



Initial Offset Area Condition Report

Moranbah North Mine Extension

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1 Introduction

The Offset Area Management Plan approved on 6 August 2024 (OAMP) describes how Anglo American proposes to secure and manage biodiversity offsets for the Moranbah North Mine Extension (the Project) for approval (EPBC 2018/8338) issued under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) on 18 September 2020 (and varied on 28 February 2022).

The OAMP describes how significant residual impacts to Matters of National Environmental Significance (MNES) will be offset consistent with the *EPBC Act Environmental Offsets Policy*.

Section 9.1 of the OAMP requires that, by 30 June 2025, the Proponent submit to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) an Initial Offset Area Condition Report. The Report must be subsequently published on Anglo American's website.

The reporting period is from approval of the OAMP on 6 August 2024 to 30 May 2025 (Reporting Period).

This is the Initial Offset Area Condition Report for the Reporting Period for Section 9.1 of the OAMP.

1.1 The Project

The Moranbah North Mine is an underground metallurgical coal mine, located near Moranbah in the Bowen Basin of Central Queensland.

1.2 Offset Areas

To fulfil the requirements of the EPBC Act approval, two properties were proposed in the OAMP to acquit the Project's offset requirements:

1. Ellensfield 20 km north-east of the Project area; and
2. Oxford Downs 70 km east of the Project area.

On 17 March 2025, Anglo American submitted to the DCCEEW a request to vary the approved OAMP. The request is to replace the Oxford Downs property with the Picardy Station property (90 km south of the Project area) due to the Oxford Downs landholder withdrawing the property prior to commercial and legal arrangements being finalised. Currently, Anglo American and DCCEEW are in ongoing discussions regarding the variation request and approval of the variation to the OAMP is pending. As the varied OAMP has not yet been approved, this report provides a summary of the management actions across the Ellensfield property only.

The locations of the Ellensfield and Picardy Station properties are shown in Figure 1. The Ellensfield property will provide the offset for Koala, Greater glider and Squatter pigeon, while the

Picardy Station property will provide the offset for Ornamental snake. The selected properties are considered suitable to provide the values required to address the approval requirements.

1.3 The Purpose

In accordance with section 9.1 of the OAMP, the purpose of this Initial Offset Area Condition Report is to detail the following:

- Survey sites /photo point (including coordinates);
- Offset condition outcomes, including habitat quality scores, condition of habitat and results of surveys; include specific riparian zone assessment;
- Weed and pest animal status over the period; and
- Effectiveness of management actions.



Figure 1 Moranbah North Offset Areas

2 Methods

2.1 Field Assessment

An assessment to determine baseline values for the Ellensfield property offset area was completed by E2M and Published in December 2021. This assessment forms the basis of this Initial Offset Area Condition Report.

The assessment targeted the following:

- Habitat for four threatened fauna species
 - Koala (*Phascolarctos cinerus*);
 - Greater glider (*Petauriodes volans*);
 - Squatter pigeon (southern subspecies) (*Georphaps scripta scripta*); and
 - Ornamental snake (*Denisonia maculata*).
- Regulated Vegetation
 - 'of concern' regulated vegetation (listed under the *Vegetation Management Act 1999*); and
 - Regulated vegetation within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map as defined by the Queensland Environmental Offsets Regulation 2014 within BVG 17a and BVG18b (watercourse regulated vegetation).

Refer to section 3 of this document for the field assessment results of the above targeted surveys.

2.2 BioCondition Assessments

E2M and Earthtrade completed a total 59 BioCondition assessments across 'range country'; and the 'lower country'.

Vegetation data was collected within 100 x 50 m areas (including various sub-plots) for each representative vegetation community and weighted in accordance with the BioCondition Manual and compared to BioCondition benchmark values obtained from the published Brigalow Belt Bioregion benchmarks for each respective RE.

A summary of the site and spatial attributes that were assessed, plot area and associated weighting is summarised in Table 1.

