

COBURN MINERAL SAND PROJECT  
ENVIRONMENTAL MANAGEMENT  
PLAN

Fauna Management Plan

*Prepared for*

**Gunson Resources Limited**

Level 2, 33 Richardson Street  
WEST PERTH

21 December 2006

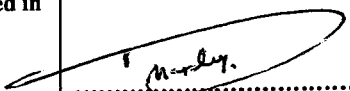
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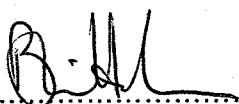


## Environmental Management Plan Checklist: EAS Form 1b


### General Information

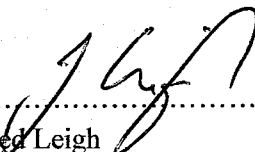
Ministerial Statement No	723	Project Title	Coburn Mineral Sand Project
		Proponent	Gunson Resources Limited
EMP Title (including date and version number)	Fauna Management Plan Date: 21 December 2006 Revision: Revision 1		

EMP Content	Yes	No	Comments
Is the document structured according to the EMP guideline?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Element - Is the aspect appropriately described?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 1
Current Status - Are the project description and receiving environment details adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 2
Potential Impacts - Are the potential impacts described adequately?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 3
Environmental Objectives - Are the objectives consistent with the Ministerial Statement and the EPA bulletin?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 4
Performance Indicators/Criteria - Are the indicators and criteria used meaningful, sufficient and appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 5
Are the criteria verifiable and reproducible?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Implementation strategy - Are the strategies, tasks and the action program adequate for the environmental objectives?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 6
Have roles and responsibilities been identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Have adequate timeframes and priorities been identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Monitoring - Is the program to monitor performance against objectives and criteria adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 7
Are details provided on how/when monitoring will be undertaken and reported?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Contingencies - Are the mechanisms to identify actual and apparent non-conformance adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 8
Are the actions to address non-conformances adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Stakeholder consultation - Is a list of major stakeholders and details of how and when they were and will be consulted, provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 9
Auditing - Are details of an audit process to demonstrate implementation and compliance provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 10
Review and Revision - Is a suitable process to assess the adequacy of the plan detailed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 11
Reporting - are the reporting details provided adequate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 12
Key Management Actions Table - Has adequate information been provided in the Table?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Section 13
Does the table list the key actions, how implementation will be reported and the evidence that will be provided to DoE?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Figures and Tables - Have relevant figures and tables been provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Advisory bodies - Has advice been sought from all relevant advisory bodies and incorporated into the EMP?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Advice has been sought from DEC (Midwest Region and Env. Management Branch) See cover letter.
Has evidence of this advice been provided with the document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Additional Comments	-		
The EMP has been developed in accord with the DEC EMP guideline.	 ..... Environmental Manager		21/12/06 Date

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## 1.1 Background

Gunson Resources Limited (Gunson) is developing the Coburn Mineral Sand Project (the Project) in the Shark Bay district of Western Australia (WA), approximately 250 km north of Geraldton and 84 km southeast of Denham. The Project Area is located immediately east of the Shark Bay World Heritage Property (SBWHP). The Project will comprise the mining and processing of a major low grade heavy mineral sand deposit approximately 18 km long, up to 3 km wide and between 10 m and 40 m thick.

The Project was assessed as a Public Environmental Review (PER) under Part IV of the Western Australian *Environmental Protection Act 1986*. In addition, the Project is considered to be a "controlled action" under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. The environmental assessment was conducted in accordance with the bilateral agreement between the Commonwealth of Australia and WA, meaning that the Commonwealth accredited the WA environmental impact assessment process.

The PER (URS, 2005) was issued in July 2005 for an eight-week public review period and the Report and Recommendations of the WA Environmental Protection Authority (EPA) was published as EPA Bulletin 1211 in December 2005. Environmental approval for the Project was granted by the State Minister for the Environment in May 2006 (Ministerial Statement No. 723) and the Commonwealth Environment Minister in July 2006.

## 1.2 Aspect

This Fauna Management Plan is part of a series of management plans (MPs) for the Project, that are known collectively as the Environmental Management Plan (EMP). The purpose of the EMP is to provide measures to prevent or mitigate potential impacts to the environment and heritage values during construction and operation of the Project. The MPs are based upon the impacts identified during the environmental risk assessment process undertaken during preparation of the PER, with consideration given to stakeholder comment and issues addressed during the EPA's and Department of Environment and Heritage's (DEH) assessment of the Project.

