



Mt Gibson Iron Ore Mine and Infrastructure Project

Extension Hill & Extension Hill North Malleefowl Management Plan

Mount Gibson Mining Limited & Extension Hill Pty Ltd

12 July 2013

Malleefowl Management Plan

Mt Gibson Iron Ore Mine and Infrastructure Project

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Malleefowl Management Plan

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Date 12 July 2013

Prepared for Mount Gibson Mining Limited and Extension Hill Pty Ltd

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ATA Environmental, Maunsell Australia and GHD Pty Ltd prepared Revision C of the Mt Gibson Iron Ore Mine and Infrastructure Project – Extension Hill and Extension Hill North Malleefowl Conservation Plan dated 14 August 2007.

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Executive Summary

Mount Gibson Mining Limited (MGM) and Extension Hill Pty Ltd (EHPL) are joint proponents of the Mount Gibson Iron Ore Mine and Infrastructure Project (the Project) that has been approved under the Western Australian *Environmental Protection Act, 1986* (WA Ministerial Statement 753, 24 October 2008, and subsequent minor amendments). Under the bilateral agreement with the State and Commonwealth, the Project impact assessment process included assessment of two controlled actions under the *Environmental Protection and Biodiversity Conservation Act, 1999* specifically in regards to listed threatened species and communities (sections 18 and 18A) and listed migratory species (sections 20 and 20A) (EPBC 2005/2381). Approval was granted on the 18 December 2007 subject to a series of conditions relating to the listed flora species *Darwinia masonii* and the listed fauna species *Leipoa ocellata*. This Malleefowl Management Plan has been prepared to comply with Condition 2 in relation to the management and monitoring of *Leipoa ocellata* (Malleefowl).

The objective of this Malleefowl Management Plan is to maintain the abundance, diversity and productivity of Malleefowl in the vicinity of the Extension Hill mine in the northern and eastern part of the Mt Gibson Ranges.

The desired outcome of this Plan is to ensure that the construction and operation of the mine, services corridor and associated infrastructure will have a minimal impact on the respective Malleefowl populations. Management activities are aimed at the prevention of significant reductions in the number of Malleefowl over the life of the mine in these areas, and management of introduced species which may lead to an increase in the local Malleefowl population. Management commitments include:

- Staff will be made aware of the presence and importance of Malleefowl in the Project area.
- Clearing of known Malleefowl habitat will be avoided wherever practicable.
- Clearing that will impact on Malleefowl mounds will be undertaken outside the mound building and egg incubation period wherever practicable.
- A buffer zone of 250m will be placed around active and inactive mounds (where practicable) and these buffer zones will be operationally restricted access areas.
- Those activities that tend to attract predators to an area, such as putrescible waste disposal, will be carefully managed.
- MGM and EHPL will work with neighbouring stations to create an effective introduced species monitoring and management program to identify and implement the most effective means of reducing the impact on Malleefowl of both predation and resource competition by introduced species.
- MGM and EHPL will collaborate with the local community and interested parties including the Northern Central Malleefowl Preservation Group, Australian Wildlife Conservancy, Bush Heritage Australia and the Department of Environment and Conservation to ensure a regional approach is taken to the management of Malleefowl in the vicinity of the Mount Gibson Ranges.
- The number of active Malleefowl mounds on the Extension Hill Pty Ltd tenements will be monitored annually. The monitoring program is designed to identify changes in the number of active mounds, with a focus on determining the cause of declining activity. That is, if it is mine related or indicative of unfavourable seasonal conditions for nesting. Where it is determined to be a result of direct or indirect mining activity, remedial actions will be investigated and discussed with the North Central Malleefowl Preservation Group, DEC and DSEWPC to find ways to reverse the trend or remove the vectors causing the decline.

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1.0 Introduction

1.1 Background

Mount Gibson Mining Limited (MGM) and Extension Hill Pty Ltd (EHPL) (the proponents) are developing the Mt Gibson Iron Ore Project (the Project) in response to global demand for iron ore. The project is located at Extension Hill and Extension Hill North within the Mt Gibson Ranges 350 km north-east of Perth, 87 km east of Perenjori and 71 km south and west of Paynes Find in Western Australia. The Project layout is shown in Figure 1 (note that this figure shows the proposed disturbance area but vegetation clearing is currently restricted to not more than 1,179ha within this area at the mine site, rather than the entire area).

Live Malleefowl (*Leipoa ocellata*) and active breeding mounds were found in the vicinity of the Mt Gibson Ranges in 2005 (ATA Environmental, 2005a) and through subsequent targeted site searches, pre-clearance checks and annual monitoring surveys. Malleefowl are protected under Commonwealth and WA State legislation. They are listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and as a Schedule 1 species under the Western Australian *Wildlife Conservation (Specially Protected Fauna) Notice 2012(2)* (Government Gazette, WA 2012).

The Project has been the subject of a Public Environmental Review (PER) process under Part IV of the WA *Environmental Protection Act 1986* with a formal impact assessment being conducted under the bilateral agreement between the State and Commonwealth. A report and recommendations were made by the WA Environmental Protection Authority setting down draft Approval Conditions (EPA Bulletin, 1242, November 2006) and this was followed by environmental approval by the Western Australian Minister for the Environment, 24th October 2007 (MS 753). The Commonwealth approval was finalised on the 18th December 2007 (EPBC 2005/2381). The Project is considered to be a "Controlled Action" under the *EPBC Act 1999*.

In preparing this Plan, the proponents have liaised with relevant officers from the Department of Environment and Conservation (DEC), Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) (*previously known as Dept of Environment, Water, Heritage and the Arts*), the owners/leasees of properties adjoining the mine site at Mt Gibson and Ninghan Stations and with the North Central Malleefowl Preservation Group.

1.2 Structure and Content of this Plan

The remainder of this Management Plan is structured as follows:

- Section 2 Potential Development Impact
- Section 3 Approval Conditions
- Section 4 Key Objectives and Targets
- Section 5 Management Strategies

1.3 Scope of this Plan

This Plan addresses the management of Malleefowl in the vicinity of the mine site and the area covered by the mining leases as part of the Mt Gibson Iron Ore Project. It also covers the services corridor that runs from the minesite, 280 km to the Port of Geraldton. It addresses Malleefowl management during the following phases to the project:

- The construction phase of the hematite project, which has been completed;
- The construction phase of the magnetite project, likely to commence in 2014 and extending over a two year period;
- The mining and processing operational phase, which commenced in December 2010 and is likely to last a minimum of 40 years; and
- The post-mining phase, following completion of mining and rehabilitation.