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Table 1 Biocondition Assessment

Attribute	Description	Assessment Plot	Maximum score
Site Based Attributes			
Large Trees	Number of large trees determined by existing BioCondition benchmarks for the associated RE.	100 m x 50 m	15
Tree Canopy height	Median canopy height in metres of the ecologically dominant layer.	100 m x 50 m	5
Recruitment (%)	The proportion of overstorey species present at a site that are regenerating (<5 cm diameter at breast height (DBH))	100 m x 50 m	5
Tree Canopy Cover (%)	Vertical projection of the tree canopy crown cover along a transect.	100 m transect	5
Shrub Layer Cover (%)	Vertical projection of the shrub layer cover of native shrubs.	100 m transect	5
Coarse woody Debris	The length of fallen woody logs and other coarse woody debris (>10cm diameter and >0.5m in length) per hectare.	50 m x 20 m	5
Native plant species richness	Native plant species richness, comprising all life forms (i.e. trees, shrubs, grasses and forbs/other).	100 m x 50 m (trees) 50 m x 10 m (shrubs, grasses, forbs/other)	5 5 each
Non-native plant cover	Percentage cover of non-native/weed plant species.	50 m x 10 m	10
Native perennial grass cover (%)	Average percentage cover of native perennial grass species.	Five 1 m x 1m	5
Site-based attributes			
Litter cover	The average percentage cover of organic material such as fallen leaves, twigs and branches <10cm diameter.	Five 1 m x 1 m	5
Site context attributes			
Size of patch	The size of the patched assessed and associated	-	10

Attribute	Description	Assessment Plot	Maximum score
	directly connecting remnant vegetation.		
Connectedness	The proportion of the site's boundary that is connected to remnant vegetation.	-	5
Context	The percentage of remnant and regrowth vegetation within 1km buffer of the site.	1 km buffer	5
Ecological corridors	Proximity to ecological corridors (riparian or terrestrial) identified Queensland biodiversity and vegetation offsets special features map.	-	6

2.3 Habitat Quality Assessments

The BioCondition assessment data feeds into the Habitat quality analysis which is conducted in accordance with the *Guide to Determining Terrestrial Habitat Quality Version 1.3* (referred to as the Habitat Quality Guide) (DES,2020).

The Habitat Quality Guide incorporates landscape scale data, site-based vegetation attribute data and fauna species-specific habitat data into the assessment to provide a condition score out of 10.

2.4 Target Fauna Surveys

The target fauna surveys and respective habitat assessments, record the species-specific habitat attributes within the OAMP following the methodology in the Habitat Quality Guide (DES,2020). Target fauna species specific habitat attributes included:

- Quality and availability of food and foraging habitat including composition and cover (%) of koala food tree species as well as gilgai presence and depth;
- Quality and availability of dispersal habitat, movement corridors, etc.; and
- Presences/absence of threats.

Targeted fauna species surveys were conducted in accordance with the approved Queensland and Commonwealth methods.

- Active, diurnal searches for squatter pigeon and koala and/or indirect evidence of koala (i.e. scratches and scat) within suitable habitat;
- Nocturnal, spotlighting transects were undertaken by vehicle and on foot within suitable koala and greater glider habitat over two nights; and
- Opportunistic observations.

2.5 Survey Limitations

Ecological surveys have a range of inherent limitations associated with seasonal timing of the survey, variable climate conditions and species behaviour. As such, the survey conducted represents a “snapshot” in time and may not provide a true indication of presence or absence of flora and fauna species within the survey area.

The survey period was considered outside of the ornamental snake survey season and therefore the species was not targeted. Habitat suitability assessments for the species were conducted as a proxy for targeted surveys.

3 Field Assessment results

3.1 Threatened Fauna Species

Two threatened fauna species, squatter pigeon and greater glider, were confirmed as present within the offset area during the field survey and evidence of koala was identified from scratches on trees.

3.1.1 Koala

Studies of koala distribution, habitat utilisation and diet in central Queensland identified *Eucalyptus populnea*, *E. coolabah*, *E. tereticornis* and *E. crebra* or *E. drepanophylla* as preferred foraging species for koalas in the region (Ellis et al., 2018; R. Melzer, 2014). *E. camaldulensis* and *E. tereticornis* are also considered primary food trees within the Isaac Regional Council LGA (Australian Koala Federation [AKF], 2015).

