habitat for:

- WRP; and
- Baudins' and Carnaby's Black Cockatoo.

The proposed impact includes the clearing of 14.68 ha of WRP habitat and 5.19 ha of Baudin's and Carnaby's Black Cockatoo foraging habitat.

The proposed offset package involves on-ground management through revegetation of over 30 ha at three sites, two within the Leeuwin-Naturaliste National Park and one within the Ludlow State Forest. The offset package also includes protection in perpetuity of WRP habitat within the Development Envelope for the purpose of conservation and provision of funding to research opportunities to contribute to the understanding of the environmental values impacted by the Proposal. In total, this has been calculated to exceed 100% of the required environmental offset for the residual impacts (Appendix F and Appendix G).

The suite of offsets proposed for the Development Envelope has been designed to deliver both immediate and long-term ecological benefits for the Western Ringtail Possum. Retention of vegetation on-site and installation of possum bridges provides immediate benefit to the local possum population and will provide connectivity of the local possum population to the National Park to the east and south of the Development Envelope. Revegetation at the on-site conservation area and offsite offset sites, including Gunyulgup, Mt Duckworth and Ludlow, is intended to provide medium to long-term benefits, strengthening the resilience and connectivity of Western Ringtail Possum populations at a broader landscape scale. Targeted research funding provides long-term benefit addressing key knowledge gaps that will directly support species recovery over time.

The offset strategy has been deliberately structured to integrate both local and regional efforts. Local measures, namely the onsite conservation area, the research program and revegetation at Mt Duckworth and Gunyulgup, focus on enhancing habitat condition, connectivity and species knowledge within the immediate vicinity of the Development Envelope and for the local possum population. Regional efforts, including revegetation at Ludlow, contribute to landscape-scale connectivity, population resilience, and broader conservation outcomes beyond the immediate project area.

This approach aligns with the EPAs Section 16E advice on environmental offsets, which emphasises that offsets should:

- Deliver measurable environmental outcomes;
- Address residual impacts of development;
- Contribute to both local and regional biodiversity objectives; and
- Provide benefits at a scale and timeframe appropriate to achieving the intended ecological outcomes.

By combining immediate, targeted interventions with long-term, landscape-scale restoration efforts, the proposed offset program is structured to maximise ecological benefits for the Western Ringtail Possum, support regional recovery objectives, and contribute to the ongoing conservation knowledge and management of this threatened species.

The Offset Strategy is not intended to provide specific detail on management measures and revegetation plans for each site. This detail will be provided in the FMP and site-specific OMPs to be developed as part of a management agreement with DBCA and in consultation with a revegetation specialist.

The intent of this Offset Strategy is to outline the Proponent's broad approach and commitment to achieve a net positive environmental outcome for WRP, Black Cockatoos in the region, consistent with the WA Offsets Framework, the Commonwealth's Offset Policy and EPA's Public Advice on regional offsets.

7. Limitations

Scope of services

This report (“the report”) has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report (“the data”). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report (“conclusions”) are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Strategen-JBS&G has also not attempted to determine whether any material matter has been omitted from the data. Strategen-JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law of Western Australia as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

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8. References

- ATA Environmental. (2007). *Vertebrate Fauna Assessment – Smiths Beach Yallingup*. Report No: 2006/50. Version 4.
- Bamford Consulting Ecologists (Bamford). (2024). *Smith's Beach Coastal Tourism Village Western Ringtail Possum Assessment*. Unpublished report prepared for JBS&G Pty Ltd.
- BDS Consultants. (2004). *Lot 50 Eagle Crescent, Eagle Bay Environmental Assessment*. Unpublished report prepared for Eagle Bay Joint Venture.
- Biota. (2020b). *Bunbury Outer Ring Road Southern Section Targeted Fauna Assessment*. Unpublished report prepared for BORR IPT on behalf of Main Roads Western Australia.
- Biologic. (2024). *Lot 4131 Smiths Beach Road, Yallingup. Detailed Terrestrial Vertebrate Fauna Survey*. Report prepared for Strategen-JBS&G. Revision No. 1.
- Busschots, M. B., Close, P., Van Helden, B. E., & Speldewinde, P. C. (2021). *Is the presence of a threatened arboreal mammal in residential areas related to remnant habitats?* *Austral Ecology*, 46, 181–185.
- Department of Agriculture, Water and the Environment (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
- Department of Biodiversity, Conservation and Attractions (DBCAs). (2020b). *Threatened and priority fauna database (custom search)*. Government of Western Australia.
- Department of the Environment (DoE). (2013). *Significant impact guidelines 1.1 – Environment Protection and Biodiversity Conservation Act 1999*. DoE, Canberra.
- Department of the Environment, Water, Heritage and the Arts (DEWHA). (2009a). *Significant Impact Guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia*. Nationally threatened species and ecological communities. EPBC Act Policy Statement 3.10. Department of the Environment, Water, Heritage and the Arts, Canberra.
- Department of Parks and Wildlife (2014). *Tuart Forest National Park Management Plan 2014*. Management plan number 79. Department of Parks and Wildlife, Perth.
- Department of Parks and Wildlife (2015). *Leeuwin-Naturaliste capes area parks and reserves management plan 2015*. Management plan number 81. Department of Parks and Wildlife, Perth.
- Department of Parks and Wildlife. (2017). *Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan*. DPaW, Perth.
- Department of Parks and Wildlife (DPaW). (2018). *Approved Conservation Advice for Pseudocheirus occidentalis (western ringtail possum)*. DPaW, Perth.
- Department of Primary Industries and Regional Development (DPIRD). (2019). *Pre-European Vegetation (DPIRD-006)*. Retrieved from DataWA: Pre-European Vegetation (DPIRD-006). DPIRD, Perth.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPac). (2012a). *Environment Protection and Biodiversity Conservation (EPBC) Act 1999 Environmental Offsets Policy*. Australian Government, Canberra.
- Department of Sustainability, Environment, Water, Population and Communities (DSEWPac). (2012b). *Environment Protection and Biodiversity Conservation (EPBC) Act 1999 Offset Assessment Guide*. Australian Government, Canberra.

- Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). (2012c). *Environment Protection and Biodiversity Conservation (EPBC) Act 1999 How to use the Offsets Assessment Guide*. Australian Government, Canberra.
- Department of the Environment, Water, Heritage and the Arts (DEWHA). (2009). *Significant impact guidelines for the vulnerable western ringtail possum (Pseudocheirus occidentalis) in the southern Swan Coastal Plain, Western Australia Nationally threatened species and ecological communities*. EPBC Act policy statement 3.10.
- Ecoscope. (2012). *Armstrong reserve level 2 fauna survey*. Unpublished report prepared for Ray Village Aged Services.
- Ecosystems Solutions. (2014). *City of Busselton Road Widening Level 1 Fauna and Level 2 Flora/Vegetation Assessment*. Unpublished report prepared for City of Busselton.
- Environmental Protection Authority (EPA). (2024). *Public Advice: Considering environmental offsets at a regional scale*, EPA, Western Australia.
- Government of Western Australia (GoWA). (2011). *WA Environmental Offsets Policy*. West Australian Government, Perth.
- Government of Western Australia (GoWA). (2014). *WA Environmental Offsets Guidelines*. West Australian Government, Perth.
- Government of Western Australia (GoWA). (2021). *DWER WA Environmental Offsets Calculator*. West Australian Government, Perth.
- Government of Western Australia (GoWA). (2021). *DWER WA Review of the Western Australian environmental offsets framework*. October 2019. West Australian Government, Perth.
- JBS&G. 2024a. *Smiths Beach Project, Yallingup Coastal Tourism Village Environmental Review Document*. Unpublished report prepared for Smiths 2014 Pty Ltd.
- JBS&G. 2024b. *Foreshore Management Plan*. Unpublished report prepared for Smiths 2014 Pty Ltd.
- Jones, B. (1995). *Western Ringtail Possum, Pseudocheirus occidentalis*. In R. Strahan (Ed.), *Mammals of Australia* (pp. 252-254). Reed New Holland: Sydney.
- Maseyk, F., Evans, M., and Maron, M. (2017). *Guidance for deriving 'Risk of Loss' estimates when evaluating biodiversity offset proposals under the EPBC Act*. Threatened Species Recovery Hub, 2017.
- NGH, Environmental. (2015). *Level 2 Fauna Survey Meelup Regional Park*. Unpublished report prepared for Meelup Regional Park Management Committee.
- Shedley, E., and Williams, K. (2014). *An assessment of habitat for western ringtail possum (Pseudocheirus occidentalis) on the southern Swan Coastal Plain (Binningup to Dunsborough)*. Unpublished report for the Department of Parks and Wildlife, Bunbury, Western Australia.
- Thompson, S. A and Thompson, G. G (2009). *A case for in situ management of western ringtail possums, Pseudocheirus occidentalis, in development areas*. *Journal of the Royal Society of Western Australia* 92: 269–276.
- Van Helden, B. E., Close, P. G., Stewart, B. A., Speldewinde, P. C., Comer, S. J. (2021). *Critically Endangered marsupial calls residential gardens home*. *Animal Conservation*, 24(3), 445-456.
- Wayne, A. F., Rooney, J. F., Ward, C. G., Vellios, C. V., & Lindenmayer, D. B. (2005). *The life history of Pseudocheirus occidentalis (Pseudocheiridae) in the jarrah forest of south-western Australia*. *Australian Journal of Zoology*, 53(5), 325-337.