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The Plan does not address the management of Malleefowl on the Tathra borefield or Geraldton Port components of the project.

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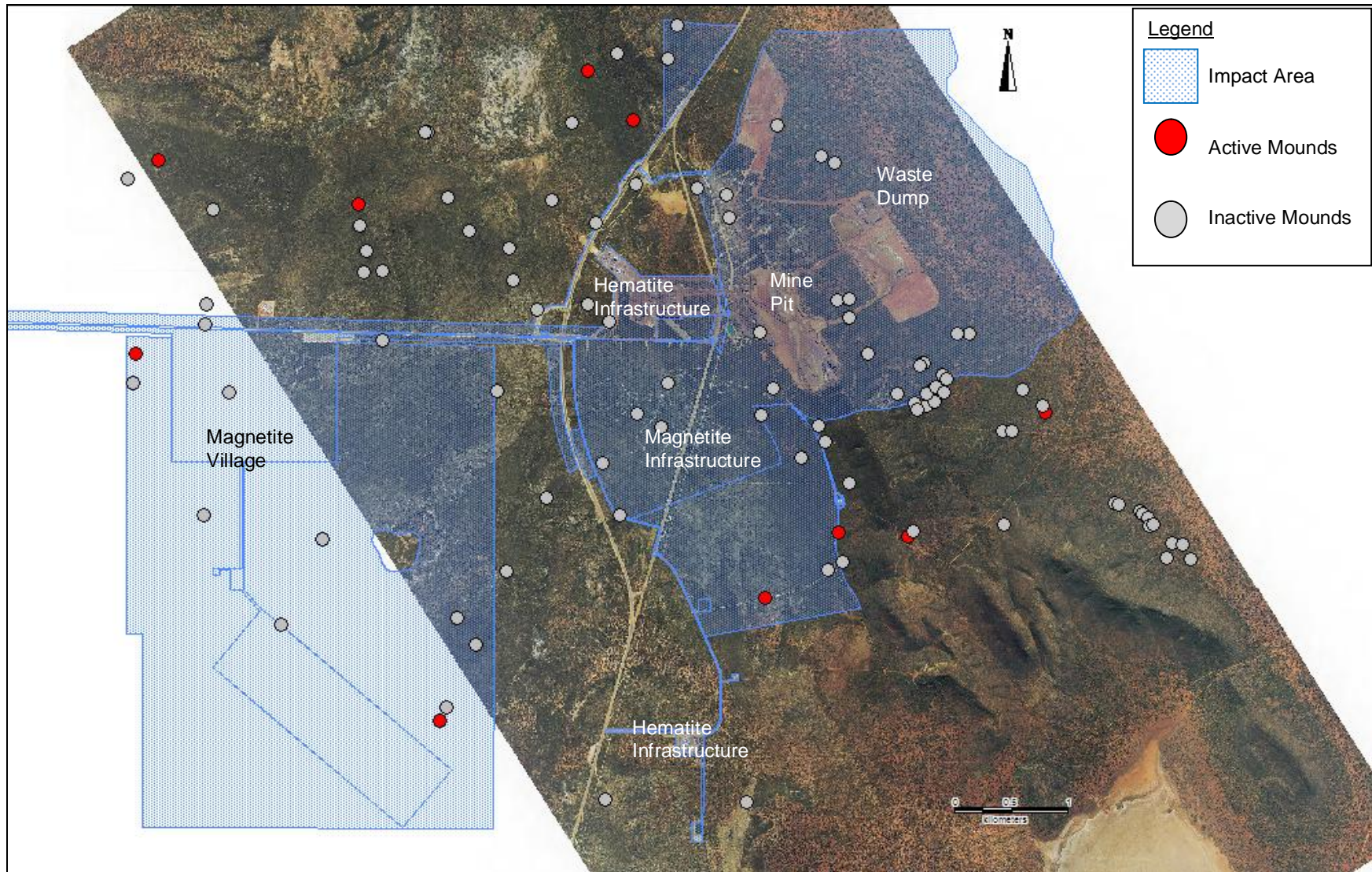


Figure 1 Project impact areas and Malleefowl mound locations

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1.4 Relevant Legislation

1.4.1 Environment Protection and Biodiversity Conservation Act 1999

Malleefowl are listed as Vulnerable under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999* and the Project is considered a Controlled Action (Referral No 2005/2381).

1.4.2 Wildlife Conservation Act 1950

Malleefowl are listed as a Schedule 1 species under the Wildlife Conservation (Specially Protected Fauna) Notice 2012(2).

1.5 Existing Environment

The Mt Gibson Ranges occur on the boundary of the Austin Botanical District of the Eremaean and the Avon Botanical District of the Southwest Botanical Provinces (Beard, 1990). It is located in the Avon Wheatbelt bioregion (McKenzie *et al.*, 2003), but it is near the junction of both the Yalgoo and Coolgardie Interim Biogeographical Regional Assessment (IBRA) bioregions. The region has been recognised for its biological diversity (Vital Options Consulting, 2004).

The Avon Wheatbelt is an area of active drainage dissecting a tertiary plateau in Yilgarn Craton (McKenzie *et al.*, 2003). ATA Environmental (2005b) undertook a Level 2 fauna assessment of the proposed mining site in 2004.

The adjoining pastoral leases are managed for conservation purposes. The Australian Wildlife Conservancy (AWC) manages the Mt Gibson pastoral lease with an emphasis on habitat recovery for fauna reintroduction. Charles Darwin Reserve (formerly White Wells pastoral lease) is managed by Bush Heritage Australia (BHA). The Ninghan pastoral lease is owned by the Pindiddy Aboriginal Corporation (PAC). A portion of Ninghan Station and a small portion of Mt Gibson Station has been identified as an Indigenous Protection Area (IPA) with the management objective for the IPA area being income based on conservation activities rather than pastoral activities.

Malleefowl have been recorded in the general vicinity of the Mt Gibson mine site in the Yalgoo, Avon Wheatbelt and Coolgardie Bioregions. Observations of Malleefowl within in the bioregions have been recorded by ATA Environmental, North Central Malleefowl Conservation Group, Birds Australia, Professor Harry Recher, WA Museum and Australian Wildlife Conservancy (Figure 2).