This Fauna Management Plan has been prepared in accordance with Condition 9 of Ministerial Statement No. 723 (see Section 1.4), and Condition 6 of the DEH Approval Decision – Coburn Mineral Sand Project (EPBC 2003/1221).

The aspects relevant to the factor "vertebrate fauna" are identified in the EPA Bulletin 1211 as:

- Loss of habitat due to vegetation clearing;
- Clearing of Malleefowl nesting sites and the forced relocation of individual animals; and
- Fauna may become trapped in process water ponds or open seepage interception trenches.

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While most birds, larger mammals and reptiles will be able to avoid the impact of clearing for mining and construction of infrastructure, most small mammals, reptiles and burrowing frogs will unavoidably be killed by the large machinery used for vegetation removal and ground preparation, or by exposure to predators. While the local impact on individual animals is high, the clearing will have very little impact on the species overall (Ninox Wildlife Consulting, 2005).

### 1.3 Relevant Legislation and Standards

Legislation and standards applicable to this management plan include:

- *Environment Protection and Biodiversity Conservation Act 1999*;
- *Environmental Protection Act 1986*;
- *Wildlife Conservation Act 1950*; and
- EPA Guidance Statement No. 56 (Terrestrial Fauna Surveys for Environmental Impact Assessment in Western Australia, 2004).

### 1.4 Ministerial Conditions

The Ministerial Conditions relevant to vertebrate fauna management for the Project from Ministerial Statement No. 723 are provided below:

#### 9 Fauna

9-1 Prior to commencement of ground-disturbing activities, the proponent shall prepare a Fauna Management Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.

9-2 The Fauna Management Plan required by condition 9-1 shall include:

1. establishment of permanent fauna monitoring sites;
2. additional fauna surveys ahead of mining to identify any significant or unknown species;
3. a baseline survey of the distribution and abundance of the Malleefowl (*Leipoa ocellata*) at, and in the immediate vicinity of, the proposal area;
4. monitoring of Malleefowl populations both inside and outside the proposal area for comparison, and to show where populations may be declining, stable or increasing;

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5. predator baiting, particularly to control populations of cats and foxes, throughout the proposal area and appropriate buffers, developed in consultation with the Department of Agriculture and Food and the Department of Conservation and Land Management;
  6. investigate and implement best practice directional lighting and/or light shields to reduce impacts of light overspill on fauna;
  7. feral animal control strategies, where native fauna is made more vulnerable due to activities associated with mining;
  8. fencing around water dams and open seepage interception trenches to prevent encroachment by large and medium sized animals;
  9. escape mechanisms such as mesh or 'self-rescue mats' to allow animals to exit water ponds and open seepage interception trenches;
  10. regular inspection of process water ponds or open seepage interception trenches for trapped animals; and
  11. reporting procedures and schedule.
- 9-3 The proponent shall implement the Fauna Management Plan required by condition 9-1.
- 9-4 The proponent shall make the Fauna Management Plan required by condition 9-1 publicly available.
- 9-5 In the event that Threatened Fauna, other than Malleefowl, and including those listed as "threatened" under the *Environment Protection and Biodiversity Conservation Act 1999*, are identified in the project area, the proponent shall prepare a Threatened Fauna Management Plan to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority and the Department of Conservation and Land Management.
- 9-6 The Threatened Fauna Management Plan required by condition 9-5 shall include:
1. the recorded location of Threatened Fauna species;
  2. a description of the habitat in which the Threatened Fauna is found;
  3. the degree of impact of the proposed works on Threatened Fauna or its identified habitat;
  4. a management strategy for the protection of Threatened Fauna species, including relocation, or other action recommended by the Department of Conservation and Land Management; and
  5. post-activity monitoring plan for Threatened Fauna species.

- 9-7 The proponent shall implement the Threatened Fauna Management Plan required by condition 9-5.
- 9-8 The proponent shall make the Threatened Fauna Management Plan required by condition 9-5 publicly available.
- 9-9 The proponent shall report within the Annual Environmental Reports required by condition 5-4 the outcomes of any monitoring programs and performance reviews associated with the implementation of the Fauna Management Plan required by condition 9-1 and the Threatened Fauna Management Plan required by condition 9-5.

The requirements of the Fauna Management Plan are outlined in Condition 9-2. Table 1.1 identifies where in this document these requirements have been addressed.