White, D., Comer, S., & Wayne, A. 2021. *Understanding genomic variation in the western ringtail possum and its application to effective conservation management- Final Report*. NESP Threatened Species Recovery Hub Project 4.1.8 report, Brisbane.

Appendix A Habitat Quality Scoring

Smiths Beach Coastal Tourism Project - Habitat Quality Scores

1. Background

Smiths 2014 Pty Ltd (the Proponent) has developed an Offset Strategy as part of the environmental review for the proposed Smiths Beach Project, Yallingup Coastal Tourism Village (the Proposal). The Offset Strategy has been prepared to address the significant residual impacts of the Proposal after all practicable measures to avoid, minimise and rehabilitate impacts have been exhausted.

The proposed strategy to offset the significant residual impacts to both Western Ringtail Possums (*Pseudocheilus occidentalis*) and Carnabys and Baudins Black Cockatoos (*Calyptorhynchus latirostris* and *Calyptorhynchus baudinii* respectively) resulting from the Proposal includes revegetation and ongoing management of three sites detailed in Table 1.

Table 1 Overview of proposed Offset Strategy

No.	Property location	Offset summary	Tenure	Offset Type
1	12.85 ha portion of 2320 Caves road, Yallingup (P049920 301 referred to as Mount Duckworth site.	Revegetation (5.74 ha) and infill planting (7.10 ha) to provide additional Western Ringtail Possum and Black Cockatoo habitat and ongoing management of existing suitable habitat.	Vested in the Conservation and Parks Commission	On-ground management
2	2.97 ha portion of 2320 Caves road, Yallingup (P049920 301 referred to as Gunyulgup site.	Revegetation (1.03 ha) and infill planting (1.94 ha) to provide additional Western Ringtail Possum and Black Cockatoo habitat and ongoing management of existing suitable habitat.		
3	15 ha portion of Ludlow State Forest.	Revegetation (15 ha) to provide additional Western Ringtail Possum and Black Cockatoo,		

1.1 Purpose of this document

To support the offset calculations included in the offset package, the habitat quality scoring tool for both Western Ringtail Possum and Carnaby and Baudins Black Cockatoo (referred to as the HQS tool; provided in Appendix A and Appendix B) used by Department of Climate Change, Energy, the Environment and Water (DCCEEW) has been applied to assist with assigning habitat quality scores to the impact site (the Development Envelope). It should be noted that the HQS tool is not specifically designed with restoration contexts in mind. As such, the HQS tool has been consulted where applicable in applying quality scores for the proposed offset sites however are unable to do a detailed assessment similar to that done for the Development Envelope.

2. Habitat Quality Scores

2.1 Western Ringtail Possums

Survey data and findings documented from the Biologic (2024), Bamford (2024) and JBS&G (2024) reports (provided as appendices to the Environmental Review Document [ERD]) were used to inform the site condition, site context and species stocking rate components of the HQS tool (Appendix A) for Western Ringtail Possum habitat being impacted within the Development Envelope.

Additionally, the canopy analysis undertaken as part of the environmental impact assessment for the Environmental Review Document was used to inform the baseline canopy coverage within the Development Envelope. Table 2 below presents the criteria scores along with a detailed justification for each assigned value.

Table 2: HQS for Western Ringtail Possum primary and secondary habitat within Development Envelope

Indicator	Applied Score	Justification
Site Condition	2	<p>The Biologic (2024) survey undertaken in the Development Envelope identified the Open Peppermint Forest (8.76 ha) as primary breeding, foraging, and dispersal habitat for the Western Ringtail Possum. The Open <i>Banksia</i> Forest (4.12 ha) and Closed Low Marri Forest (1.53 ha) are considered secondary feeding and dispersal habitats. Furthermore, a targeted Western Ringtail Possum survey undertaken by Bamford Consulting Ecologists in 2024 identified additional secondary habitat for the Western Ringtail Possum within portions of <i>Melaleuca</i> over <i>Hakea</i> shrubland and Open Coastal Shrubland in comparison to the Biologic (2024) survey, bringing the total habitat available in the Development Envelope to 14.68 ha. Overall, 13 active dreys and at least 10 individuals were observed during field investigations by Bamford (2024). Six of these active dreys were identified as maternity dreys, probably containing Western Ringtail Possum mothers and joeys. An additional eight dreys that were old or had fallen were observed.</p> <p>The canopy analysis undertaken JBS&G (2025; provided as Appendix 1 to the Bamford (2025) report) demonstrated that there is approximately 14.93 ha canopy coverage in Western Ringtail Possum habitat within the Development Envelope representing medium – high canopy connectivity in the Open Peppermint Forest habitat type and low – some canopy in the Open <i>Banksia</i> Forest and Closed Low Marri Forest habitat types. Note this analysis did not include the small portions of Open Coastal Shrubland or <i>Melaleuca</i> over <i>Hakea</i> shrubland considered as secondary habitat for Western Ringtail Possums, however given the low density of trees and shrubs in these habitat types they are assumed to be of low- some canopy connectivity. Connectivity is greatest toward the northern extent of the Open Peppermint Forest. Although habitat understory condition is poor due to the presence of arum lily (<i>Zantedeschia aethiopica</i>).</p> <p>A score of 2 has been assigned taking into account habitat types present in the Development Envelope and has considered the habitat available as providing medium to high canopy (70-89%) continuity for movement (upper and/or mid-storey layer), some ground cover for shelter, no fires recorded for at least 10 years and evidence of some nests/dreys/hollows.</p>
Site Context	1	<p>A score of 1 is considered appropriate for this site. While the site does support records of Western Ringtail Possums, its connectivity to other known suitable habitat (Leeuwin-Naturaliste National Park) is constrained by cleared areas and linear barriers, including informal and bitumised roads and firebreaks. Several wide east–west firebreaks were established across the site between 2007 and 2019, which have reduced north–south connectivity within the project area and</p>

likely limited movement into the southern section of the site in recent years (Bamford 2024; 2025).

Although some connectivity remains along the southern and south-eastern edge of the site, the firebreaks likely represent linear barriers that require Western Ringtail Possums to travel on the ground, increasing the risk of predation and reducing the likelihood of regular movement across the site.