1.6 Site Description

The Project mine site has a diverse range of vegetation communities comprising of six woodlands, four mallee, 12 thicket and two heath communities (Bennett Environmental Consulting, 2000). The crests of the Mount Gibson Ranges have different vegetation communities, with *Acacia* species, *Melaleuca* species and *Allocasuarina acutivalvis* subsp. *pinsepiana* as the dominant taxa.

The woodland plains typically consist of *Eucalyptus loxophleba* subsp. *supralaevis* or mallees of *E. brachycorys* and *E. hypochlamydea* subsp. *hypochlamydea*, which are often associated with *Callitris glaucophylla* and *E. loxophleba* subsp. *supralaevis*.

To the west of the Mt Gibson Ranges along the Project services corridor there is an extensive area of sand plain which supports a diverse suite of flora (Bennett Environmental Consulting, 2000).

From a fauna perspective, the habitat can be divided into four broad categories: the flat sand plains, the flat woodlands, slopes and the iron stone ridges. Each of the major habitat types was surveyed for Malleefowl by ATA Environmental (2005b) in 2004/05. Inactive Malleefowl mounds were predominately found in the thickets towards the base of the hill slopes and on the sand plain to the east of the ironstone range (Figure 3). However, active mounds were spread across the tenements.

1.7 Malleefowl (*Leipoa ocellata*) Biology and Ecology

The National Recovery Plan for Malleefowl (Benshemesh, 2007) provides a detailed description of the species, its conservation status, distribution and abundance, preferred habitat, life history and ecology,

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and survival threats to Malleefowl. The following section is a summary of the Malleefowl's biology and ecology as it pertains to this Plan.

1.7.1 Description of the Species

Malleefowl (*Leipoa ocellata*) Gould 1840 is a member of the family of mound building birds (Megapodiidae) and it is unique in that it manipulates external heat sources to incubate its eggs (Clark, 1964). It is the only species in the genus *Leipoa*.

Adult males (65-67.5cm) are slightly larger than females (56.5-62.0cm) but are much heavier (1.7-2.1kg versus 1.5-1.6kg).

1.7.2 General Ecology

This relatively large, mostly terrestrial species tends to be sedentary, nesting in the same general area year-after-year (Firth, 1962a; Priddel and Wheeler, 2003). Males display greater nest-site fidelity than females. With the loss of a partner, males tend to continue to use mounds previously utilised, whereas females often relocate to a new mound. Individuals are monogamous, pairing for life, but with the death of a partner, new bonds are quickly established (Priddel and Wheeler, 2003). Outside of the breeding period, birds will range over several square kilometres (Booth, 1987; Benshemesh, 2000). Chicks are independent from hatching and disperse widely, moving up to 2km per day (Benshemesh, 2000). Chicks do not appear to respond to habitat boundaries.

Adult birds feed on seeds, flowers and fruit of shrubs and herbs, but they will also eat invertebrates and fungi. The diet of chicks seems to be very similar to that of the adults (Benshemesh, 2000).

Malleefowl build large mounds of sand, gravel and vegetation, 3-5m wide and over 1m high in which they incubate their eggs. This is mostly done between autumn and spring as a combined effort of the pair intending to use the mound. Once completed, the male then spends most of his time tending the mound, whereas the female spends most of her time foraging. Incubation temperature of the mound is influenced by microbial decomposition of the vegetation, particularly in the early stages, and solar radiation for the entire period. One to twenty-eight eggs are laid (with a mean of 14) between mid-August and mid-February (Firth, 1959; Priddel and Wheeler, 2005). Incubation takes about 60 days (Benshemesh, 2000). Chicks receive no parental assistance once they have hatched. Mortality of chicks is about 80% in their first 10 days (Priddel, 1989). Malleefowl will reuse 'old' mounds that have been inactive for a number of years.

1.7.3 Habitat

The habitat requirements of Malleefowl are generally not well understood. A sandy substrate and abundance of leaf litter are clear requirements for the construction of the birds' incubator nests (Frith, 1959, 1962a). Densities of the birds are generally highest in areas of higher rainfall, on more fertile soils (Frith 1962a, Copley and Williams 1995; Benshemesh, 2000) and where shrub diversity is greatest (Woinarski, 1989b). The Malleefowl is now primarily found in semi-arid and arid shrublands and low woodlands dominated by mallee (Frith, 1962a, b). The vegetation is often broombush (*Melaleuca uncinata*; Woinarski, 1989a, b) and scrub pine (*Callitris verrucosa*). They also occur in woodlands dominated by eucalypts such as wandoo (*E. wandoo*), marri (*E. calophylla*) and mallet (*E. astringens*), and in some shrublands dominated by acacias in Western Australia (Johnstone and Storr, 1998).

Density of the canopy cover is an important feature associated with high breeding densities (Firth, 1962a; Benshemesh, 2000), and the best predictor of clutch size is rainfall between May and December (Priddel and Wheeler, 2005). As a consequence, clutch size will vary from year to year. Grazed areas generally have much lower densities (Benshemesh, 2000).

1.7.4 Distribution and Abundance

Malleefowl's geographic distribution includes much of the southern half of Australia from the Great Dividing Range to the west coast (Blakers *et al.*, 1984), and originally as far north as the Tanami Desert (Kimber, 1985). Its geographic range has contracted in recent years, particularly in arid areas and around the periphery of its distribution (Benshemesh, 2000). This is mostly attributed to habitat clearing (Benshemesh, 2000).

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1.7.5 Regional Populations

In Western Australia, Malleefowl occur as far north as Carnarvon; throughout most of the southwest corner; in much of the inland semi-arid areas below the 26th latitude; and in the coastal strip of mallee south of the Nullabor Plain between Cocklebiddy and Eucla (Benshemesh, 2000). Johnstone and Storr (1998) recorded the current distribution of Malleefowl from Denham south, including most of the wheatbelt, extending east past Laverton and Norseman and along the coastal strip to Eucla.

Western Australian Museum (WAM) records for Malleefowl found in the region are shown in Figure 2. These data include both WAM specimens and observations. They are also complemented by data from other sources to indicate the known distribution of Malleefowl in the mid-west region.

Hart, Simpson and Associates (2000) conducted a fauna survey in the Mt Gibson area in October 2000 and Professor Emeritus Harry Recher (Edith Cowan University) undertook bird surveys in the area in August/September 2000, September/October 2000, October 2000, August 2001, July 2002 and September 2003 (Recher, pers. comm, 2004). Dell (2001) also conducted bird observations at Mount Gibson in April and August 2001. Both Hart, Simpson and Associates and Professor Harry Recher observed Malleefowl in the region; however, no details on the number of birds or mounds are available. Records provided by Mount Gibson Station (Dell, 2001) indicate that Malleefowl are a rare resident at Mount Gibson Station; however, it was reported that there were a few old mounds present in the area. The exact location of these observations is not known.