**Table 1.1**  
**Management Plan Requirements**

<b>Ministerial Condition</b>	<b>Requirement</b>	<b>Where Addressed in this MP</b>
9-2 (1)	Establishment of permanent fauna monitoring sites.	Section 7.2
9-2 (2)	Additional fauna surveys ahead of mining to identify any significant or unknown species.	Sections 6 and 7.2
9-2 (3)	A baseline survey of the distribution and abundance of the Malleefowl ( <i>Leipoa ocellata</i> ) at, and in the immediate vicinity of, the proposal area.	Sections 6 and 7.3
9-2 (4)	Monitoring of Malleefowl populations both inside and outside the proposal area for comparison, and to show where populations may be declining, stable or increasing.	Section 7.3
9-2 (5)	Predator baiting, particularly to control populations of cats and foxes, throughout the proposal area and appropriate buffers, developed in consultation with the Department of Agriculture and Food and the Department of Conservation and Land Management.	Section 6
9-2 (6)	Investigate and implement best practice directional lighting and/or light shields to reduce impacts of light overspill on fauna.	Section 6
9-2 (7)	Feral animal control strategies, where native fauna is made more vulnerable due to activities associated with mining.	Sections 6 and 7.4
9-2 (8)	Fencing around water dams and open seepage interception trenches to prevent encroachment by large and medium sized animals.	Section 6
9-2 (9)	Escape mechanisms such as mesh or 'self-rescue mats' to allow animals to exit water ponds and open seepage interception trenches.	Section 6
9-2 (10)	Regular inspection of process water ponds or open seepage interception trenches for trapped animals.	Section 7.5.2
9-2 (11)	Reporting procedures and schedule.	Section 12

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## 1.5 DEH Conditions

The Conditions relevant to vertebrate fauna management for the Project from the DEH Approvals Decision – Coburn Mineral Sands Project (EPBC 2003/1221) are provided below:

6. Prior to the commencement of mining operations, the person taking the action must prepare a Fauna Management Plan as detailed in Condition 9 of the *Statement that a proposal may be implemented* (Pursuant to the provisions of the *Environmental Protection Act 1986*) Statement No. 723, published on 22 May 2006. The plan must be implemented.
7. In the event that a fauna species listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* is found, in accordance with Conditions 9-5 to 9-8 of the above *Statement*, the proponent must prepare a Declared Rare Fauna Management Plan to the requirements of the (Australian Government) Minister for the Environment and Heritage as well as those of the WA Minister.

This Fauna Management Plan has been prepared to comply with Condition 6 and following Department of Environment and Conservation (DEC) approval will be implemented.

Condition 7 is discussed in Section 8, as a contingency action to be prepared should threatened fauna, listed as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* be found.

## 2.1 Project Overview

The Project proposed in the PER included mining and processing of ore from ten open cut pits. However, during the environmental assessment process, Gunson decided to seek approval to develop only nine pits until operational data became available to validate and refine the prediction of environmental impacts associated with Pit 10. Consequently, the main components of the Project comprise:

- Nine open-cut mine pits;
- Up to two processing plants that will be relocated as mining progresses;
- A borefield;
- Haul roads and access corridors;
- Offices, workshops and other supporting infrastructure; and
- An accommodation camp.

The key characteristics of the approved Project are summarised in Table 2.1.

**Table 2.1**  
**Key Characteristics of the Coburn Mineral Sand Project**

Element	Description
Project Life	Approximately 12 Years.
Number of Pits	Nine pits.
Rate of Mining	Approximately 2,300 tonnes per hour (tph) for the first two years, increasing to 4,600 tph in Year 3 (~15 million tonnes per annum [tpa] for Years 1 and 2, and 30 million tpa for Years 3 to 12).
Mining Method	Dozers and in-pit screening modules.
Estimated Footprint of Disturbance	Approximately 3,695 hectares.
Rate of Processing	Approximately 2,200 tph for the first two years increasing to 4,400 tph in Year 3 (~140,000 tpa of Heavy Mineral Concentrate from Year 1 increasing to 280,000 tpa from Year 3).
Estimated Volume of Tailings	2,180 tph for each 2,200 tph concentrator.
Volume of Process Water	Up to 18 GL/annum at full production.
Estimated Total Volume of Refined Product	Ilmenite – 1,400 kilotonnes (kt) HiTi – 380 kt Zircon – 660 kt

Source: Schedule 1 of Ministerial Statement No. 723

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## 2.2 Existing Environment

### 2.2.1 Fauna Assemblages

Fauna surveys by Ninox Wildlife Consulting (Ninox) identified a total of seven native mammal species, 67 bird species and 53 reptile species within the Project Area. Most of the vertebrate species found in the surveys have a widespread distribution throughout the semi-arid region and are not restricted to individual habitats. One species known to occur within the Project Area (Malleefowl: *Leipoa ocellata*) is listed under the EPBC Act and classified as ‘Vulnerable’. Malleefowl management is discussed in Table 6.1.