Species Stocking Rate	4	Records on site in the last 12 months by Bamford (2024) as discussed above.
Total	7	

2.2 Black Cockatoo

Survey data and findings documented from the Biologic (2024) report was used to inform the site condition, site context and species stocking rate components of the HQS tool (Appendix A) for Carnaby's and Baudins Black Cockatoo habitat being impacted within the Development Envelope. Table 3 below presents the criteria scores along with a detailed justification for each assigned value.

Table 3: HQS for Black Cockatoos habitat within Development Envelope

Indicator	Applied Score	Justification
Site Condition	5	<p>The Biologic (2024) survey identified that the habitats of greatest foraging quality for Baudin's and Carnaby's black cockatoo were the Open <i>Banksia</i> Forest and Closed Marri Forest (Very High Quality) as well as <i>Melaleuca</i> over <i>Hakea</i> Shrubland (High Quality).</p> <p>No black cockatoo breeding hollows were observed within the Development Envelope nor was any evidence of black cockatoo roosting activity recorded in the Development Envelope (Biologic 2024a). As reported by Biologic (2024a), suitable roosting habitat exists outside of the Development Envelope in nearby National Park and therefore potential roosting habitat within the Development Envelope was considered to be low quality as it is generally limited in characteristics of suitable night roosting habitat inclusive of tall trees (> 8 m).</p> <p>Five trees with DBH greater than 500mm considered potential breeding trees were identified in the Development Envelope which may support Black Cockatoo breeding in the future.</p> <p>Based on the habitat present and in consideration of the HQS tool descriptions a score of 5 has been applied.</p>
Site Context	3	The Leeuwin-Naturaliste National Park is located directly adjacent to the site and is known to support both foraging and breeding habitat for the species.
Species Stocking Rate	Yes	Evidence of sue of site by both Carnabys and Baudins Black Cockatoo by Biologic (2024).
Total	8	

3. References

Bamford Consulting Ecologists (Bamford). (2024). *Smith's Beach Coastal Tourism Village Western Ringtail Possum Assessment*. Unpublished report prepared for JBS&G Pty Ltd.

Bamford Consulting Ecologists (Bamford). (2025). *Smith's Beach Project, Yallingup – Coastal Tourism Village: potential impacts to Western Ringtail Possum*. Unpublished report prepared for JBS&G Pty Ltd.

Biologic. (2024). *Lot 4131 Smiths Beach Road, Yallingup. Detailed Terrestrial Vertebrate Fauna Survey Report* prepared for Strategen-JBS&G. Revision No. 1.

JBS&G. (2025). *Smiths Beach Canopy Analysis*. Unpublished memorandum prepared for Smiths 2014 Pty Ltd.

Appendix A Western Ringtail Possum HQS Tool

Habitat Scoring System for Western Ringtail Possum (*Pseudocheirus occidentalis*)

This habitat scoring system describes elements indicative of suitable habitat for Western Ringtail Possum (WRP) in WA, including key management zones (see Figure 2, Recovery Plan 2017). Its use must be supported by survey information and reporting, undertaken by suitably qualified and experienced ecologists, using appropriate survey methods¹.

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	Scores			
			Impact site	OS Start	W/o OS	With OS
Site Condition						
Vegetation condition and structure. Diversity of habitat species present. Habitat features	3	Habitat quality: Very High – High canopy (90-100%) continuity ² for movement (upper and/or mid-storey layer) and ground cover for shelter, no fire for at least 20 years, evidence of many nests/dreys/hollows, limited evidence of predators				
	2.5	Habitat quality: High – High canopy (70-89%) continuity for movement (upper and/or mid storey layer) and ground cover for shelter, no fire for at least 15 years, evidence of many nests/dreys/hollows, limited evidence of predators				
	2	Habitat quality: Medium – High canopy (70-89%) continuity for movement (upper and/or mid-storey layer), some ground cover for shelter, no fire for at least 10 years, evidence of some nests/dreys/hollows, some evidence of predators				
	1.5	Habitat quality: Low – Some canopy (50-69%) continuity for movement (upper and/or mid-storey layer), some ground cover for shelter, fire within last 10 years, evidence of few nests/dreys/hollows, substantial evidence of predators				
	1.0	Habitat quality: Very Low – Little canopy (30-49%) continuity for movement (upper and/or mid-storey layer), little ground cover for shelter, fire within last 5 years, little evidence of nests/dreys/hollows, substantial evidence of predators				
	0.5	Habitat quality: Marginal – Less than 30% canopy continuity for movement (upper and/or mid-storey layer), no ground cover for shelter, fire within last 5 years, no evidence of nests/dreys/hollows				
	0	Habitat quality: Absent, no vegetation and/or suitable habitat on site				
Site Context						
Movement patterns of the species. Proximity of the site in relation to other areas of suitable habitat. Overall population or extent of a species.	3	Site is connected by vegetation, including continuous canopy cover, to more than one area of contiguous ³ suitable habitat. Site is within a key management zone				
	2.5	Site is connected by vegetation, including high level of canopy cover (70-89%), to at least one area of contiguous suitable habitat. Site is within a key management zone				
	2	Site is connected by vegetation, including some level of canopy cover (50-69%), to more than one patch ⁴ of suitable habitat. Site is within a key management zone				
	1.5	Site is connected by vegetation, including limited canopy cover (30-49%), to at least one patch of suitable habitat. Records on or immediately adjacent (within 500 m) to site within last 2 years. Site is located within known species distribution				
	1	Site is separated from other known suitable habitat by cleared areas or linear barrier of up to 25 m. Records on site or immediately adjacent (within 500 m) within last 3 years. Site is located within known distribution of species				

¹ Surveys must be able to demonstrate presence/absence of WRP, presence/absence of predators and presence/absence of dreys/nests/suitable hollows, and use of these.

² Continuity means canopy at mid and/or upper storey where tree or shrub branches are touching each other, allowing for WRP to move from one tree to another while staying under cover. High canopy continuity is demonstrated where high percentage of trees or shrubs touch each other; low canopy continuity is when few or no trees or shrubs touch each other.

³ Contiguous suitable habitat means multiple patches of native vegetation sharing borders, next to each other in sequence, comprising a larger, continuous area.

⁴ A patch of suitable habitat may or may not be connected to other patches of native vegetation. Patch size is not defined, and should be considered in relation to site condition and species stocking rate as indicators of patch viability for WRP.

	0.5	Site is separated from other suitable habitat by cleared areas or linear barrier of up to 50 m. Records on site or adjacent (within 1 km) within last 10 years. Site is not located within known distribution of species				
	0	Site is separated from other suitable habitat by cleared areas of more than 50 m. No records on site or adjacent (within 1 km) within last 10 years. Site is not located within known distribution of species				

Species Stocking Rate						
Usage and/or density of a species. Role of the site population in regard to overall species population viability.	4	Record of species presence on site in last 12 months (WRP observed on site in last 12 months and scats; evidence of nests/dreys/hollows being used; evidence of breeding); site is within 50-100 m of verified/published records in last 12 months				
	3	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 100-150 m of verified/published records in last 12 months				
	2	Record of species presence on site in last 2 years (WRP observed on site in last 2 years and scats; evidence of nests/dreys/hollows being used); site is within 150-200 m of verified/published records in last 2 years				
	1	Record of species presence on site in previous 3 years (WRP observed on site in last 5 years and scats; evidence of nests/dreys/hollows being used); site is within 500 m of verified/published records in last 3 years (minimum required to be considered a suitable offset site for WRP)				
	0	No record of species presence on site, or within 500 m in last 3 years				

Totals			Impact site	OS Start	W/O Offset	With Offset

Legend	
	Unlikely to be considered suitable habitat/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 WA DBCA. This HQS uses a standard habitat quality scoring system for a species, with scores allocated out of 3 for both site condition and site context, and out of 4 for species stocking rate.