1.7.6 Mt Gibson Population

Between September 2004 and January 2005 ATA Environmental (2005a) undertook an extensive grid search of the entire proposed mine site and some of the surrounding area. One hundred and thirteen Malleefowl mounds were located within the area searched, of which 15 (13.3 %) were active. In addition, one freshly killed bird and four live birds were sighted during these surveys.

Based on this data, ATA Environmental (2005a) concluded that the proposed Mt Gibson mine site and surrounds support a breeding population of Malleefowl. Most of the mounds at Mt Gibson were found in thickets, typically on the sand plain and pebbly soils on the slopes or base of the ironstone range. However, mounds were not confined to these areas. In February 2008, a further limited survey of nine known mounds was conducted within the key mine footprint. One active mound was identified (515358mE 6727677mN) that had been previously active whilst three of the remaining mounds had become inactive from a previous active state. No significant site activity had occurred and the change in density of active mounds was attributed to prolonged dry conditions.

The first full survey of known mounds in the vicinity of the mine site since the baseline survey was conducted in October/November 2008 and identified only 5 active mounds. This survey was conducted at the commencement of a low impact exploration drilling program. The low number of active mounds is attributable to natural variation and environmental conditions, since no significant mining activities had occurred prior to this survey.

Subsequent monitoring activities, as well as observations during mine site construction activities have resulted in the discovery of an additional 15 mounds on the mining tenements. Eleven mounds have been cleared since the commencement of mining activities. Each of these was inactive at the time of clearing. A further five mounds are no longer searched for during the annual mound monitoring survey as they were unable to be located for three consecutive surveys. There are 112 mounds remaining in the site database, of which ten were active in the last season (Figure 1). Three of these active mounds were within 500m of current project activities.

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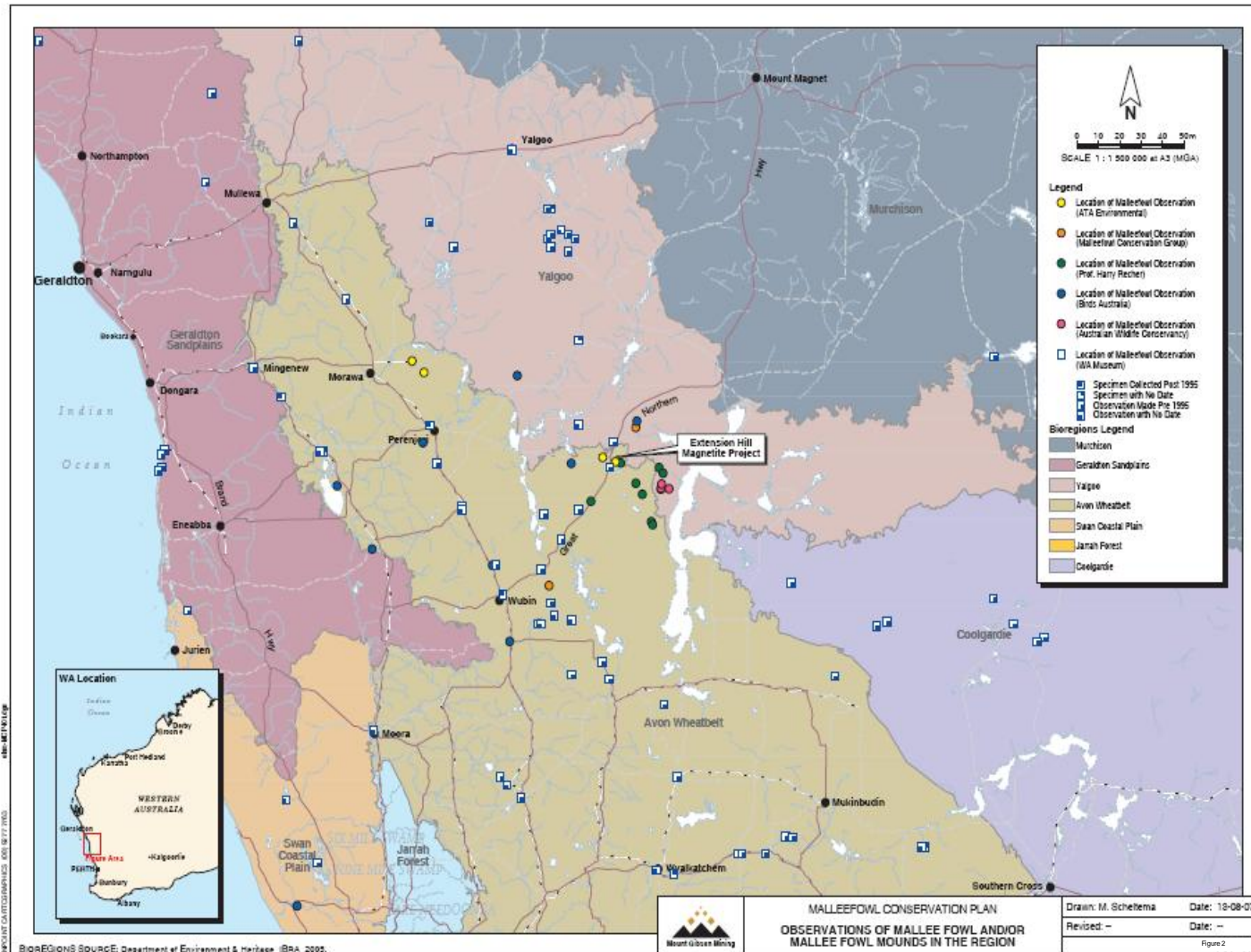


Figure 2 Observations of Malleefowl and/or Malleefowl Mounds in the Region

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1.7.7 Threats to the Species

Vegetation clearing and the consequential loss of and fragmentation of habitat; grazing and the consequential loss and destruction of habitat; and fires and the consequential loss of habitat have also been recognised as significant contributors to Malleefowl decline across its range (Benshemesh, 2000). 'Predation by the introduced fox, and to a lesser extent by cats and raptors, is a major cause of mortality of Malleefowl', but 'the degree to which fox predation is responsible for the decline of existing Malleefowl populations is less clear' (Benshemesh, 2007).