Some vertebrates that are classified as rare, threatened or vulnerable were not found during the Project Area surveys. This is not unusual as, by definition, the presence of these animals would be difficult to confirm because of their scarcity (Ninox Wildlife Consulting, 2005), and is a reality when dealing with short-term studies (Cowan and How, 2004).

Three vertebrate species likely to occur in the Project Area are gazetted under the *Wildlife Conservation Act 1950*. These are the Hamelin Skink (*Ctenotus zasticus*), Peregrine Falcon (*Falco peregrinus*), and the Woma Python (*Aspidites ramsayi*). The Hamelin Skink is listed as “Vulnerable”, and both the Peregrine Falcon and Woma Python are listed as “Other Specially Protected Fauna”.

A further three vertebrate species likely to occur in the Project Area are gazetted under the Department of Conservation and Land Management (CALM), hereafter referred to as the DEC, Priority Fauna List. These are the reptiles *Lerista maculosa* (Priority 1) and *Lerista humphriesi* (Priority 2), and the Australian Bustard (*Otis australis*: Priority 4). However, the taxonomic status of *Lerista maculosa* appears to be in doubt and it is likely that it will be synonymised with *Lerista uniduo* (K. Aplin, pers. comm.).

The Priority Fauna List classifies species as:

- Priority 1 - taxa with few, poorly known populations on threatened lands.
- Priority 2 - taxa with few, poorly known populations on conservation lands.
- Priority 3 - taxa with several, poorly known populations, some on conservation lands.
- Priority 4 - taxa in need of monitoring.

No mammals classified as Rare were recorded during the surveys of the Project Area. Whilst many species historically occurred in the area, they now only occur on Bernier and Dorre Islands, or other islands off the mid-west coast of Western Australia. The Brush-tailed Bettong (*Bettongia penicillata*) and Bilby (*Macrotis lagotis*) have been reintroduced onto Peron Peninsula but are unlikely to occur outside the electric fence that protects the peninsula from exotic predators (C. Sims, pers. comm.). None of these extant mammals have been recorded naturally on the mainland and are therefore extremely unlikely to be present in the Project Area.

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Six introduced mammals were recorded during the surveys. The herbivores were rabbits (*Oryctolagus cuniculus*), goats (*Capra hircus*) and a camel (*Camelus dromedarius*). The three carnivores recorded were feral dogs (*Canis familiaris familiaris*), red foxes (*Vulpes vulpes*) and feral cats (*Felis catus*).

### **2.2.2 Malleefowl**

Malleefowl were once common and widespread in the semi-arid zone of Australia, mainly in the mallee and acacia scrublands, and especially in the north and east of the mulga-eucalypt line. The regional and national populations have been restricted by factors such as habitat clearing, increased fire frequency, competition with introduced herbivores including stock and exotic animals, and increased predation by feral animals such as foxes, cats and dogs. Along with protection under the EPBC Act, Malleefowl are also protected under the provisions of the State *Environmental Protection Act 1986* and the *Wildlife Conservation Act 1950*.

During surveys undertaken by Ninox in 2003 and 2004 Malleefowl were not sighted, but their distinctive footprints and nesting mounds were recorded. Nineteen nesting sites were observed within the Project Area, although the discovery of more nests with increased fauna surveys is likely. The distribution of identified nesting mounds showed that most nests occurred in the middle to southern portion of the Project Area. Their condition ranged from very old, degraded mounds to relatively fresh, but no currently used nests were located.

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### 3.1 Local Vertebrate Fauna

The potential impact of the Project on the local vertebrate fauna could include:

- Removal or degradation of habitat by mining and infrastructure;
- Removal of habitat by access roads;
- Fauna behavioural changes due to noise and vehicle movements;
- Loss of habitat due to accidental wildfire;
- Disturbance to fauna through lighting and road kills; and
- Loss of fauna due to drowning in process water ponds or becoming trapped in the seepage interception trenches adjacent to the tailings disposal areas.

Removal of fauna habitat is expected to result in the localised loss or disturbance of some vertebrate and invertebrate populations. While many of the birds, larger mammals and reptiles will be able to relocate and avoid the impact of mining and processing, many of the smaller vertebrates will be killed by large machinery, or by exposure to predators. However, no loss of regional biodiversity values or species is expected to occur because most vertebrate fauna found in the Project Area are widespread in distribution, and measures to be employed by Gunson are likely to mitigate the effects of Project operations.

