
5 OFFSETS

5.1 Background

Environmental offsets are conservation actions that provide environmental benefits intended to counterbalance the significant residual environmental impacts associated with a proposal (GoWA, 2014). Main Roads intend to counterbalance the residual impact of the Proposal through implementation of an environmental offset. The offset strategy has been prepared in accordance with the Australian Government's EPBC Act Environmental Offset Policy (DSEWPaC, 2012a), the WA Government's Environmental Offset Policy (GoWA, 2011), and the WA Offset Guideline (GoWA, 2014). The offset will be proportionate to the level of impact and significance of the environmental impact.

Main Roads operates on a hierarchy of avoid, minimise, reduce, rehabilitate and offset environmental impacts. This hierarchy is achieved primarily through changes in scope and design, development and implementation of avoidance and mitigation measures and finally, an offset proposal.

The environmental offset strategy will form the basis of an Environmental Offset Plan to be submitted for approval.

5.2 EPBC Act Environmental Offsets Policy (DSEWPaC, 2012)

The EPBC Act Environmental Offsets Policy (DSEWPaC, 2012a) requires the following Principles are met by an offset:

- Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the protected matter
- Suitable offsets must be built around direct offsets but may include other compensatory measures
- Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter
- Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter
- Suitable offsets must effectively account for and manage the risks of the offset not succeeding
- Suitable offsets must be additional to what is already required, determined by law or planning regulations, or agreed to under other schemes or programs
- Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable
- Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.

5.3 WA Environmental Offset Policy (GoWA, 2011)

The WA Environmental Offsets Policy (GoWA, 2011) requires the following Principles are considered when developing an offset proposal:

- Environmental offsets will only be considered after avoidance and mitigation options have been pursued
- Environmental offsets are not appropriate for all projects
- Environmental offsets will be cost-effective, as well as relevant and proportionate to the significance of the environmental value being impacted
- Environmental offsets will be based on sound environmental information and knowledge
- Environmental offsets will be applied within a framework of adaptive management

- Environmental offsets will be focussed on longer term strategic outcomes.

5.4 Residual impact

Residual impacts associated with the Proposal have been determined through application of the residual impact significance model detailed in the WA Environmental Offsets Guidelines (GoWA, 2014). Residual impacts for which Main Roads proposes environmental offsets are detailed in Table 5-1.

Table 5-1 Residual environmental impacts requiring offset

ENVIRONMENTAL ATTRIBUTE	RESIDUAL IMPACT
Western Ringtail Possum habitat	43.9 ha
Black Cockatoo (Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo) habitat	37.8 ha
Banksia Woodlands TEC	3.7 ha
Clay Pans TEC	0.7 ha

Main Roads has pursued a number of options in developing a package of offsets to counterbalance these residual impacts. The options investigated have comprised acquisition of land providing fauna habitat, creation of fauna habitat by on ground rehabilitation and provision of research funding. Several of the proposed offset sites will address the requirement for more than one offset attribute ie provision / creation of habitat for WRP and Black Cockatoos at a single site (Offsets 1, 2 and 3).

Table 5-2 provides an overview of the offset package under consideration, with offset property locations presented in Figure 16, Appendix A.

Table 5-2 Overview of proposed offset package

NO.	OFFSET TYPE	OFFSET SUMMARY	PROPERTY LOCATION	EXISTING TENURE
1	Land Acquisition	55 ha of existing native vegetation providing : <ul style="list-style-type: none"> • Banksia Woodlands TEC (to be confirmed) • WRP habitat • Black Cockatoo habitat 	Lot 2 Boyanup Picton Road	Freehold owned by the Commissioner of Main Roads
2	On-ground Management	Revegetation of 45 ha to provide habitat for WRP and Black Cockatoo species	Lot 104 Willinge Drive, Davenport	Freehold owned by the Commissioner of Main Roads
3	On-ground Management	Revegetation of 90 ha to provide habitat for WRP and Black Cockatoo species	Ludlow State Forest (SF No. 2)	Vested in the Conservation and Parks Commission

NO.	OFFSET TYPE	OFFSET SUMMARY	PROPERTY LOCATION	EXISTING TENURE
4	Land Acquisition	Purchase of land supporting 1.07 ha of herb rich Clay Pans TEC	Confidential	Privately owned freehold land
5	Research Projects	<p>Research projects are appropriate as an offset for the Proposal as there was a high degree of uncertainty regarding impacts of a Proposal and new science was required to develop better mitigation measures or predictive tools to avoid and minimise the particular type of impact</p> <p>Funding contribution to undertake a WRP Regional Survey. Objective of research was to better understand the WRP population throughout the species range through rigorous and robust field assessments.</p>		

5.5 Description of offsets

The components of the offset package are described below. Offset 1 has been subject to some detailed survey which has confirmed the presence of WRP and Black Cockatoo. Additional surveys are proposed for 2020 to confirm the extent of Banksia Woodlands TEC.