Foxes predate on eggs, chicks and adult birds (Frith, 1962a; Benshemesh and Burton, 1997; Benshemesh and Burton, 1999; Booth, 1987; Brickhill, 1987; Priddel and Wheeler, 1994; Harlen and Priddel, 1992; Short, 2004). Benshemesh et al (2007) found that 'baiting in the longer term might actually be associated with Malleefowl decline rather than recovery'. Wallach and O'Neill (2008) attribute trends such as this to the removal of dingoes (either intentionally or inadvertently during fox baiting programs) which act as a top level predator and provide an ecological control to the populations of mesopredators and generalist herbivores.

Frith (1962a) showed that breeding densities for Malleefowl were reduced by 85-90% in areas grazed by sheep compared to similar non-grazed habitats. Other herbivores, such as goats, kangaroos, cattle and rabbits, in large numbers, will also reduce the habitat suitability for Malleefowl and could lead to population declines (Benshemesh, 2000). Grazing is thought to open up habitats and increase predation. Habitat reduction due to clearing or grazing can also result in starvation through a reduction in invertebrates, seeds, flowers and fruits (Benshemesh, 2000).

Fires may eliminate Malleefowl from some areas. Recruitment into burnt areas and the subsequent development of breeding densities, similar to those that existed before the fire, appears to be very slow and requires 30 to 60 years (Benshemesh, 2000).

Malleefowl seem to have little road sense and can be killed by vehicles on roads and tracks. Birds can also be forced to move to adjacent habitats by noise, dust, lights and vibrations (Benshemesh, 2000), all of which will be present on an active mine site. Little is known of diseases that are likely to impact on Malleefowl populations (Benshemesh, 2000).

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2.0 Potential Development Impact

During the original 2004/2005 Malleefowl survey, mounds at Mt Gibson were found in thickets, typically on the sand plain and pebbly soils on the slopes or base of the ironstone range. However, they were not confined to these areas. Therefore, any vegetation clearing or disturbance in vegetated thickets associated with developing a mine site are likely to impact on Malleefowl.

Clearing of vegetation, noise, vibration, vehicle traffic and an increase in fox, wild dogs and cat numbers may all impact on Malleefowl at the proposed Mt Gibson mine site. The clearing footprint will accommodate mine infrastructure including the waste dumps and the co-located dry tailing storage facility, the airstrip, the Extension Hill Pit, the crusher and run of mine pads, administration offices and workshops and concentration plant, ancillary services and the service corridor. This clearing may impact on Malleefowl and, in some cases, active mounds.

Impacting Activity	Potential Impact on Malleefowl
Vegetation clearing	Will result in a loss of foraging habitat, the loss of active and inactive mounds and will increase the exposure of birds to predators.
Vehicle traffic	May result in road deaths.
Noise from mine operations	May shift individuals out of the area.
Vibrations from mine operations (e.g. blasting)	May shift individuals out of the area (even though blasting will occur at a regular time and only during daylight hours).
Lighting from night operations	May result in individuals moving out of the area.
An increase in feral predator numbers in the area	May increase as a result of poor waste management, new permanent water and food sources.

Approximately 70 mounds will be potentially directly or indirectly impacted by the development (approximately 55% of the current known mounds) although only 31% are likely to be directly impacted by the physical project footprint (40) while the others may be impacted by site activities within the 250 m buffer zones for each mound.

This Management Plan incorporates a proactive management approach which will actively manage the Malleefowl population in the vicinity of the Mt Gibson Iron Ore Mine.

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3.0 Approval Conditions

The Proponents have made a number of commitments to ensure the Malleefowl population is managed in accordance with the requirements of the *Wildlife Conservation Act 1950* and the *EPBC Act 1999*.

In the Public Environmental Review for the Mount Gibson Iron Ore Mine and Infrastructure Project (ATA Environmental, 2006), the proponent committed to prepare and implement a Malleefowl Conservation Plan (this document) and contribute to a regional feral animal control program (in particular foxes) (commitments 9 and 10).

Condition 2 of the Commonwealth approval to develop the Mt Gibson Iron Ore Project required that a management plan be prepared and implemented, including a monitoring program for the Malleefowl.

Condition 2 states:

2 *The person taking the Action must prepare a management plan (or plans) including a monitoring program for the Malleefowl (Leipoa ocellate). The plan must take into account the advice of DEWHA, the Western Australian Department of Environment and Conservation and the Environmental Protection Authority.*

- a) *The aim of the plan(s) is to manage the impacts of the Action on the Malleefowl and its habitat.*
- b) *The plan(s) shall be implemented and reviewed throughout the life of the Action.*
- c) *The plan(s) shall:*
 - i) *Establish baseline information on the populations of the Malleefowl in and around the project area, including the services corridor;*
 - ii) *Establish a monitoring program to detect significant impacts and monitor the numbers of individuals and suitable habitat for the Malleefowl in and around the project area, including the services corridor;*
 - iii) *Specify design features, management measures and operating controls to minimise adverse impacts; and*
 - iv) *Identify potential response and mitigation measures in the event that monitoring detects Action-attributable change in the abundance, distribution or reproductive success that is likely to cause significant impact to the viability of the Malleefowl in and around the project area, including the services corridor.*
- d) *The management plan(s) for the Malleefowl (including the monitoring program) must be approved by the Minister prior to the commencement of ground disturbing activities.*
- e) *The approved plan(s) must be implemented.*

Commitments and conditions relating to the management of vegetation (e.g. habitat protection), fire control and management of fauna are also relevant to the management of Malleefowl. These are addressed in the *Extension Hill and Extension Hill North Environmental Management Plan* approved by the Western Australian Department of Environment and Conservation on 7 August 2008.

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4.0 Key Objectives and Targets

4.1 Management Objectives

The Proponent's objectives for the management of Malleefowl in the vicinity of the mine site and services corridor are:

1. To meet the commitments made in the PER and to observe the legislative conditions applied to the project with respect to Malleefowl;
2. To maintain the abundance, diversity, geographic range and productivity of Malleefowl in the vicinity of the mine site;
3. To contribute to a regional introduced species management program to improve the long term stability of the Malleefowl population;
4. To develop collaborative arrangements with the North Central Malleefowl Preservation Group and other interested parties.