Appendix B Black Cockatoo HQS tool

Habitat Scoring System for WA black cockatoo foraging habitat

This habitat scoring system describes elements indicative of suitable foraging habitat¹ 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					
		6	High	Marri-Jarrah-Karri Forest, other eucalypt woodlands, or allocasuarina woodlands, with >50% projected foliage cover. Low percentage (< 5%) of tree deaths.				
	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.

²No 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.	1	Negligible to low	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, <i>Eucalyptus caesia</i> and <i>E. erythrocorys</i> .							
Habitat features	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									
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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.
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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 B PGV (2008) Qudrat Data

CONTROL PLOTS FOR MT DUCKWORTH AND GUNYULGUP REVEGETATION PROGRAMME

Paul van der Moezel, Coffey Environments, 18 March 2008

The following sites were surveyed on 20 February 2008 in order to determine the desired composition and density of species in the two areas of the Leeuwin-Naturaliste National Park at Mt Duckworth and Gunyulgup that are proposed for revegetation as part of the proposal to develop Location 413 Smiths Beach. The sites can be used as control plots to assess the progress of the revegetation programme.

Mt Duckworth Site 1

Vegetation: Peppermint (*Agonis flexuosa*) /Jarrah (*Eucalyptus marginata*) Low Closed Forest over sparse understorey of mostly dead Arum Lily (*Zantedeschia aethiopica*). Condition – Good (parkland cleared)

Soils: Deep yellow/brown sand.

GPS: 318285E 6278266N. Located within the northern portion of the area to be revegetated



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Agonis flexuosa</i>	6	70	22
<i>Eucalyptus marginata</i>	6	20	6
<i>Macrozamia riedleii</i>	1.5	<1	
* <i>Zantedeschia aethiopica</i>	dead	30 (when alive)	

* - denotes introduced species

The density of trees at this site is 28 trees per 100m² which equates to a density of 2,800 trees per hectare. Peppermint trees accounted for 79% of the trees in the plot with Jarrah the other 21%. Most of the stems of both the Peppermint and Jarrah are narrow, 5-15cm in diameter with some trees containing multiple stems. Overall the number of stems, rather than trees, per 100m² is 32 for the Peppermint and 14 for Jarrah.

Mt Duckworth Site 2

Vegetation: Peppermint (*Agonis flexuosa*) /Marri (*Corymbia calophylla*) Low Closed Forest over Open Heath. Condition - Very Good

Soils: Deep yellow/brown sand.

GPS: 318200E 6278415N. Located to the west of site 1 in the National Park.



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Agonis flexuosa</i>	5-6	65	12
<i>Corymbia calophylla</i>	4	10	8
<i>Spyridium globulosum</i>	4	15	4
<i>Hibbertia hypericoides</i>	0.3	5	
<i>Hibbertia cuneiformis</i>	1-2	2	
<i>Leucopogon parviflorus</i>	0.5-1.5	2	
<i>Phyllanthus calycinus</i>	0.4	2	
<i>Leucopogon propinquus</i>	0.5	1	
<i>Xanthorrhoea preissii</i>	1.5	<1	
<i>Austrostipa flavescens</i>	1.2	<1	
<i>Persoonia sp</i>	1.0	<1	
<i>Acacia pulchella</i>	1	<1	
<i>Rhagodia baccata</i>	1	<1	
<i>Macrozamia riedlei</i>	0.5	<1	
<i>Bossiaea linophylla</i>	0.4	<1	
<i>Desmocladus flexuosus</i>	0.2	<1	
* <i>Briza maxima</i>	0.2	<1	
<i>Clematis linearifolia</i>	Creeper	<1	

* - denotes introduced species

The density of trees at this site is 20 per 100m² which equates to 2,000 per hectare. There were also 4 tall shrubs >2m tall within the plot. Peppermint trees accounted for 60% of the trees in the plot with Marri 40%.

Mt Duckworth Site 3

Vegetation: Marri (*Corymbia calophylla*)/Peppermint (*Agonis flexuosa*) Low Open Forest over sparse understorey containing dead Veldtgrass (*Ehrharta calycina*) and Arum Lily (*Zantedeschia aethiopica*). Condition – Good (parkland cleared)

Soils: Deep yellow/brown sand.

GPS: 318193E 6278074N. Located in the National Park approximately midway down the western boundary of the revegetation site.



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Corymbia calophylla</i>	6	50	8
<i>Agonis flexuosa</i>	6	10	5
* <i>Ehrharta calycina</i>	Dead	80	
* <i>Zantedeschia aethiopica</i>	dead	20 (when alive)	
<i>Macrozamia riedlei</i>	1	4	
<i>Rhagodia baccata</i>	0.5	2	
<i>Solanum symonii</i>	2.5	2	
<i>Clematis linearifolia</i>	Creeper	2	
<i>Spyridium globulosum</i>	2	1	
<i>Xanthorrhoea preissii</i>	2	1	
<i>Hibbertia cuneiformis</i>	1-2	1	
<i>Acacia rostellifera</i>	0.5	<1	
* <i>Briza maxima</i>	0.1	<1	

* - denotes introduced species

This site is more open than sites 1 and 2 although it still has a 60% canopy cover. The density of trees at this site is 13 per 100m² which equates to 1,300 per hectare. Marri trees accounted for 62% of the trees in the plot with Peppermints were 38%.

Mt Duckworth Site 4

Vegetation: Parrot Bush (*Banksia sessilis* var. *cordata*) and Peppermint (*Agonis flexuosa*) Low Woodland over *Xanthorrhoea preissii*, *Lepidosperma gladiatum*/*Leucopogon parviflorus* Shrubland. Condition - Very Good

Soils: Shallow yellow sand over limestone.

GPS: 318193E 6277704N. Located in the National Park to the west of the high point in the revegetation site.



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Banksia sessilis</i> var. <i>cordata</i>	4	25	11
<i>Agonis flexuosa</i>	4	5	1
* <i>Zantedeschia aethiopica</i>	dead	20	
<i>Lepidosperma gladiatum</i>	1	10	
<i>Hibbertia cuneiformis</i>	2.5	8	
<i>Xanthorrhoea preissii</i>	1.2	5	
<i>Spyridium globulosum</i>	2	2	
<i>Leucopogon parviflorus</i>	0.4	2	
<i>Rhagodia baccata</i>	0.6	1	
<i>Muehlenbeckia adpressa</i>	0.3	<1	
* <i>Ehrharta calycina</i>	dead	<1	
<i>Clematis linearifolia</i>	creeper	<1	

* - denotes introduced species

The density of tall Parrot Bush shrubs and Peppermint trees at this site is 12 per 100m² which equates to 1,200 per hectare. There were four other shrubs greater than 2m height in the plot.

Gunyulgup Site 5

Vegetation: Peppermint (*Agonis flexuosa*) Low Closed Forest over *Spyridium globulosum* and other shrubs. Condition – Very Good

Soils: Deep yellow/brown sand.

GPS: 316817E 6273685N. Located within the National Park to the north of the revegetation area, approximately 50m north of the boundary.



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Agonis flexuosa</i>	5-6	70	3
<i>Spyridium globulosum</i>	2-3	30	12
* <i>Lagurus ovatus</i>	0.3	20	
<i>Acacia cochlearis</i>	2	1	
<i>Leucopogon parviflorus</i>	1.5	<1	
<i>Scaevola nitida</i>	0.8	<1	
<i>Hibbertia cuneiformis</i>	0.8	<1	
<i>Olearia axillaris</i>	0.5	<1	
<i>Rhagodia baccata</i>	0.4	<1	
<i>Phyllanthus calycinus</i>	0.3	<1	

* - denotes introduced species

The density of Peppermint trees at this site is only 3 plants per 100m² which equates to 300 per hectare. The trees are individually quite mature therefore the 3 trees cover around 70% of the sites.

Gunyulgup Site 6

Vegetation: Peppermint (*Agonis flexuosa*) Low Woodland over *Spyridium globulosum* High Shrubland. Condition – Good to Very Good

Soils: Shallow greyish yellow sand over limestone.