E. populnea, *E. camaldulensis* and *E. tereticornis* occur within the riparian woodlands in the 'lower country' of the offset area (i.e. RE 11.3.2, 11.3.4 and 11.3.25); whereas *Eucalyptus crebra* is the dominant species in RE 11.10.7 in the 'range country'. Evidence of koala (Figure 2) was observed at numerous locations along riparian corridors within the offset area although no individuals were directly observed during the field survey.

The offset area provides approximately 7,161.03 ha of suitable koala habitat including remnant and regrowth RE 11.3.2, RE 11.3.4, RE 11.3.25, RE 11.5.9, RE 11.9.7, RE 11.9.9 and RE 11.10.7.



Figure 2 Observed Koala Scratches

3.1.2 Greater Glider

Greater glider habitat is largely restricted to eucalypt forests and woodlands. The species' diet comprises eucalypt leaves and sometimes eucalypt flowers (TSSC, 2016). During the day, greater

gliders shelter in large tree hollows and a strong correlation exists between the number of large hollows abundance and the number of greater gliders (Andrews et al., 1994). They are typically found at their highest abundance in montane, moist eucalypt forests that are mature and have large trees with hollows (TSSC, 2016). In southern Queensland, greater gliders require a minimum of 1-2 hollow bearing trees per ha (Eyre, 2002). The greater glider also favours a diverse range of eucalypt species within their local range because of variability in food preference across seasons (Kavanagh, 1984).

Three greater glider were observed at three locations within riparian areas (RE 11.3.25) fringing drainage lines during the field surveys (Figure 3). A number of large, hollow bearing trees, ranging between 1-12 hollows/ha, were observed throughout the offset area in association with eucalypt dominated woodlands.

The offset area provides approximately 7,088.00 ha of suitable greater glider habitat within remnant communities of RE 11.3.2, RE 11.3.4, RE 11.3.25, RE 11.5.9, RE 11.9.7, RE 11.9.9 and RE



Figure 3 Greater gliders observed within the offset area

11.10.7

3.1.3 Squatter Pigeon

The squatter pigeon (southern) is a ground-dwelling pigeon that occurs from the dry tropics of central Queensland to the southeast of the state. Squatter pigeon (southern) foraging and breeding habitat consist of remnant or regrowth open-forest to sparse, open-woodland or low-

woodland dominated by Eucalyptus, Corymbia, Acacia or Callitris species on land zone 5 and land zone 7 (DAWE, 2021; Squatter Pigeon Workshop, 2011).

Four squatter pigeons were recorded at two locations during the field survey within the offset area. The squatter pigeons were observed foraging within RE 11.3.4. An additional four birds were observed at two locations outside of, but adjacent to, the offset area within RE 11.5.3 in on-remnant vegetation (Figure 4).

The offset area provides approximately 7,977.22 ha of suitable squatter pigeon habitat within remnant and regrowth REs 11.3.2, 11.3.4, 11.3.25, 11.5.9, 11.7.2, 11.9.7, 11.9.9 and 11.10.7.



Figure 4 Squatter pigeon observed outside/adjacent to the offset area

3.1.4 Ornamental Snake

Ornamental snake are typically associated with gilgai (a.k.a. melon holes) in clay soils that become inundated during the wet season and create foraging opportunities for the snake's main prey (frogs). As the gilgai dry, deep cracks form in the clay and provide refuge habitat for the species during cooler months. Additionally, the SPRAT database includes woodlands and open forest associated with moist areas such as lake margins and wetlands as ornamental snake habitat (Department of the Environment, 2014).

Potential ornamental snake habitat mapped within the offset area is based on REs listed as 'essential habitat' by the Queensland Department of Resources (DoR) (2021) and includes 1,114.87 ha of remnant REs 11.3.2, 11.3.4, 11.3.25, 11.9.5 and 11.9.7, most of which occur along drainage lines in the lower country

3.2 Ecological Function

3.2.1 Introduced/Non-Native Wildlife

Five weed species listed as Weeds of National Environmental Significance (WoNS) and under the Queensland *Biosecurity Act 2014*, were identified within the offset area. Generally, weed species were observed as scattered individuals across the offset area.

Wild dogs, feral cats and cane toas were also observed during the field survey.

3.2.2 Wetlands and watercourse features

The offset area contains a number of mapped watercourse, including the North Creek and Carborough Creek and numerous ephemeral tributaries.