Table 1 Key Objectives and Targets Related to Malleefowl Management

Objective	Performance Indicators	Data Source	Target
Legislative Compliance	Compliance with Commonwealth and State conditions/commitments for project approval and Commonwealth and State Legislation relating to Malleefowl	Compliance audits	100% Compliance
Maintain the abundance, diversity, geographic range and productivity of Malleefowl in the vicinity of the mine site and services corridor	<p>Mine Site: Number of active mounds at distances less than 500m from the mine site impact areas relative to those located greater than 500m from impact areas and pre-mining status.</p> <p>Services Corridor: The number of active mounds along the services corridor in the two breeding seasons pre and post construction.</p>	<p>Baseline data</p> <p>Monitoring results</p>	<p>Mine Site: Qualitative assessment of individual mounds and their history shows no significant decrease in the number of active mounds within 500m of impact areas, compared to those >500m from impact areas.</p> <p>Services Corridor: Qualitative assessment of individual mounds and their history shows no significant decrease in the number of active mounds along the services corridor.</p>
Contribute to a regional introduced species management program to improve the long term stability of the Malleefowl population	Achievement of agreement between the proponents and neighbours on an effective management program	Introduced species management procedure	Creation and implementation of a suitable program
Develop collaborative arrangements with the North Central Malleefowl Preservation Group	Meetings with North Central Malleefowl Preservation Group, AWC, BHA and DEC to review the conservation	Records of meeting minutes	Annual meetings with the North Central Malleefowl Preservation Group, BHA, AWC & DEC to review the conservation

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and other interested parties	of Malleefowl and to implement a collaborative regional approach to the conservation of the species		of Malleefowl and to implement a collaborative regional approach to the conservation of the species.
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4.2 Management Principles

The following principles will guide the implementation of this management plan:

- Staff will be made aware of the presence and importance of Malleefowl in the Project area;
- Clearing or other forms of disturbance in habitat known to be used by Malleefowl will be avoided where possible;
- Any land clearing that will directly impact Malleefowl mounds will be undertaken, wherever possible, between April and June, as this period is outside the mound building and egg incubation period. Clearing outside these times will require further management processes;
- Where feasible, a buffer zone of 250m will be placed around all active mounds which will be restricted access areas;
- The known Malleefowl mounds on the Mt Gibson tenements will be monitored annually to determine if they are active;
- Should monitoring programs indicate a decline in the number of active mounds, then every effort will be made to determine the cause, and, if it is mine related, remedial actions will be investigated, discussed with the North Central Malleefowl Preservation Group, DEC and DSEWPC, and implemented where possible to address the problem(s);
- The proponent will work with neighbouring stations to create and implement an effective introduced species monitoring and management program to identify and implement the most effective means of reducing the impact on Malleefowl of both predation and resource competition by introduced species; and
- The proponent will collaborate with local community and interested parties including the Northern Central Malleefowl Preservation Group, AWC, BHA and DEC to ensure a regional approach to the conservation of Malleefowl in the vicinity of the Mt Gibson Ranges.

4.3 Performance Standards

Applicable guidelines for terrestrial fauna include the WA EPA Guidance Statement No. 56: *Terrestrial fauna surveys for Environmental Impact Assessments in Western Australia* (EPA, 2004).

Monitoring requirements specific to Malleefowl are detailed in the *National Manual for the Malleefowl Monitoring System* (National Heritage Trust, 2006).

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5.0 Management Strategies

The National Recovery Plan format for Malleefowl (Benshemesh, 2000) has been adopted in the development of these site-specific management strategies. Some of the initiatives and proposals in the national plan are not relevant at the local scale and have not been included while others have been modified to the local situation.

5.1 Secure Habitat

Justification

The loss of vegetation will contribute to a decline in the number of Malleefowl in the vicinity of the mine site, if compensatory strategies are not put in place.

Actions

- Areas of native vegetation to be cleared will be kept to a minimum. All vegetation clearing in areas where Malleefowl mounds (250m buffer) are known to be present will occur between April and June, outside the mound building and egg incubation period, wherever practical. If it is essential that a Malleefowl mound is cleared between July and March, then additional management procedures will apply, including:
 - Mound inspections by suitably qualified and authorised persons to determine whether it is active (i.e. contains eggs);
 - If eggs are present, then with the approval of DEC, eggs may be removed and incubated in a place approved by DEC (e.g. Perth Zoo, Ongerup Malleefowl Conservatory).
 - Chicks will be released on site unless otherwise approved by DEC.
- Restricted access areas in Malleefowl habitat will be designated and will be clearly identified with appropriate signage displayed around the mine site. These zones will include all areas of uncleared vegetation known to contain Malleefowl mounds. Access to any restricted access area will require a permit issued by the Site Environmental Department.
- The restricted access area system will be discussed in the staff induction program, and signs will be erected at appropriate places on-site to ensure staff and contractors continue to be aware of the need to minimise the disturbance to Malleefowl habitat.

5.2 Reduce the Threat of Fire

Justification

Large scale fires have the potential to kill Malleefowl, destroy mounds and remove Malleefowl habitat.

Action

Frequent fires represent a significant threat to the species as it has the potential to impact on breeding activities. Fire management actions include:

- training of emergency response personnel in fire fighting;
- procurement of site based fire fighting equipment;
- vehicle maintenance safety check to reduce fire hazards,
- fire suppression systems on selected plant and equipment;
- regular fire break maintenance; and
- liaison with neighbours and FESA with regard to bushfires.

5.3 Reduce Number of Road Deaths

Justification

Malleefowl have little 'road sense' and, although they are rarely killed on roads, those roads that carry high volumes of traffic (e.g. haul roads, internal mine roads) increase the propensity for Malleefowl road mortality.

Actions

- Warning signs will be erected throughout the site.
- The presence of Malleefowl on the mine site will be discussed in the staff induction programs, pointing out that they often do not get out of harms way early enough to avoid their demise.

Malleefowl Management Plan

- Staff and contractors will be required to report the sighting of any live or dead Malleefowl in the vicinity of the Project.
- A maximum speed limit of 80kmph will apply on the sealed section on the old Great Northern Highway and lower speed limits (40 km/hr) on smaller access tracks.

5.4 Monitoring Malleefowl Abundance

Justification

A life-of-mine monitoring program is necessary to ensure that management practices are achieving the primary objective of no reduction in the number of Malleefowl in the area.

Malleefowl's wariness, cryptic habits and colouration make it difficult to reliably and accurately census their numbers. A suitable proxy measure is, therefore, required. Brickhill (1985), Benshemesh and Emison (1996) and Priddel and Wheeler (2003; 2005) have all used the number of active mounds as an indicator of Malleefowl numbers. This is a relevant proxy to measure the number of Malleefowl in the area, as it directly relates to the number of reproductively active birds in the area and is a good indicator of survival of the local population.

