

CHAPTER 12 ECOLOGY

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12 ECOLOGY

This chapter provides an assessment of potential impacts on ecological values of the site and surrounding area resulting from the Project.

This assessment and chapter was completed by ERM.

12.1 INTRODUCTION

The Project Area is highly disturbed and modified with little habitat value. Almost all native vegetation had been removed by previous mining activities over the last century. A number of ecological impact assessments have been conducted at the site by ERM. This chapter provides a summary of these studies together with an assessment of the potential impacts of the Project Area on the local environment.

12.2 METHODOLOGY

A review of past ecological assessments undertaken for trial mining at CML7 (ERM 2001), exploration decline development at CML7 (ERM 2006) and temporary mining of remnant ore in the base of Kintore Pit (ERM 2007) was conducted. This approach is justified as no notable alterations to habitat at the site have occurred, and previous assessments were within a similar footprint to the Project and were undertaken as recently as 2006.

As part of the assessment conducted by ERM (ERM 2001), ecologists undertook a field investigation over two days and two nights. The assessment included vegetation mapping, assessment of fauna habitat value and flora and fauna surveys targeting threatened species having potential to occur within the Project Area. Derelict mine shafts were investigated by a specialist bat consultant to determine whether any bats were present and the suitability of mine shafts as bat roosts was assessed. A database search of the DECC Wildlife Atlas and a review of the Broken Hill LGA Baseline State of Environment Report 2000 (Terra Consulting, 2000) was undertaken to ascertain the likelihood of any threatened species occurring within 10 km of the site (the 'locality').

ERM (ERM 2006) conducted an additional search of the DECC wildlife atlas, a Department of the Environment and Water Resources online search for Matters of National Environmental Significance (EPBC Act, 1999) and reviewed the Corkery (2004) *Broken Hill LGA State of the Environment Report 2004*. To determine whether any additional threatened species had been listed on the schedules of the TSC Act and EPBC Act since the 2001 study.

12.3 EXISTING ENVIRONMENT

12.3.1 Flora

The Project Area is highly disturbed as a result of mining activities. Most of the area is occupied by rubble and mine waste rock and tailings. It is vegetated with sparsely scattered introduced weed species. There are some individual trees, including introduced species such as figs (*Ficus* sp.) oleander, wild tobacco and pepper trees, adjacent to buildings and infrastructure and on waste dumps.

Native vegetation is restricted to small isolated patches of woodland, saltbush and rocky grassland at the site perimeters and along roadside verges, as shown on *Figure 12-1*. Vegetation along roadside verges also comprise planted Western Australian eucalyptus. These communities are outside the development footprint.

The woodland communities occur at the south-western (west of the railway line) and north-eastern extents of the Project Area (*Figure 12-1*). These communities are sparsely vegetated with canopy vegetation of Eucalypts (*Eucalyptus* spp.) and a shrub and groundcover layer of Mulga (*Acacia aneura*), Old Man Saltbush (*Atriplex nummularia*), Bluebush (*Maireana* spp.), Copperburr (*Bassia* spp.) and Wiregrass (*Aristida* spp.).

Saltbush communities within the Project Area are almost monospecific stands of Old Man Saltbush and Bluebush species to the north of South Road, in the north-western corner of the mine lease (*Figure 12-1*).

Several areas on rocky foot-slopes contain grasses such as wiregrass and Barley Grass (*Hordeum leporinum*), with scattered mulga and old man saltbush. This community occurs south of Holten Drive (*Figure 12-1*) and outside of the Project Area.

These communities will not be removed for the Project. Progressive rehabilitation with the establishment of an olive grove has been undertaken over an area previously used as a water storage dam. This located adjacent to South Road and one of the old man saltbush communities.