GPS: 316781E 6273481N. Located within the revegetation area near the south-west corner.



10m x 10m plot

Species	Height (m)	% Cover	No. of Trees
<i>Agonis flexuosa</i>	4	20	1
<i>Spyridium globulosum</i>	2	25	
* <i>Lagurus ovatus</i>	0.2	40	
<i>Hibbertia cuneiformis</i>	1-1.5	10	
<i>Rhagodia baccata</i>	1	5	
<i>Leucopogon parviflorus</i>	1.5	2	
<i>Templetonia retusa</i>	1.2	2	
* <i>Petrorhagia dubia</i>	0.4	1	

* - denotes introduced species

The density of Peppermint trees at this site is only 1 plant per 100m² which equates to 100 per hectare. The tree is multi-stemmed with approximately 8 thin trunks of less than 10cm diameter.

Appendix C Mt Duckworth Site Photos

Mt Duckworth

Photo

Description



- Open woodland with large, old trees with an understorey of litter and dead material.
- No understorey or midstorey evident.



- Low open heath vegetation separated from large, old trees (left) by a cleared area used for 4WD access.

Mt Duckworth

Photo

Description



- Peppermint trees over heath vegetation with an understorey of sedge and dead annual grasses split by a 4WD access track.



- Large trees over heath adjacent to a cleared area used for 4WD access.
- No canopy or understorey.



- Low heath with large trees (left) over dead annual grasses with cleared areas used for 4WD access.

Appendix D Gunyulgup Site Photos

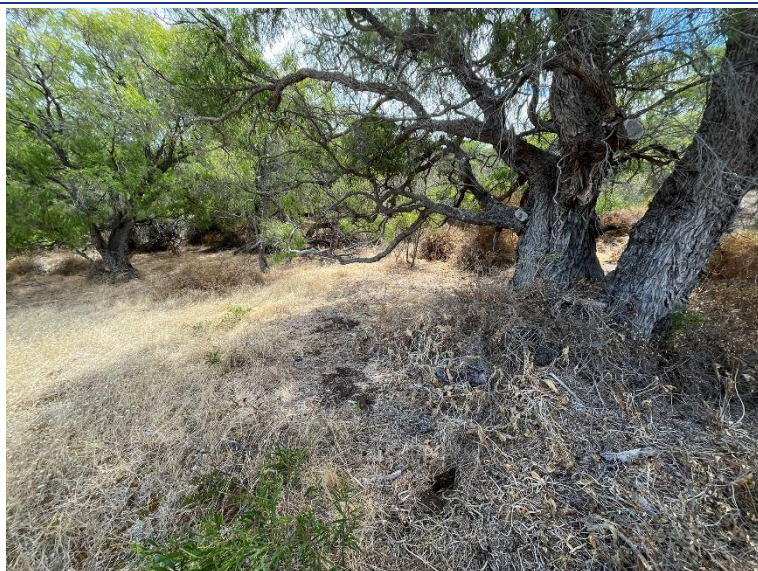
Gunyulgup

Photo



Description

- Large trees and peppermint trees (Western ringtail possum food source) over heath separated by cleared areas used for 4WD access.
- Fences and houses present.
- Understorey and canopy missing.



- Large trees and peppermint trees with an understorey of litter.
- Understorey vegetation missing and low canopy connectivity.



- Large peppermint trees over Proteaceae (Black Cockatoo food source) and heath.
- Cleared area used for access. Evidence of revegetation.

Gunyulgup

Photo



Description

- Heath vegetation and cleared area.
- Wire fence and tracks present.
- No canopy or understorey.



- Large peppermint trees over open heath.
- Cleared areas, 4WD access tracks and wire fences.
- No understorey.

Appendix E Ludlow State Forest Site Photos

Ludlow

Photos

Description



- Large, old trees (potential hollows for Black Cockatoo) with an open understorey of litter and dead annual grasses
- Cleared area used for 4WD access.
- No mid or understorey vegetation.



- Large trees over peppermint trees (Western ringtail possum food) with open understorey.
- Powerlines, fenced area and 4WD tracks present.
- No mid or understorey vegetation.



- Large trees over peppermint trees with an open understorey.
- Wire fences and 4WD tracks present.
- No mid or understorey vegetation.

Ludlow

Photos

Description



- Large trees over annual weeds surrounding a body of surface water.
- Fences and development present.
- No midstorey vegetation



- Large trees with an open understorey of litter.
- Large, cleared area used for 4WD access. Powerlines present.
- No mid or understorey vegetation.

Appendix F EPBC Offset Calculations

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																						
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source		
<i>Ecological Communities</i>																						
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)	Risk of loss (%) without offset		Risk of loss (%) with offset		Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	
								Future quality without offset (scale of 0-10)		Future quality with offset (scale of 0-10)												
								Time until ecological benefit		Start quality (scale of 0-10)												
<i>Threatened species habitat</i>																						
Area of habitat	Yes	10.28	Adjusted hectares	On ground management at Gonyulgup (revegetation in cleared areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	1.03	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	Future area without offset (adjusted hectares)	1.0	Future area with offset (adjusted hectares)	1.0	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?
								Future quality without offset (scale of 0-10)	0	Future quality with offset (scale of 0-10)	8											
								Time until ecological benefit	10	Start quality (scale of 0-10)	0											
<i>Threatened species</i>																						
Number of features e.g. Nest hollows, habitat trees	No																					
Condition of habitat Change in habitat condition, but no change in extent	No																					
Birth rate e.g. Change in nest success	No																					
Mortality rate e.g. Change in number of road kills per year	No																					
Number of individuals e.g. Individual plants/animals	No																					

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	0.34	3.32%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction <small>Based on IUCN category definitions</small>	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Number of features <small>e.g. Nest hollows, habitat trees</small>	No					
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No					
Birth rate <small>e.g. Change in nest success</small>	No					
Mortality rate <small>e.g. Change in number of road kills per year</small>	No					
Number of individuals <small>e.g. Individual plants/animals</small>	No					

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0								
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)									
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species habitat</i>																				
Area of habitat	Yes	10.28	Adjusted hectares	On ground management at Gungulgup (infill planting in partially vegetated areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	1.94	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	0.67	6.52%	No	
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)									
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species</i>																				
Number of features <small>e.g. Nest hollows, habitat trees</small>	No																			
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No																			
Birth rate <small>e.g. Change in nest success</small>	No																			
Mortality rate <small>e.g. Change in number of road kills per year</small>	No																			
Number of individuals <small>e.g. Individual plants/animals</small>	No																			

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	0.67	6.52%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction <small>Based on IUCN category definitions</small>	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Number of features <small>e.g. Nest hollows, habitat trees</small>	No					
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No					
Birth rate <small>e.g. Change in nest success</small>	No					
Mortality rate <small>e.g. Change in number of road kills per year</small>	No					
Number of individuals <small>e.g. Individual plants/animals</small>	No					

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0								
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)									
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species habitat</i>																				
Area of habitat	Yes	10.28	Adjusted hectares	On ground management within a portion of Ludlow State Forest (revegetation)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	15	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	3.27	31.82%	No	
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)									
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species</i>																				
Number of features <small>e.g. Nest hollows, habitat trees</small>	No																			
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No																			
Birth rate <small>e.g. Change in nest success</small>	No																			
Mortality rate <small>e.g. Change in number of road kills per year</small>	No																			
Number of individuals <small>e.g. Individual plants/animals</small>	No																			

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	3.27	31.82%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction <small>Based on IUCN category definitions</small>	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Number of features <small>e.g. Nest hollows, habitat trees</small>	No					
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No					
Birth rate <small>e.g. Change in nest success</small>	No					
Mortality rate <small>e.g. Change in number of road kills per year</small>	No					
Number of individuals <small>e.g. Individual plants/animals</small>	No					