### 3.2 Malleefowl

The Fauna Management Plan has been developed to minimise the impact of mining and associated infrastructure on Malleefowl and ultimately designed to facilitate the eventual return of the Malleefowl to the rehabilitated site. However, direct impacts on the Malleefowl population within the Project Area are expected. These impacts include:

- Removal of nesting sites; and
- Removal of habitat by mining, processing and infrastructure.

Impacts that are anticipated to occur less frequently comprise:

- Potential loss of habitat due to fire caused by human activities;
- Disturbance through lighting and road kills; and
- Behavioural changes due to disturbance created by noise and vehicle movements.

The mining activities and removal of Malleefowl habitat are expected to result in the localised loss or relocation of this species. However, review of aerial photography covering the eastern part of the SBWHP and Coburn and Hamelin pastoral leases has illustrated that the vegetation community types in the Project Area most inhabited by the Malleefowl are also well represented outside the Project Area.

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The presence of similar vegetation types indicates that there will be adequate habitat for the preservation of the Malleefowl outside the Project Area. In addition, the management actions outlined in Section 6 are expected to allow for an overall increase in Malleefowl populations throughout the Coburn and Hamelin Stations, predominantly through a reduction in introduced predators and an improvement in vegetation condition through the reduction in introduced herbivores.

Successful rehabilitation of the disturbed areas will result in the return of vegetation communities similar to known Malleefowl habitat. The mounds are most prevalent within the central to southern areas of the Project Area and the S2 vegetation type (Tall Open Shrubland of *Calothamnus formosus* subsp. *formosus*, *Hakea stenophylla* subsp. *notialis* and *Acacia ligulata* with occasional emergent *Eucalyptus selechiana*, *Eucalyptus mennensis* subsp. *vespertine* with *Banksia ashbyi* over *Lamarchea hakefolia* var. *brevifolia* and *Beckea* sp. *nanga* (pn) over *Triodia danthonoides* [Mattiske Consulting Pty Ltd, 2005]). Successful revegetation should eventually result in the return of Malleefowl to the Project Area. However, it is anticipated that the Malleefowl are unlikely to return to the rehabilitated areas for at least five years after rehabilitation due to the specific habitat type required by the species. As the vegetation on the rehabilitated land establishes and matures, it is anticipated that the habitat will be more conducive for Malleefowl to return to the site.

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The objectives of the Fauna Management Plan are to:

- Maintain the abundance, species diversity and geographical distribution of vertebrate fauna;
- Protect species listed under the EPBC Act;
- Protect Specially Protected (Threatened) and Priority Fauna and their habitats, consistent with the provisions of the *Wildlife Conservation Act 1950*;
- Protect rare and endangered species listed under the *Wildlife Conservation Act 1950*;
- Monitor and protect where possible species listed under the DEC Priority Fauna List; and,
- Protect other fauna species of particular conservation significance (eg. undescribed taxa, range extensions, outliers).

Threatened fauna are protected by DEC under the provisions of the *Wildlife Conservation Act 1950*. Threatened and migratory fauna are also protected under the provisions of the EPBC Act. Migratory birds are listed under the Japan-Australia (JAMBA) and China-Australia (CAMBA) Migratory Bird Agreements.

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The effectiveness of the Fauna Management Plan will be determined through a range of performance indicators associated with the monitoring programmes within the Project Area.

It is important to note that the targets set are heavily dependant on baseline data obtained, natural fluctuations within species abundance, and access to the DEC's regional monitoring data if required. While the DEC's data can be used for comparative purposes, it is understood that conditions at the DEC monitoring sites do differ significantly from those in the Project Area. Targets may need to be amended in consultation with stakeholders after this information has been obtained.

The return of fauna to the Project Area is also heavily reliant upon the success of the site rehabilitation and the effectiveness of the Progressive Rehabilitation Programme. The success of the Progressive Rehabilitation Programme should be reflected in achieving the performance criteria set for the return of native fauna to rehabilitated areas. Fauna are likely to return if the rehabilitated ecosystem is able to provide the required amount of food and protection from predators and environmental extremes. Regardless of the success of the rehabilitation, it is unlikely that the current fauna diversity will be re-established completely.

Performance indicators used are as follows:

- Diversity of native fauna species present;
- Abundance of native fauna species present;
- Malleefowl abundance; and
- Diversity and abundance of feral animals.