Preliminary offset calculations have been based on the Commonwealth DAWE Environmental Offset Calculator and EPBC Act Offset assessment guide.

The offset values for Offsets 1-4 have been based on the available information for each of the proposed offset

Given the habitat within the Proposal Area is likely to be used by all three Black Cockatoo species, rather than attempted to specify how much each species uses each offset site, for the purposes of calculating the offsets for impacts on the three Black Cockatoo species, the offset calculation was undertaken using the highest value for any of the attributes for any one of the three species.

Offset calculator inputs, background justification for inputs, and full calculations are provided in Appendix I.

5.5.1 Offset 1 – Lot 2 Boyanup Picton Road

Offset 1 comprises a 55 ha portion of Lot 2 Boyanup Picton Road (previously Lot 102 then Lot 5) which is shown at Figure 16 (Appendix A). Lot 2 is owned freehold by the Commissioner of Main Roads and was acquired with the intention of utilising the site vegetation as an offset for the BORR project A 22.3 ha portion was set aside as an offset for the existing BORR Stage 1 (BORR Central) constructed in 2013. Lot 2 directly abuts the existing BORR Central section of the current Proposal.

After purchase, Main Roads instigated the re-zoning of the property from rural to Regional Open Space under the Greater Bunbury Region Scheme (GBRS).

The property has been assessed by ground survey and shown to support habitat for a population of WRP (Biota, 2020). Lot 2 was used as a survey site for the WRP Regional Survey and is also used as a research site by the University of Western Australia for zoology students. The property has been shown to provide foraging habitat and potential breeding and roosting sites for Black Cockatoo species (GHD, 2014).

A site survey conducted in October 2013 (GHD, 2014) identified six main vegetation types within the property including:

- Dense Banksia woodland
- Jarrah, Marri, *Banksia ilicifolia* and Melaleuca woodland

- Agonis, Jarrah, Marri and *Banksia ilicifolia* woodland.

Additional site assessment is proposed in spring 2020 to confirm the proposed offset area vegetation conforms to Banksia Woodlands TEC.

Lot 2 was identified by the EPA (2008), being part of Investigation Area 11 as comprising regionally significant vegetation. The lot forms part of Recommendation Area B which the EPA (2008) recommended be reserved as Regional Open Space.

Main Roads propose that Offset 1 comprise a 55 ha portion of Lot 2 to address offset requirements for WRP, Black Cockatoo habitat and Banksia Woodlands TEC.

5.5.2 Offset 2 – Lot 104 Willinge Drive Davenport

Lot 104 is also owned freehold by the Commissioner of Main Roads and was purchased as a potential sand source and environmental offset site. Lot 104 occurs as two land parcels bisected by the existing BORR central section. Offset 2 comprises a portion of the 79.6 ha southern portion of the property.

Lot 104 is zoned as rural under the GBRS.

The majority of the property was previously the used as a commercial Blue Gum plantation with the timber harvested in 2017 and the land now essentially cleared with some small patches of remnant vegetation. Vegetation and flora assessment of the remnant vegetation over a portion of the proposed offset site (Ecoedge, 2018) noted that the Lot supports approximately 15 ha of good to degraded remnant native vegetation comprising:

- Jarrah, Marri, Peppermint and *Banksia attenuata* woodland.
- Jarrah, Peppermint and Banksia woodland
- Eucalyptus rudis and Corymbia calophylla over Melaleuca raphiophylla Woodland

The remnant vegetation within the proposed offset area has been shown to support a population of WRP (Biota, 2020).

The proposed offset site abuts the Preston River (to the west) and is traversed east to west by Gavins Gully (Reserve 31 866), which provides a vegetated linkage across the property from the east to the Preston River. The riparian woodland of the Preston River is represents a habitat linkage for WRP. The riverine woodland provides a corridor to a number of widely separated reserve areas occurring outside the Proposal Area (e.g. Manea Park and Franklandia Nature Reserve) (Biota, 2019).