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)	Risk of loss (%) without offset		Risk of loss (%) with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
								Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0									
								Time until ecological benefit		Start quality (scale of 0-10)										Future quality without offset (scale of 0-10)
<i>Threatened species habitat</i>																				
Area of habitat	Yes	10.28	Adjusted hectares	On ground management at Mt Duckworth (revegetation in cleared areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	5.74	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
								Future area without offset (adjusted hectares)	5.7	Future area with offset (adjusted hectares)	5.7									
								Time until ecological benefit	10	Start quality (scale of 0-10)	0	Future quality without offset (scale of 0-10)								
<i>Threatened species</i>																				
Number of features <small>e.g. Nest hollows, habitat trees</small>	No																			
Condition of habitat <small>Change in habitat condition, but no change in extent</small>	No																			
Birth rate <small>e.g. Change in nest success</small>	No																			
Mortality rate <small>e.g. Change in number of road kills per year</small>	No																			
Number of individuals <small>e.g. Individual plants/animals</small>	No																			

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	1.90	18.52%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	Yes			Count		

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset		Risk of loss (%) with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
									Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0								
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species habitat</i>																				
Area of habitat	Yes	10.28	Adjusted hectares	On ground management at Mt Duckworth (Infill planting in aprially vegetated areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	7.1	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
									Future area without offset (adjusted hectares)	7.1	Future area with offset (adjusted hectares)	7.1								
									Time until ecological benefit	5	Start quality (scale of 0-10)	3								
<i>Threatened species</i>																				
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g. Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	Yes		Count										0		0.00	0.00	#DIV/0!	#DIV/0!		

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0	0.00	#DIV/0!	#DIV/0!	\$0.00	#DIV/0!	#DIV/0!
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	2.45	23.87%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	WRP
EPBC Act status	Critically Endangered
Annual probability of extinction Based on IUCN category definitions	6.8%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	14.68	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	7	Scale 0-10	
			Total quantum of impact	10.28	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset		Risk of loss (%) with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
									Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0								
									Time until ecological benefit		Start quality (scale of 0-10)									
<i>Threatened species habitat</i>																				
Area of habitat	Yes	10.28	Adjusted hectares	Protection via covenant and ongoing management of habitat within onsite conservation area	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	3.9	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
									Future area without offset (adjusted hectares)	3.9	Future area with offset (adjusted hectares)	3.9								
									Time until ecological benefit	0	Start quality (scale of 0-10)	7								
<i>Threatened species</i>																				
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g. Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	10.276	0.62	6.07%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	CBC and Baudins Black Cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	5.19	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	8	Scale 0-10	
			Total quantum of impact	4.15	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																											
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)	Start area and quality	Future area and quality without offset	Future area and quality with offset	Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source											
<i>Ecological Communities</i>																											
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)	Start area (hectares)	Risk of loss (%) without offset	Risk of loss (%) with offset																			
					Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0																			
					Time until ecological benefit	Start quality (scale of 0-10)	Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)																			
<i>Threatened species habitat</i>																											
Area of habitat	Yes	4.15	Adjusted hectares	On ground management at Gonyulgup (revegetation in cleared areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	1.03	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	Raw gain	0.00	Confidence in result (%)	80%	Adjusted gain	0.00	Net present value	0.59	% of impact offset	14.09%	Minimum (90%) direct offset requirement met?	No	Cost (\$ total)		Information source
					Future area without offset (adjusted hectares)	0	Future area with offset (adjusted hectares)	1.0	Future quality without offset (scale of 0-10)	0	Future quality with offset (scale of 0-10)	8	Raw gain	8.00	Confidence in result (%)	80%	Adjusted gain	6.40	Net present value	5.68							
					Time until ecological benefit	10	Start quality (scale of 0-10)	0	Future quality without offset (scale of 0-10)	0	Future quality with offset (scale of 0-10)	8	Raw gain	8.00	Confidence in result (%)	80%	Adjusted gain	6.40	Net present value	5.68							
<i>Threatened species</i>																											
Number of features e.g. Nest hollows, habitat trees	No																										
Condition of habitat Change in habitat condition, but no change in extent	No																										
Birth rate e.g. Change in nest success	No																										
Mortality rate e.g. Change in number of road kills per year	No																										
Number of individuals e.g. Individual plants/animals	No																										

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	4.152	0.59	14.09%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	CBC and Baudins Black Cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	5.19	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	8	Scale 0-10	
			Total quantum of impact	4.15	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																						
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source		
<i>Ecological Communities</i>																						
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0										
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)											
									Time until ecological benefit		Start quality (scale of 0-10)										Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)
<i>Threatened species habitat</i>																						
Area of habitat	Yes	4.15	Adjusted hectares	On ground management at Ginyulgup (infill planting in partially vegetated areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	1.94	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	0.96	23.22%	No			
									Future area without offset (adjusted hectares)		1.9										Future area with offset (adjusted hectares)	1.9
									Time until ecological benefit		10										Start quality (scale of 0-10)	2
<i>Threatened species</i>																						
Number of features e.g. Nest hollows, habitat trees	No																					
Condition of habitat Change in habitat condition, but no change in extent	No																					
Birth rate e.g. Change in nest success	No																					
Mortality rate e.g. Change in number of road kills per year	No																					
Number of individuals e.g. Individual plants/animals	No																					

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	4.152	0.96	23.22%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	Carnaby's and Baudins Black
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	5.19	Hectares	Biologic (2024) and Appendix A to Offset Strategy
			Quality	8	Scale 0-10	
			Total quantum of impact	4.15	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																						
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source		
<i>Ecological Communities</i>																						
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0										
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)											
									Time until ecological benefit		Start quality (scale of 0-10)										Future quality without offset (scale of 0-10)	Future quality with offset (scale of 0-10)
<i>Threatened species habitat</i>																						
Area of habitat	Yes	4.15	Adjusted hectares	On ground management within a portion of Ludlow State Forest (revegetation)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	15	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	4.16	100.19%	Yes			
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)											
									Time until ecological benefit		Start quality (scale of 0-10)											Future quality without offset (scale of 0-10)
<i>Threatened species</i>																						
Number of features e.g. Nest hollows, habitat trees	No																					
Condition of habitat Change in habitat condition, but no change in extent	No																					
Birth rate e.g. Change in nest success	No																					
Mortality rate e.g. Change in number of road kills per year	No																					
Number of individuals e.g. Individual plants/animals	No																					

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	4.152	4.16	100.19%	Yes	\$0.00	N/A	\$0.00
Area of community	0				\$0.00		\$0.00
					\$0.00	\$0.00	\$0.00

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

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Matter of National Environmental Significance	
Name	CBC and Baudins Black Cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	5.19	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	8	Scale 0-10	
			Total quantum of impact	4.15	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																				
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source
<i>Ecological Communities</i>																				
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)	Risk of loss (%) without offset		Risk of loss (%) with offset										
								Future area without offset (adjusted hectares)	0.0	Future area with offset (adjusted hectares)	0.0									
								Time until ecological benefit		Start quality (scale of 0-10)		Future quality without offset (scale of 0-10)		Future quality with offset (scale of 0-10)						
<i>Threatened species habitat</i>																				
Area of habitat	Yes	4.15	Adjusted hectares	On ground management at Mt Duckworth (revegetation in cleared areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	5.74	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%								
								Future area without offset (adjusted hectares)	5.7	Future area with offset (adjusted hectares)	5.7	0.00	80%	0.00	0.00					
								Time until ecological benefit	10	Start quality (scale of 0-10)	0	Future quality without offset (scale of 0-10)	0	Future quality with offset (scale of 0-10)	8	8.00	80%	6.40	5.68	3.26
<i>Threatened species</i>																				
Number of features e.g. Nest hollows, habitat trees	No																			
Condition of habitat Change in habitat condition, but no change in extent	No																			
Birth rate e.g. Change in nest success	No																			
Mortality rate e.g. Change in number of road kills per year	No																			
Number of individuals e.g. Individual plants/animals	No																			

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	4.152	3.26	78.53%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Offsets Assessment Guide

For use in determining offsets under the *Environment Protection and Biodiversity Conservation Act 1999*
2 October 2012

This guide relies on Macros being enabled in your browser.