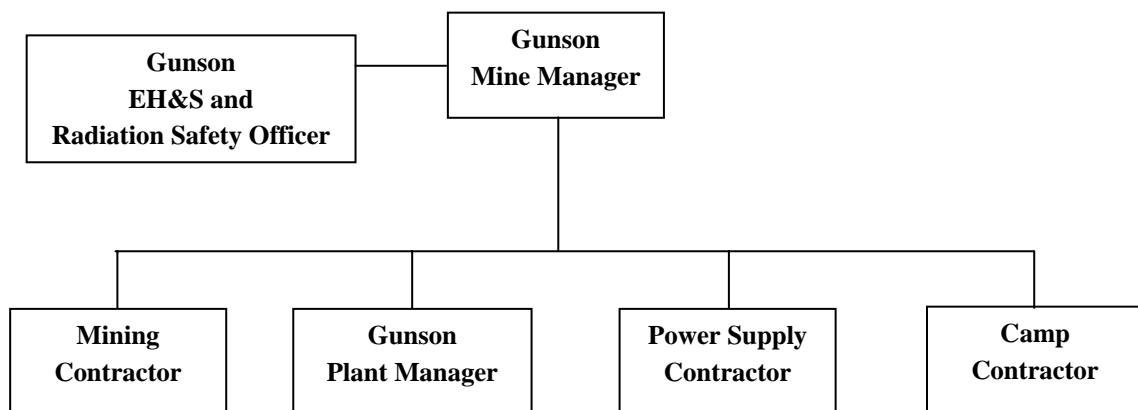
Table 5.1 presents the targets associated with these performance indicators.

**Table 5.1  
Monitoring Programme Performance Indicators and Targets**

Performance Indicator	Site	Target (site averages)				
		Year 1	Year 3	Year 5	Year 15	Year 30
Diversity of native fauna species present	Within Rehabilitated Areas	Fauna habitat available	> 10% of original native fauna species present	> 20% of original native fauna species present	> 50% of original native fauna species present	> 80% of original native fauna species present
	Within Project Area – in areas with no ground disturbing activities	> 50% of native fauna species diversity				
Abundance of native fauna species present	Within Rehabilitated Areas	Fauna habitat available	> 10% abundance of each original native fauna species present	> 20% abundance of each original native fauna species present	> 50% abundance of each original native fauna species present	> 80% abundance of each original native fauna species present
	Within Project Area – in areas with no ground disturbing activities	> 50% of each original native fauna species abundance				
Malleefowl abundance	Within Rehabilitated Areas	NA	NA	NA	Malleefowl habitat available	> 50% of original baseline Malleefowl population abundance
	Within Project Area – in areas with no ground disturbing activities	> 50% of baseline Malleefowl population abundance				
Diversity and abundance of feral animals present	Within Rehabilitated Areas	No significant increase in the diversity or abundance of feral animals due to mining activities over the life of the mine				
	Within Project Area – in areas with no ground disturbing activities	No significant increase in the diversity or abundance of feral animals due to mining activities over the life of the mine				

Gunson has outlined a range of measures designed to minimise the impact of mining operations on vertebrate fauna and increase rehabilitation success (Table 6.1). Specific systems-focussed management measures that will be conducted on site by Gunson employees will be contained in an Environmental Management System.

Gunson has developed a preliminary site organisational structure (Figure 6.1), with both a Mine Manager and an Environmental, Health and Safety (EH&S) Officer that will be directly employed by Gunson and based on-site. Responsibility for management actions has therefore largely been given to one of these two roles. However, it is expected that Gunson’s contractors will implement these actions with supervision, review and audit conducted by Gunson’s EH&S Officer and Mine Manager.



**Figure 6.1: Schematic Organisational Chart**

**Table 6.1  
Management Actions, Timing and Responsibility for Achievement of Objectives**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna.	Vertebrate fauna surveys, in the form of the establishment of the permanent monitoring sites (see Section 7.2), to be conducted ahead of mining as required under Ministerial Condition 9-2 (2).	EH&S Officer	Ahead of mining
		<p>All employees and contractors will undergo site specific environmental awareness training during inductions, the fauna component of this training will include:</p> <ul style="list-style-type: none"> <li>• Fauna of the area;</li> <li>• Issues related to fauna management and staff responsibilities, and Gunson’s fauna commitments;</li> <li>• The adverse impact of feral animals to the local ecosystem and the responsibility of staff in respect to feral animals;</li> <li>• Management information pertinent to the conservation of significant fauna (Malleefowl) in and around the Project Area; and</li> <li>• How staff report sightings of animals, including reference material for positively identifying animals.</li> </ul> <p>Review of training by site personnel will be an annual requirement.</p>	All site personnel	Construction/operation
		If native fauna is encountered it will, where practical, be allowed to make its own way from the work area.	All site personnel	Construction/operation/rehabilitation