Riparian corridors contained fringing, remnant woodlands and open forest with the ground layer dominated by a variety of introduced grass and forb species.

3.2.3 Corridors and connectivity

The offset area is located within fragmented landscape due to agricultural and mining activities. The offset is bounded to the east and west by cleared pastoral land and open-cut coal mines.

Retained remnant vegetation is largely confined to riparian and roadside corridors. The landscape to the north and south remains relatively intact and supports remnant vegetation along the Carborough and Kerlong Ranges which forms part of a state significant biodiversity corridor.

4 Habitat Quality Assessment

4.1 Landscape-Scale Attribute Scores

Table 2 outlines the landscape-scale attribute scores. All offset areas scored highly due to the largely intact nature of the surrounding landscape.

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Table 2 Landscape-scale attributes of the offset area

Offset Area	Patch Score	Connectivity Score	Context Score	Ecological Corridor	Total Score (max 20)
Range country (northern jump-up)	10	5	5	State terrestrial corridor	20
Range country (southern jump-up)	10	5	4	No mapped corridor	19
Lower country	10	5	5	No mapped corridor	20

4.2 Site-attribute scores

Table 3 and Table 4 outlines the site-attribute scores for each assessment unit using BioCondition assessment survey data creating a BioCondition score and subsequent Habitat Quality score out of 10.

Table 3 Site-attribute scores for each AU

AU	RE	Class	BVG	Area (ha)	Site-attribute score
1	11.3.2	Remnant	17a	208.30	4.54
2	11.3.2	Regrowth	17a	73.03	4.11
3	11.3.4	Remnant	16c	125.44	6.49
4	11.3.25	Remnant	16a	141.06	5.80
5	11.5.9	Remnant	18b	388.66	6.74
6	11.7.2	Remnant	24a	816.19	7.63
7	1..9.5	Remnant	25a	80.72	7.33
8	1..9.5	Regrowth	25a	79.77	3.52
9	11.9.7	Remnant	17a	441.15	7.27
10	11.9.9	Remnant	13c	119.15	7.50
11	11.10.4	Remnant	12a	991.18	6.76
12	11.10.7	Remnant	12a	4711.49	6.06

Table 4 Assessment units per target protected matter

Target protected matter	AU	Matter Area (ha)	Site-attribute score (/10)
MNES			
Poplar box TEC (potential)	1 and 2	281.33	4.43
Brigalow TEC (potential)	7 and 8	160.49	5.43
Koala	1, 2, 3, 4, 5, 9, 10, 11 and 12	7,161.03	6.22
Greater glider	1, 3, 4, 5, 9, 10, 11 and 12	7,088.00	6.24
Squatter pigeon	1, 2, 3, 4, 5, 6, 9, 10, 11, and 12	7,977.22	6.37
Ornamental snake	1, 3, 4, 7, 8, and 9	1,114.87	6.24

The vegetation attributes contributing to a decrease in BioCondition score include:

- Low native grass and native forb species richness and cover;
- High non-native plant cover;
- Selective clearing, thinning and dieback of large trees resulting in low tree densities; and
- Low coarse woody debris cover, potentially due to trampling from cattle and historical clearing and thinning of leaves.

4.3 Species-specific habitat attribute scores

Species specific habitat attribute scores indicate the ability of the habitat with the disturbance footprint to support a particular fauna species.

Table 5 covers the key species.

Table 5 Fauna Species-Specific Habitat Attribute Scores

Species	Average Species-specific habitat attribute score (max 10)
Koala	8.00
Greater glider	6.20
Squatter Pigeon	7.78
Ornamental snake	4.38

5 Conclusion

E2M conducted an ecology survey of the Ellensfield offset area to evaluate the condition of the environment to support a series of targeted MNES:

- Koala habitat;
- Greater glider habitat;
- Squatter pigeon habitat;
- Ornamental snake habitat; and

The survey confirmed the presence of Koala, greater glider and squatter pigeon. Targeted ornamental snake surveys will be undertaken within vegetation communities during suitable survey conditions.

In summary, the Ellensfield offset area is suitable to support koala, greater glider and squatter pigeon habitat.

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