Matter of National Environmental Significance	
Name	CBC and Baudins Black Cockatoo
EPBC Act status	Endangered
Annual probability of extinction Based on IUCN category definitions	1.2%

Key to Cell Colours
User input required
Drop-down list
Calculated output
Not applicable to attribute

Impact calculator						
Protected matter attributes	Attribute relevant to case?	Description	Quantum of impact		Units	Information source
<i>Ecological communities</i>						
Area of community	No		Area			
			Quality			
			Total quantum of impact	0.00		
<i>Threatened species habitat</i>						
Area of habitat	Yes	Western Ringtail Possum foraging & breeding habitat	Area	5.19	Hectares	Biologic (2024) and Appendix A of Offset Strategy
			Quality	8	Scale 0-10	
			Total quantum of impact	4.15	Adjusted hectares	
<i>Threatened species</i>						
Number of features e.g. Nest hollows, habitat trees	No					
Condition of habitat Change in habitat condition, but no change in extent	No					
Birth rate e.g. Change in nest success	No					
Mortality rate e.g. Change in number of road kills per year	No					
Number of individuals e.g. Individual plants/animals	No					

Offset calculator																					
Protected matter attributes	Attribute relevant to case?	Total quantum of impact	Units	Proposed offset	Time horizon (years)		Start area and quality		Future area and quality without offset		Future area and quality with offset		Raw gain	Confidence in result (%)	Adjusted gain	Net present value (adjusted hectares)	% of impact offset	Minimum (90%) direct offset requirement met?	Cost (\$ total)	Information source	
<i>Ecological Communities</i>																					
Area of community	No			Land acquisition and on ground management	Risk-related time horizon (max. 20 years)		Start area (hectares)		Risk of loss (%) without offset	0.0	Risk of loss (%) with offset	0.0									
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)										
									Time until ecological benefit		Start quality (scale of 0-10)										Future quality without offset (scale of 0-10)
<i>Threatened species habitat</i>																					
Area of habitat	Yes	4.15	Adjusted hectares	On ground management at Mt Dacksworth (Infill planting in aprially vegetated areas)	Time over which loss is averted (max. 20 years)	20	Start area (hectares)	7.1	Risk of loss (%) without offset	0%	Risk of loss (%) with offset	0%	0.00	80%	0.00	0.00	3.53	84.99%	No		
									Future area without offset (adjusted hectares)		Future area with offset (adjusted hectares)										
									Time until ecological benefit		Start quality (scale of 0-10)										
<i>Threatened species</i>																					
Number of features e.g. Nest hollows, habitat trees	No																				
Condition of habitat Change in habitat condition, but no change in extent	No																				
Birth rate e.g. Change in nest success	No																				
Mortality rate e.g. Change in number of road kills per year	No																				
Number of individuals e.g. Individual plants/animals	No																				

Summary							
Protected matter attributes	Quantum of impact	Net present value of offset	% of impact offset	Direct offset adequate?	Cost (\$)		
					Direct offset (\$)	Other compensatory measures (\$)	Total (\$)
Birth rate	0				\$0.00		\$0.00
Mortality rate	0				\$0.00		\$0.00
Number of individuals	0				\$0.00		\$0.00
Number of features	0				\$0.00		\$0.00
Condition of habitat	0				\$0.00		\$0.00
Area of habitat	4.152	3.53	84.99%	No	\$0.00	#DIV/0!	#DIV/0!
Area of community	0				\$0.00		\$0.00
					\$0.00	#DIV/0!	#DIV/0!

Appendix G WA Offset Calculations

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Western Ringtail Possum habitat</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - critically endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">6.8%</td> </tr> </table>	Description	Western Ringtail Possum habitat	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - critically endangered	Conservation significance score	6.8%
Description	Western Ringtail Possum habitat								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - critically endangered								
Conservation significance score	6.8%								

Please select area or feature for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
		Quality (scale)	7.00
		Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.03	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.34
	On ground management at Gunyulgup (revegetation in cleared areas)	Current quality of offset site (scale)	0.00	Time until offset site secured (years)	0.00		3.3%
		Future quality WITHOUT offset (scale)	0.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
	Time until ecological benefit (years)	10.00					
	Confidence in offset result (%)	80.0%					OFFSET ADEQUATE?

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Western Ringtail Possum habitat</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - critically endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">6.8%</td> </tr> </table>	Description	Western Ringtail Possum habitat	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - critically endangered	Conservation significance score	6.8%
Description	Western Ringtail Possum habitat								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - critically endangered								
Conservation significance score	6.8%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
		Quality (scale)	7.00
		Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.94	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.67
	On ground management at Gunyulgup (revegetation in partially vegetated areas)	Current quality of offset site (scale)	3.00	Time until offset site secured (years)	0.00		6.5%
		Future quality WITHOUT offset (scale)	2.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	5.00				
		Confidence in offset result (%)	80.0%				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Western Ringtail Possum habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - critically endangered
Conservation significance	Conservation significance score 6.8%

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	-------------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
		Quality (scale)	7.00
		Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)				
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)	
		Current quality of rehabilitation site (scale)	Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)	Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)		

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	15.00	Duration of offset implementation (maximum 20 years)	10.00	Offset value	3.27
	On ground management at Ludlow site	Current quality of offset site (scale)	5.00	Time until offset site secured (years)	0.00		31.8%
		Future quality WITHOUT offset (scale)	2.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	12.00				
		Confidence in offset result (%)	80.0%				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Western Ringtail Possum habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - critically endangered
Conservation significance	Conservation significance score 6.8%

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area		
Description	Quantum of impact	
Significant impact Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
	Quality (scale)	7.00
	Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)				
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)	Confidence in rehabilitation result (%)
Rehabilitation Credit				
			Rehabilitation credit	0.00

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	5.74	Duration of offset implementation (maximum 20 years)	10.00	Offset value	1.90
	On ground management at Mt Duckworth (revegetation in cleared areas)	Current quality of offset site (scale)	0.00	Time until offset site secured (years)	0.00		18.5%
		Future quality WITHOUT offset (scale)	0.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Western Ringtail Possum habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - critically endangered
Conservation significance	Conservation significance score 6.8%

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
		Quality (scale)	7.00
		Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	7.10	Duration of offset implementation (maximum 20 years)	10.00	Offset value	2.45
	On ground management at Mt Duckworth (revegetation in partially vegetated areas)	Current quality of offset site (scale)	3.00	Time until offset site secured (years)	0.00		23.9%
		Future quality WITHOUT offset (scale)	2.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	5.00				
		Confidence in offset result (%)	80.0%			OFFSET ADEQUATE?	NO

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Western Ringtail Possum Habitat</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - critically endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">6.8%</td> </tr> </table>	Description	Western Ringtail Possum Habitat	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - critically endangered	Conservation significance score	6.8%
Description	Western Ringtail Possum Habitat								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - critically endangered								
Conservation significance score	6.8%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum Habitat
------------------------------	---------------------------------

Area (impact site)

Part A: Significant impact calculation Area		
Description	Quantum of impact	
Significant impact Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	14.68
	Quality (scale)	7.00
	Total quantum of impact	10.28

Part B: Rehabilitation credit calculation Area (onsite)				
Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
Rehabilitation Credit	Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
	Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
	Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	10.28
	Rehabilitation credit	0.00
	Significant residual impact	10.28

WA Environmental Offsets Calculator

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Western Ringtail Possum Habitat	Significant impact (step 2, part A)	14.68
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	10.28