The number of Malleefowl that breed each year varies, as does the clutch size, probably based on the available resources, which is influenced by rainfall in the preceding year. It is, therefore, important to distinguish between potential mine related impacts and natural variation.

The areas adjacent to the mine will be monitored since mining activity (e.g. dust, noise, vibrations and vehicle traffic) may displace Malleefowl from the direct impact area into adjacent areas.

Impacts are assessed through a qualitative review of each mound, taking into account its usage history (Malleefowl have a recognised tendency to reuse the same mounds) and its distance from the mine site. Refer to Section 1.7.6 for baseline data. Where a significant detrimental impact is detected, results can be compared to nearby Mt Gibson Station results (where available) to determine if the impact is due to natural variation or mining activities.

The National Heritage Trust (2007) manual for malleefowl monitoring will be utilised as a key tool in the ongoing assessment of the near mine and local regional populations.

Actions

- The proponents will undertake an annual program to monitor the status of known Malleefowl mounds on its tenements.
- The proponents will provide the results of its Malleefowl monitoring program to the North Central Malleefowl Preservation Group who will then submit the results for inclusion in the National Malleefowl Monitoring Database.
- All Malleefowl deaths on the mine site will be recorded and the data provided to DSEWPC and DEC.
- The proponents will establish a protocol for recording sightings of live Malleefowl and mounds on the site. Details of the protocol will be included in the staff and contractors' induction programs. Data from these recordings will be included in the annual reporting to DEC and to DSEWPC.
- The results of the monitoring program will be included in the project's annual environmental reporting within the State and the Environmental Performance Report to the Commonwealth.
- In the event of a confirmed action that can be attributed to impact on Malleefowl, the proponent will consult the state Department of Environment and Conservation and DSEWPC to determine the appropriate mitigation actions.

5.5 Introduced Species Management Program

Justification

Introduced species have a recognised impact on Malleefowl through direct predation of individual birds and resource depletion by introduced herbivores. Short (2004) summarized that fox control alone is not likely to permit recovery of the species and should be conducted in conjunction with management of introduced grazers and fire management. Benshemesh et al (2007) actually found that 'baiting in the longer term might actually be associated with Malleefowl decline rather than recovery'. A long

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term, sustainable program of managing introduced species is required in order to achieve a real benefit in Malleefowl conservation in the area.

Actions

- The proponent will work with neighbouring stations to create and implement an effective introduced species monitoring and management program to identify and implement the most effective means of reducing the impact on Malleefowl of both predation and resource competition by introduced species.

5.6 Establish and Foster Communications with Community Groups

Justification

The North Central Malleefowl Preservation Group is a local group with the primary objective of preserving the presence of Malleefowl within the bioregion. Australian Wildlife Conservancy, owner of the Mount Gibson Sanctuary (Mt Gibson Station), is a neighbour of the mine. AWC's objectives are to re-establish plant and animal communities endemic to the area, contribute to threatened species' recovery programs and to protect ecosystems and landscapes from detrimental processes. Bush Heritage Australia manages Charles Darwin Reserve (White Wells Station) for conservation purposes. The proponent will share its data with these and any other groups interested in protecting and preserving Malleefowl.

Actions

- The proponents will liaise with the North Central Malleefowl Preservation Group, AWC and BHA on a regular basis (at least annually) regarding the actions taken to protect and preserve Malleefowl on its site and within the region.
- The proponents will provide monitoring data and reports to the North Central Malleefowl Preservation Group and other interested stakeholders.

5.7 Review of the Plan

This Management Plan will be reviewed every three years during the life of the operation. In the event that detrimental mining related impacts on Malleefowl are detected, the Plan will be reviewed immediately. The review will be undertaken in consultation with North Central Malleefowl Preservation Group, DEC and DSEWPC. The final approval for any changes to the plan will be sought from the Commonwealth Minister for DSEWPC.

Actions

- A compliance audit of the plan and actions performed under the plan will be undertaken prior to the 31st July each year as part of the certification process required by the Commonwealth and this will be submitted to DSEWPC as appropriate. A review of the plan will be undertaken every three years during the life of the operation and any amendments sought through application to the Minister.

Malleefowl Management Plan

6.0 References

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Malleefowl Management Plan

APPENDIX 1: Copy of the Commonwealth Approval



Australian Government

Department of the Environment, Water, Heritage and the Arts

1U-9U0-EN

Mr Bill Mackenzie
Managing Director
Extension Hill Pty Ltd
PO Box 82
WEST PERTH WA 6872

Date: 13 June 2008
EPBC Ref: 2005/2381
EPBC contact: Neisha Burton
02 6274 2147
Neisha.Burton@environment.gov.au

Dear Mr Mackenzie

Consent to transfer of approval Mount Gibson Iron Ore Project (EPBC 2005/2381)

I refer to your letter of 22 May 2008 which requests consent to the transfer of approval for mining and processing iron ore from Extension Hill and Extension Hill North within the Mt Gibson Ranges.

I have considered the request in accordance with section 145B of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and have decided to consent to the transfer of approval to Mount Gibson Mining Limited and Extension Hill Pty Ltd. The details of my decision are attached. The proposal must be undertaken in accordance with the conditions specified in the original approval. Copies of the approval dated 18 December 2007 are attached for your convenience.

The Department has an active audit program for proposals that have been referred or approved under the EPBC Act. The audit program aims to ensure that proposals are implemented as planned and that there is a high degree of compliance with any associated conditions. You should be aware that your project may be selected for audit by the Department at any time and all related records and documents may be subject to scrutiny. Information about the Department's Audit Strategy is enclosed.

If you have any questions about this decision, please contact the project manager and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely

A handwritten signature in blue ink that reads "Vicki Middleton".

Ms Vicki Middleton
Assistant Secretary
Environment Assessment Branch



Australian Government

Department of the Environment, Water, Heritage and the Arts

CONSENT TO TRANSFER OF APPROVAL

Mount Gibson Iron Ore Project – EPBC No 2005/2381

This consent is given under (Section 145B) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Proposed transfer of approval

Transferor (holder of approval)	Mount Gibson Mining Limited
Transferee (person accepting the transfer of approval)	Mount Gibson Mining Limited; and Extension Hill Pty Ltd
proposed action	To mine and process iron ore from Extension Hill and Extension Hill North within the Mt Gibson Ranges; the construction and operation of infrastructure associated with the processing and transport of ore, including a pipeline to transport slurry to Geraldton Port and associated port infrastructure.