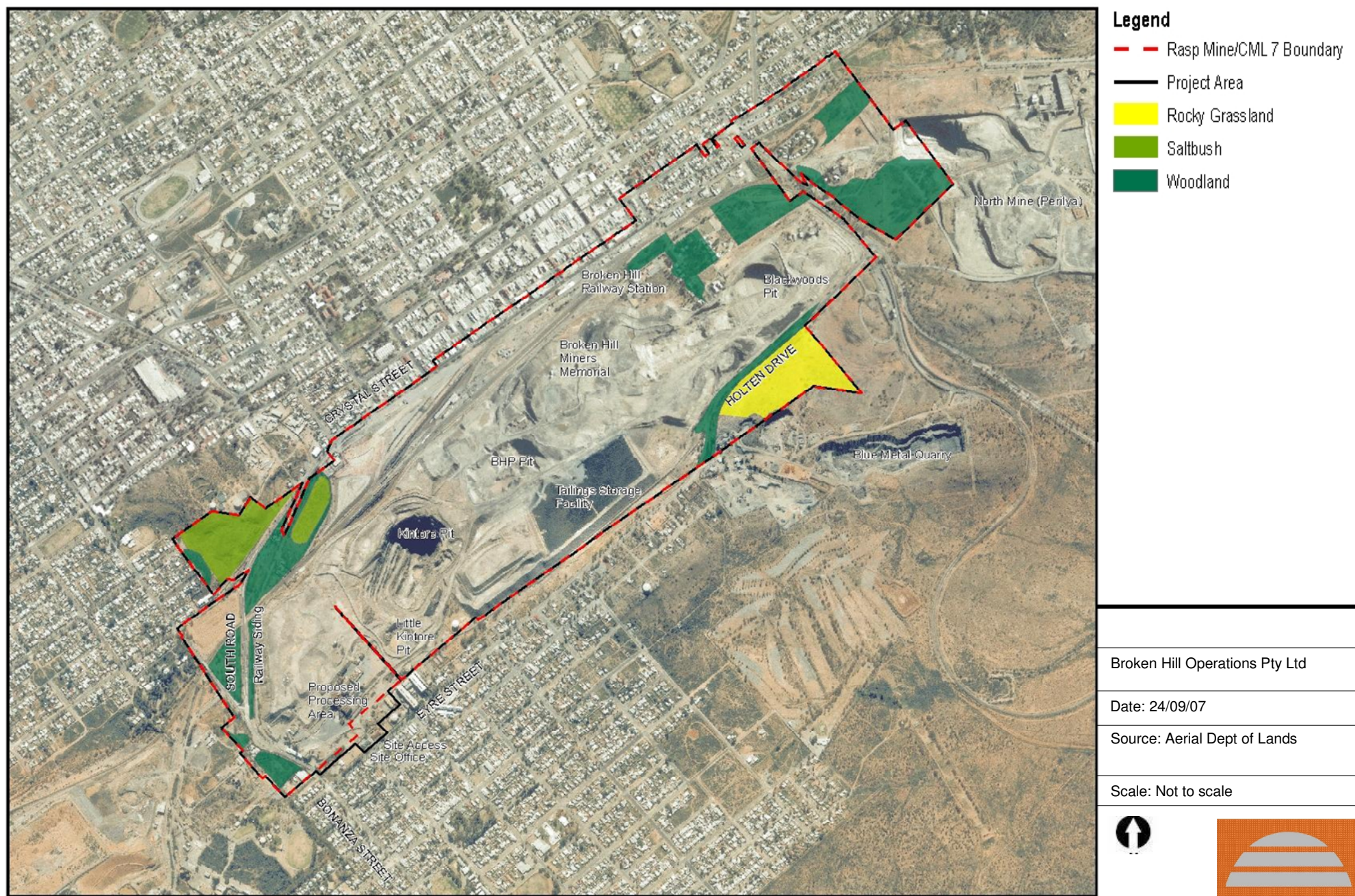
Prior to the Annual Environment Management Meeting meeting in 2009, there had been no record of declared weeds being identified within the mine site. During a site tour declared weeds were identified, *mesquite* (*Prosopis* spp.). BHOP engaged an appropriately qualified contractor to survey the site and identify and remove these and any other declared weeds. Weed surveys are now scheduled annually to ensure weeds are identified and eradicated. Training of the workforce has also take place to ensure employees are aware of the reporting requirement for declared weeds.

12.3.2 Endangered Ecological Communities

In March 2006, the Scientific Committee of NSW made a preliminary determination to list old man saltbush shrubland in Western NSW (ecological community dominated by stands of old man saltbush), as an endangered ecological community. However the final determination rejected this proposal as there was insufficient information to support its endangered status.

Sparse stands of vegetation dominated by old man saltbush have been recorded within the Project Area. This community is to the north of South Road, outside the proposed development footprint (refer *Figure 12-1*) and will not be removed for the Project. Given the paucity of native species recorded within these areas, ERM (ERM 2006) concluded that it is unlikely that the old man saltbush community at the site would be representative of the community described by DECC (2006).

Figure 12-1 Vegetation communities previously mapped in the Project Area



12.3.3 Fauna

One bat species, the common Inland Freetail Bat (*Mormopterus planiceps*), was recorded at the site during the 2001 bat survey (ERM 2001). It was assumed to be roosting in the headframe above Browne Shaft or in corrugated iron of site buildings. In addition, the White-striped Freetail Bat (*Nyctinomus australis*) was heard flying overhead at Thompson Shaft. Thompson Shaft and Browne Shaft are located in the north-eastern portion CML7 and not within the Project disturbance area and therefore will not be impacted by the Project.