As noted above, much of Lot 104 was previously used for a commercial Blue Gum operation with the timber being harvested in 2017 and the area now cleared. Main Roads proposes to rehabilitate and revegetate a 55 ha portion of the property to provide habitat for WRP and Black Cockatoo species. Revegetation flora species will be selected to provide habitat and foraging vegetation suitable for these fauna species and will be based on site parameters and selected in consultation with DBCA. This reflects the approach for similar offset revegetation works by Main Roads in the region.

Revegetation completion criteria will be determined with DAWE based on advice from DBCA.

Main Roads may excavate sand from the cleared areas of the Lot prior to implementing revegetation and rehabilitation works.

5.5.3 Offset 3 – State Forest No. 2

Offset 3 comprises the proposed revegetation of a 90 ha area of a degraded portion of State Forest No. 2 (SF No. 2) which is located approximately 10-15 km east of the Busselton town centre, and is the focus of an on-going revegetation program. The site is 35-40 km from the Proposal Area and also within the SCP IBRA sub-region.

The proposed rehabilitation works are congruent with the objectives of the *Tuart Forest National Park Management Plan* (TFNPMP) (DPaW, 2014) which are to:

- Protect and enhance the eastern wetland/tall tuart community transition zone.
- Protect and increase habitat for fauna that are highly represented in zones 5 and 6 (for example, WRP and brushtail possum).
- Enhance the resilience of this zone to disturbance and threatening processes.

Proposed management actions to achieve these objectives include:

“Re-establishing native vegetation in cleared areas, adapting management according to results of experimental trials.”

The exact location of the 90 ha revegetation site/s is yet to be agreed with DBCA, although Main Roads has ‘in principle’ agreement with DBCA to conduct additional offset revegetation works with SF No. 2. Potential offset areas are shown at Figure 16 (Appendix A).

The proposed offset is congruent with similar environmental offsets within SF No. 2 negotiated by Main Roads with DBCA, DWER and DAWE for other road projects. Similar to Offset 2, plant species will be selected to provide habitat for offset target species based on site parameters. Seed and seedling species will be selected in consultation with DBCA as per similar Main Roads offsets in SF 2.

Completion criteria will be determined with DAWE based on advice from DBCA in line with existing Main Roads revegetation environmental offset sites of SF 2.

Main Roads proposes to rehabilitate and revegetate a 90 ha portion of State Forest No. 2 to provide habitat for WRP and Black Cockatoo species.

5.5.4 Offset 4 – Land Acquisition

Main Roads is currently investigating the purchase of a 1.3 ha privately owned property that has been determined through ground survey (Ecoedge, 2019) to support vegetation that represent clay pans ecological communities. Site surveys conducted in 2019 did not clearly define the exact FCT that is present on the site, although indications are that it supports 1.07 ha of FCT08. Additional survey will be conducted in 2020 in consultation with DBCA to confirm the ecological community that is present.

Should the above offset site not be realised, Main Roads will further consult with DBCA to identify suitable offset for FCT08.

5.5.5 Offset 5 – Western Ringtail Possum Regional Survey

Main Roads has funded research on WRP through the WRP Regional Survey. The survey included sites over the range of the species from the SCP, Cape to Cape Region, Southern Forests and Great Southern (Albany area).

The survey methodology included line survey distance sampling as agreed with the West Australian WRP Recovery Team and DBCA. The purpose of the survey was to develop a robust abundance estimate of WRP in the survey sites, and a consistent approach to estimating WRP abundance.

The survey was aimed to significantly improve understanding of the conservation status of this species and redress the knowledge gap identified as a key threatening process in line with recommendations of the WRP Recovery Plan (DPaW, 2017).

Main Roads has funded the survey to a total of \$834,000 for the WRP survey population research. It is proposed that funding for the survey provides a 10% indirect offset for the Proposal’s significant residual impacts to WRP.

5.6 Monitoring and corrective action plan

Additional site assessment is proposed in spring 2020 to confirm the proposed offset areas meet all of the anticipated criteria for selection and consultation with DBCA. For offsets that include the proposed re-establishment of native vegetation in cleared areas, Main Roads will conduct experimental trials to inform the final plan for offset revegetation works in consultation with DBCA. If at any time corrective actions are required, corrective actions will be determined with DAWE based on advice from DBCA.

5.7 Offset completion criteria

Revegetation completion criteria will be determined with DAWE based on advice from DBCA. For the SF 2 offset, completion criteria are anticipated to be in line with existing Main Roads revegetation environmental offset sites of SF 2.