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	3.95	Duration of offset implementation (maximum 20 years)	20.00	Offset value	0.63
	Protection and ongoing management of a portion of the development envelope in perpetuity for the purpose of conservaiton	Current quality of offset site (scale)	7.00	Time until offset site secured (years)	0.00		6.2%
		Future quality WITHOUT offset (scale)	6.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)					
	Confidence in offset result (%)	80.0%	<div style="display: flex; justify-content: space-between;"> OFFSET ADEQUATE? NO </div>				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted									
Conservation significance	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 5px;">Description</td> <td style="padding: 5px; background-color: yellow;">Carnaby's and Baudins Black Cockatoo habitat□</td> </tr> <tr> <td style="padding: 5px;">Type of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Species (flora/fauna)</td> </tr> <tr> <td style="padding: 5px;">Conservation significance of environmental value</td> <td style="padding: 5px; background-color: #f4a460;">Rare/threatened species - endangered</td> </tr> <tr> <td style="padding: 5px;">Conservation significance score</td> <td style="padding: 5px; background-color: #cccccc;">1.2%</td> </tr> </table>	Description	Carnaby's and Baudins Black Cockatoo habitat□	Type of environmental value	Species (flora/fauna)	Conservation significance of environmental value	Rare/threatened species - endangered	Conservation significance score	1.2%
Description	Carnaby's and Baudins Black Cockatoo habitat□								
Type of environmental value	Species (flora/fauna)								
Conservation significance of environmental value	Rare/threatened species - endangered								
Conservation significance score	1.2%								

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□
------------------------------	---

Area (impact site)

Part A: Significant impact calculation Area				
Significant impact	Description	Quantum of impact		
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	5.19	
		Quality (scale)	8.00	
		Total quantum of impact	4.15	

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	4.15
	Rehabilitation credit	0.00
	Significant residual impact	4.15

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□	Significant impact (step 2, part A)	5.19
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.15

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.03	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.59
	On ground management at Gunyulgup (revegetation in cleared areas)	Current quality of offset site (scale)	0.00	Time until offset site secured (years)	0.00		14.1%
		Future quality WITHOUT offset (scale)	0.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	10.00				
	Confidence in offset result (%)	80.0%				OFFSET ADEQUATE?	NO

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Carnaby's and Baudins Black Cockatoo habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - endangered
Conservation significance	Conservation significance score 1.2%

Please select area or feature for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□
------------------------------	---

Area (impact site)

Part A: Significant impact calculation Area				
Significant impact	Description	Quantum of impact		
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	5.19	
		Quality (scale)	8.00	
		Total quantum of impact	4.15	

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)		Time until ecological benefit (years)	
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	4.15
	Rehabilitation credit	0.00
	Significant residual impact	4.15

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□	Significant impact (step 2, part A)	5.19
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.15

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	1.94	Duration of offset implementation (maximum 20 years)	10.00	Offset value	0.96
	On ground management at Gunyulgup (revegetation in partially vegetated areas)	Current quality of offset site (scale)	2.00	Time until offset site secured (years)	0.00		23.2%
		Future quality WITHOUT offset (scale)	1.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%	OFFSET ADEQUATE?			NO

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Carnaby's and Baudins Black Cockatoo habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - endangered
Conservation significance	Conservation significance score 1.2%

Please select area or feature for the calculations	Area
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Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□
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Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	5.19
		Quality (scale)	8.00
		Total quantum of impact	4.15

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	4.15
	Rehabilitation credit	0.00
	Significant residual impact	4.15

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□	Significant impact (step 2, part A)	5.19
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.15

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	15.00	Duration of offset implementation (maximum 20 years)	10.00	Offset value	4.16
	On ground management at Ludlow site	Current quality of offset site (scale)	7.00	Time until offset site secured (years)	0.00		100.2%
		Future quality WITHOUT offset (scale)	4.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	12.00				
		Confidence in offset result (%)	80.0%				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Carnaby's and Baudins Black Cockatoo habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - endangered
Conservation significance	Conservation significance score 1.2%

Please select <i>area</i> or <i>feature</i> for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat
------------------------------	--

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	5.19
		Quality (scale)	8.00
		Total quantum of impact	4.15

Part B: Rehabilitation credit calculation Area (onsite)					
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)		
		Current quality of rehabilitation site (scale)		Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)		Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)			

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	4.15
	Rehabilitation credit	0.00
	Significant residual impact	4.15

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat	Significant impact (step 2, part A)	5.19
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.15

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	5.74	Duration of offset implementation (maximum 20 years)	10.00	Offset value	3.26
	On ground management at Mt Duckworth (revegetation in cleared areas)	Current quality of offset site (scale)	0.00	Time until offset site secured (years)	0.00		78.5%
		Future quality WITHOUT offset (scale)	0.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%				

Step 1: Determining conservation significance

Key:

- Data to be entered
- Drop-down selection
- Automatically-generated scores
(Or, if appropriate, manual data entry permitted)

Area / feature (Impact site)

Conservation significance determination for the environmental value impacted	
Conservation significance	Description Carnaby's and Baudins Black Cockatoo habitat
Conservation significance	Type of environmental value Species (flora/fauna)
Conservation significance	Conservation significance of environmental value Rare/threatened species - endangered
Conservation significance	Conservation significance score 1.2%

Please select area or feature for the calculations	Area
--	------

Step 2: Calculating significant residual impact

Key:
 Data to be entered
 Drop-down selection
 Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□
------------------------------	---

Area (impact site)

Part A: Significant impact calculation Area			
Significant impact	Description	Quantum of impact	
	Western Ringtail Possum foraging & breeding habitat	Significant impact (hectares)	5.19
		Quality (scale)	8.00
		Total quantum of impact	4.15

Part B: Rehabilitation credit calculation Area (onsite)				
Rehabilitation Credit	Description	Proposed rehabilitation (area in hectares)	Time until ecological benefit (years)	
		Current quality of rehabilitation site (scale)	Confidence in rehabilitation result (%)	
		Future quality WITHOUT rehabilitation (scale)	Rehabilitation credit	0.00
		Future quality WITH rehabilitation (scale)		

Part C: Significant residual impact calculation Area		
Significant residual impact	Total quantum of impact	4.15
	Rehabilitation credit	0.00
	Significant residual impact	4.15

Step 3: Calculating offsets

Key:

	Data to be entered
	Drop-down selection
	Automatically-generated scores

Environmental value (step 1)	Carnaby's and Baudins Black Cockatoo habitat□	Significant impact (step 2, part A)	5.19
		Rehabilitation credit (step 2, part B)	0.00
		Significant residual impact (step 2, part C)	4.15

Area (offset site)

Offset calculation Area							
Offsets calculation	Description	Proposed offset (area in hectares)	7.10	Duration of offset implementation (maximum 20 years)	10.00	Offset value	3.53
	On ground management at Mt Duckworth (revegetation in partially vegetated areas)	Current quality of offset site (scale)	2.00	Time until offset site secured (years)	0.00		85.0%
		Future quality WITHOUT offset (scale)	1.00	Risk of future loss WITHOUT offset (%)	0.0%		
		Future quality WITH offset (scale)	8.00	Risk of future loss WITH offset (%)	0.0%		
		Time until ecological benefit (years)	10.00				
		Confidence in offset result (%)	80.0%				

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4	1: Electronic	EPA Services (as part of RtS package)	10/12/2025

Document Status

Rev No.	Author	Reviewer Name	Approved for Issue		
			Name	Signature	Date
A	Y. Seesaha	B. Hollyock/ R. Mason	B. Hollyock	B. Hollyock	19/11/2024
0	Y. Seesaha	B. Hollyock/ R. Mason	B. Hollyock	B. Hollyock	21/22/2024
1A	N. Pursell/ R. Mason	A. Latto	A. Latto	A. Latto	13/06/2025
2A	R. Mason	A. Latto	A. Latto	A. Latto	21/10/2025
3	R. Mason	H-U	H-U	H-U	08/12/2025
4	R. Mason	H-U	H-U	H-U	10/12/2025



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