Other vertebrate fauna species recorded on-site by ERM (ERM 2001) were 14 common bird species and one mammal species, the Feral Goat (*Capra hircus*). Only the Feral Pigeon (*Columba livia*), House Sparrow (*Passer domesticus*) and Welcome Swallow (*Hirundo neoxena*) were observed to utilise the general landscape of the mine site. No reptile or amphibian species were recorded.

12.3.4 Fauna habitat

The Project Area is surrounded by urban commercial and industrial areas and there is little native vegetation cover. No tree hollows have been identified on-site and groundcover (e.g. fallen branches) is generally sparse. The small isolated woodland patches have little value as fauna habitat. Previous ecological studies identified that there was very little foraging, nesting or roosting habitat for fauna at the site, though the existing mine buildings provide some potential roosting habitat for bats. The mine shafts are considered to be unsuitable roosting habitat for bats as their steel capped roofs provide limited or no access and updraught of airflow containing highly sulphurous fumes was noted at some shafts (Greg Richards and Associates Pty Ltd, 2001). For these reasons, the Project Area is considered to be of low habitat value for native flora and fauna.

12.3.5 Likely occurrence of threatened species and migratory species

ERM (ERM 2006) and ERM (ERM 2001) did not identify any threatened flora or fauna, including threatened bat species, as occurring or having the potential to occur within the Project Area.

Three fauna species listed under the TSC Act as endangered, Painted Snipe (*Rostratula benghalensis australis*), Australian Bustard (*Ardeotis australis*) and Greater Stick-nest Rat (*Leporillus conditor*), and five species listed as vulnerable, Blue-billed duck (*Oxyura australis*), Major Mitchell cockatoo (*Cacatua leadbeateri*), Redthroat (*Pyrrholaemus brunneus*), Little Pied Bat (*Chalinolobus picatus*) and Western blue-tongued lizard (*Tiliqua occipitalis*), have been recorded within a 10 km radius of the centre of the Project Area. In addition four species listed under the EPBC Act as vulnerable, the Thick-billed Grasswren (*Amytornis textiles modestus*), Australian Painted Snipe (*Rostratula benghalensis s. lat.*), Eastern Long-eared Bat (*Nyctophilus timoriensis*) and Murray Cod (*Maccullochella peelii peelii*), have been recorded within the LGA but not in the Project Area. Three migratory birds listed under the EPBC Act are identified as having potential to be in the LGA. These threatened and migratory fauna species have not been recorded in the Project Area and are unlikely to occur due to a lack of suitable habitat.

There are no threatened flora species currently recorded in the Project Area.

12.4 IMPACT ASSESSMENT

The Project Area is highly disturbed and modified, with little value as habitat for native species having been mined for over a 125 years. No additional trees, areas of native vegetation or mine buildings (which provide potential roosts for bats) will be removed. The Project will impact on some mine shafts by changing ventilation. However, as discussed in Section 12.3.4, these mine shafts are unlikely to provide suitable habitat for bats, known to occur in the locality.

No threatened or migratory species or endangered ecological communities listed under the TSC Act or EPBC Act were recorded at the site during past investigations and their likely occurrence is considered to be low due to a lack of suitable habitat. The old man saltbush ecological community recorded at the site is not listed as endangered and it will not be removed as part of the Project. Therefore, no assessments of impact (Seven Part Tests or Species Impact Statements) are considered necessary.

Therefore, the Project is unlikely to directly or indirectly impact native flora or fauna.

12.5 MANAGEMENT MEASURES

The Project is not expected to impact any native flora or fauna, including threatened species, migratory species or endangered ecological communities, and therefore no management or monitoring measures are warranted.

With the discovery of a declared weed species within the Rasp Mine in 2009, annual surveys are now scheduled to identify and eradicate declared weeds from the site.

12.6 CONCLUSIONS

The Project is not anticipated to impact any native flora or fauna species. In regards to addressing the key thresholds set out in Step 5 of the *Draft Guidelines for Threatened Species Assessment under Part 3A of the Environmental Planning and Assessment Act 1979* (DEC and DPI, 2005), it is concluded that the Project:

- will not impact on biodiversity values of the Project Area;
- will not reduce the long-term viability of a local population of any threatened species, population or endangered ecological community;
- will not accelerate the extinction of threatened species, populations or ecological communities; and
- will not adversely affect critical habitat.