Person authorised to make decision

name and position	Ms Vicki Middleton Assistant Secretary Environment Assessment Branch
signature	
date of decision	13 June 2008

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APPROVAL

Mt Gibson Iron Ore Project (EPBC 2005/2381)

This decision is made under (Section 133) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Proposed action

person to whom the approval is granted	Mount Gibson Mining Ltd
---	-------------------------

proposed action	To mine and process iron ore from Extension Hill and Extension Hill North within the Mt Gibson Ranges; the construction and operation of infrastructure associated with the processing and transport of ore, including a pipeline to transport slurry to Geraldton Port and associated port infrastructure.
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Approval decision

relevant controlling provisions	The approval has effect for: <ul style="list-style-type: none">• Listed threatened species and communities (sections 18 & 18A)• Listed migratory species (sections 20 & 20A)
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conditions of approval	This approval is subject to the conditions specified below.
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expiry date of approval	This approval has effect until 1 January 2030.
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Person authorised to make decision

name and position	Ms Vicki Middleton Assistant Secretary Environment Assessment Branch
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signature	
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date of decision	18 December 2007
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Malleefowl Management Plan

Conditions

The following conditions apply to the approval of the proposed action:

Darwinia masoni

1. The person taking the Action must prepare a management plan (or plans) including a monitoring program for *Darwinia masoni*. The plan(s) must take into account the advice of the Department of the Environment, Water, Heritage and the Arts (DEWHA), the Western Australian Department of Environment and Conservation and the Environmental Protection Authority.
 - a) The aim of the plan(s) is to manage the impacts of the Action on *Darwinia masoni* and its habitat.
 - b) The plan shall be implemented and reviewed throughout the life of the Action.
 - c) The plan shall:
 - i) Establish baseline information on the populations of *Darwinia masoni* within the Mt Gibson Ranges;
 - ii) Establish a monitoring program to identify significant impacts and monitor the numbers of individuals and areas of suitable habitat for *Darwinia masoni*;
 - iii) Define the scope of studies aimed at understanding the ecology of *Darwinia masoni*;
 - iv) Specify design features, management measures and operating controls to minimise adverse impacts to *Darwinia masoni* within the Mt Gibson Ranges; and
 - v) Identify potential response and mitigation measures in the event that monitoring detects Action-attributable change in the abundance, distribution or reproductive success that is likely to cause significant impact to the viability of *Darwinia masoni* within the Mt Gibson Ranges.
 - d) The management plan(s) for *Darwinia masoni* (including the monitoring program) must be approved by the Minister prior to the commencement of ground disturbing activities.
 - e) The approved plan(s) must be implemented.

Malleefowl (Leipoa ocellata)

2. The person taking the Action must prepare a management plan (or plans) including a monitoring program for the Malleefowl (*Leipoa ocellata*). The plan must take into account the advice of DEWHA, the Western Australian Department of Environment and Conservation and the Environmental Protection Authority.
 - a) The aim of the plan(s) is to manage the impacts of the Action on the Malleefowl and its habitat.
 - b) The plan(s) shall be implemented and reviewed throughout the life of the Action.
 - c) The plan(s) shall:
 - i) Establish baseline information on the populations of the Malleefowl in and around the project area, including the services corridor;
 - ii) Establish a monitoring program to detect significant impacts and monitor the numbers of individuals and suitable habitat for the Malleefowl in and around the project area, including the services corridor;
 - iii) Specify design features, management measures and operating controls to minimise adverse impacts; and
 - iv) Identify potential response and mitigation measures in the event that monitoring detects Action-attributable change in the abundance, distribution or reproductive success that is likely to cause significant impact to the viability of the Malleefowl in and around the project area, including the services corridor.
 - d) The management plan(s) for the Malleefowl (including the monitoring program) must be approved by the Minister prior to the commencement of ground disturbing activities.
 - e) The approved plan(s) must be implemented.

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3. An Environmental Performance Report shall be submitted to DEWHA within 15 months from the date of approval of the Action and each subsequent report 12 months from the date of the previous report. This report shall contain the results of, and the state of implementation of the *Darwinia masonii* and *Leipoa ocellata* (malleefowl) management plan(s) and monitoring programs (Conditions 1 and 2) and advice as to whether there have been revisions to previously approved plans.
4. If the person taking the Action wishes to carry out any activity otherwise than in accordance with a plan, program or system referred to in this Approval, the person taking the Action must submit for the Minister's approval a revised version of any such plan, program or system. If the Minister approves a revised plan, program or system so submitted, the person taking the Action must implement that plan, program or system instead of the plan, program or system as originally approved.
5. Within 18 months of the commencement of ground disturbing activities, the person taking the Action must ensure that an independent audit of compliance with the Conditions of this Approval is conducted. The independent auditor must be approved by the Minister. The audit criteria must be agreed by the Minister and the audit report must address the criteria to the satisfaction of the Minister.
6. By 31 July of each year of the development, the Project Manager, Mt Gibson Iron Ore Project, of the person taking the Action (Mount Gibson Mining Ltd), must provide a certificate to the Department indicating whether the person taking the Action has complied with the conditions of this Approval.
7. If the Minister believes that it is necessary or desirable for the better protection of the environment to do so, the Minister may request the person taking the Action to make specified revisions to a plan or program approved pursuant to the Conditions and to submit the revised plan or program for the Minister's approval. The person taking the Action must comply with any such request. If the Minister approves a revised plan or program pursuant to this condition, the person taking the Action must implement that plan or program instead of the plan or program as originally approved.
8. Within five years of the date of this approval, the person taking the Action must, to the satisfaction of DEWHA, provide evidence that the Action has been substantially commenced. If DEWHA is not satisfied that there has been substantial commencement of the Action, the Action must not thereafter be commenced without the prior approval of the Minister.

Definitions

DEWHA – Commonwealth Department of Environment, Water, Heritage and the Arts.

Ground disturbing activities – any action related construction or commissioning activities within the areas to be disturbed by construction or operation activities associated with the Action, excluding investigatory works such as, but not limited to geotechnical, biological and cultural heritage surveys, baseline monitoring surveys and technology trials.

Minister – Commonwealth Minister for the Environment, Heritage and the Arts.

Significant impact(s) – an impact that is important, notable or of consequence having regard to its context or intensity.