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	All external lighting will be targeted where possible, using shields and directional lighting to minimise light spill beyond the required work area.	Mine Manager	Construction/operation
		External lighting will use, where possible, red or low pressure sodium lights. Bright white lights such as mercury vapour, metal halide or florescent will be avoided where possible.	Mine Manager	Construction/operation
		Timer switches and motion sensors will be used on all external lighting where possible.	Mine Manager	Construction/operation
		Low reflective paint or finishes on equipment, and reflective tape will be used instead of external lighting where practical.	Mine Manager	Construction/operation
		The development of a feral animal control programme, utilising the services of a licensed extermination party, will be conducted in consultation with, and advice from, DEC and Department of Agriculture and Food where there is a health concern.	EH&S Officer	Construction/operation

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	<p>Vertebrate fauna sightings (particularly Malleefowl sightings), will be recorded on a site database. Details to be recorded include but are not limited to:</p> <ul style="list-style-type: none"> <li>• Species (if known);</li> <li>• Sex (if known);</li> <li>• Location (GPS coordinates if possible);</li> <li>• Weather conditions;</li> <li>• Vegetation type;</li> <li>• Reliability of identification;</li> <li>• Date and time of sighting; and</li> <li>• Name of observer.</li> </ul> <p>Best practice waste disposal and storage methods/procedures will be implemented, particularly for food wastes, in order to discourage scavenging by feral and native fauna. Refer to the Solid and Liquid Waste Management Plan for further detail.</p>		

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	The putrescibles landfill will be fenced (with a closed gate) to prevent access by fauna. The landfill will be appropriately signposted and covered on a regular basis to prevent scavenging by birds. Refer to the Solid and Liquid Waste Management Plan for further detail.	All site personnel	Construction/operation/rehabilitation
		All work areas will be maintained in a clean and tidy manner to ensure that fauna are not attracted to these areas.	All site personnel	Construction/operation/rehabilitation
		No domestic pets shall be allowed on site.	All site personnel	Construction/operation/rehabilitation
		Feeding or interacting with feral or native fauna will be prohibited.	All site personnel	Construction/operation/rehabilitation
		Appropriate speed limits will be set, signposted and adhered to on all roads to avoid road-kills and the subsequent attraction of fauna.	Mine Manager	Construction/operation/rehabilitation
		All road-kills will be recorded on the site fauna sightings database. The local DEC office will be contacted for any road kill of a rare or unusual species to determine a plan of action. All other road-kill will be removed immediately and disposed of to an approved disposal site.	All site personnel	Construction/operation/rehabilitation

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	All vehicles will yield right-of-way to wildlife.	All site personnel	Construction/operation/rehabilitation
		Employees and contractors will not be permitted to hunt, fish or gather eggs in the Project Area.	Mine Manager	Construction/operation/rehabilitation
		If injured fauna are encountered the EH&S Officer should contact DEC's Wild Care 24 hour hotline on (08) 9474 9055.	EH&S Officer	Construction/operation/rehabilitation
		A ring lock fence of appropriate gauge and height will be erected around the raw water dam to stop encroachment/entrapment by medium to large sized animals such as kangaroos. All other dams and interception trenches will not require fencing as they are either within the pit area or within the normal operating range of the wet concentrator plant. These areas will be visually monitored to determine whether fauna utilise these water sources and whether further fencing is required.	Mine Manager	Construction
		Mesh or "self rescue mats" will be placed at the edge of all water dams to allow any small vertebrate fauna to exit the water.	EH&S Officer	Construction

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
1	Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	In conjunction with the Department of Agriculture and Food, Project Eden and DEC, Gunson will participate in or provide some funding for the Natural Heritage Trust Extension – Bushcare Program “Fox Control on Hamelin, Nanga, Coburn and Tamala Pastoral Leases,” to extend the programme to cover the entire Coburn pastoral lease. This programme aims to reduce fox and cat abundance through aerial dropping of 1080 (sodium fluoroacetate) dried meat baits at an average distribution of five per 100 ha.	EH&S Officer	Construction/operation/rehabilitation
2	Protection of all species listed under the EPBC Act, <i>Wildlife Conservation Act 1950</i> , DEC Priority Fauna List and other fauna species of particular conservation significance (e.g. undescribed taxa, range extensions, outliers).	De-stocking of the Coburn pastoral lease will occur for a period of several years as decreased grazing pressure is expected to increase vegetation condition over the entire property. An initial de-stocking of the Coburn pastoral lease shall be undertaken for sheep and goats.	Mine Manager	Construction/operation/rehabilitation
		An ongoing feral animal control programme will be developed and implemented in consultation with DEC, incorporating the trapping of feral animals at watering points on the Coburn pastoral lease and opportunistic removal using humane methods and according to animal welfare guidelines.	Mine Manager	Summer 2006-07
		Stock watering points will be disabled, and windmills and other removable water supply equipment will be safely stored.	Coburn Station Manager	Winter 2007
		Improve stock proof fencing between the Project and the SBWHP.	Contractors	Prior to re-stocking

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
2	Protection of all species listed under the EPBC Act, <i>Wildlife Conservation Act 1950</i> , DEC Priority Fauna List and other fauna species of particular conservation significance (e.g. undescribed taxa, range extensions, outliers) (cont.'d).	A baseline survey of the distribution and abundance of the Malleefowl will be conducted at and in the immediate vicinity of the Project Area.	EH&S Officer	Ahead of mining
3	Protection of Priority Fauna habitats, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i> .	No clearing will be undertaken unless specifically required and authorised by the EH&S Officer.	Mining Contractor	Construction/operation/rehabilitation
		Equipment will be positioned on flattened vegetation or previously disturbed/cleared areas rather than clearing native vegetation wherever possible.	Mining Contractor	Construction/operation/rehabilitation
		The extent of the proposed clearing will be clearly marked by flagging tape. This delineates the area to be cleared while still allowing fauna to relocate.	Mining Contractor	Construction/operation/rehabilitation
		Maps will be produced that detail areas to be cleared, including the timing of the clearing operations and areas rehabilitated. These maps will be updated on a regular basis.	EH&S Officer	Prior to ground disturbing activities
		Cleared areas and associated maps will be regularly audited to ensure adherence to the plan.	EH&S Officer	Prior to ground disturbing activities

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
3	Protection of Priority Fauna habitats, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i> (cont.'d).	Cleared vegetation, where practical, will be directly returned to rehabilitation areas, providing extremely good microhabitat for a large range of fauna. Where cleared vegetation is to be stored for future rehabilitation, the dozer blade/fork/rake shall be raised slightly above the soil surface in order to preserve rootstock. Cleared vegetation must not be burnt but stockpiled away from drainage lines in separate piles to topsoil, subsoil or overburden.	All site personnel	Construction/operation/rehabilitation
		Clearing will be undertaken with the focus on maintaining corridors to link vegetation patches where possible. Clearing will also be conducted in stages and on one front where possible, to allow for local migration of fauna into adjacent areas.	All site personnel	Construction/operation/rehabilitation
		Progressive rehabilitation will occur as set out in the Progressive Rehabilitation Management Plan. This will encourage fauna to return earlier by provision of favorable habitat.	Mine Manager	Construction/operation/rehabilitation
		All drill holes will be temporarily capped on completion of drilling and permanently capped as soon as possible. Drill holes will be regularly monitored to ensure the caps remain in place.	EH&S Officer	Construction/operation/rehabilitation
		Malleefowl mounds that are not in the direct mine path will be avoided wherever possible by careful consideration of the location of infrastructure and with a suitable buffer (approximately 10 m) established around active mounds.	All site personnel	Construction/operation/rehabilitation

**Table 6.1 (cont.'d)**

Priority	Objective	Management Action	Responsible Personnel	Timing
3	Protection of Priority Fauna habitats, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i> (cont.'d).	Signage will be erected to indicate the known location of all active Malleefowl mounds, with signage stating the required buffer distance. Malleefowl mound locations will be recorded by GPS within the fauna sightings database.	EH&S Officer	Construction

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## 7.1 Overview

The fauna monitoring programme for the Project will include annual monitoring of native fauna (see Section 7.2), Malleefowl (see Section 7.3), and feral animals (see Section 7.4). Monitoring programme requirements are summarised in Table 7.1 and should be reviewed every five years in consultation with DEC.

## 7.2 Permanent Monitoring Sites

Permanent fauna monitoring sites will be established to meet the requirements of Conditions 9-2 (1) and 9-2 (2).

Condition 9-2 (1) of Ministerial Statement No. 723 requires the establishment of permanent fauna monitoring sites. This monitoring programme aims to assess:

- Possible impacts on fauna populations due to mining; and
- The progress and success of fauna re-colonisation of rehabilitated areas.

Condition 9-2 (2) of Ministerial Statement No. 723 requires additional fauna surveys ahead of mining to identify any significant or unknown species

At this stage the exact number and location of these monitoring sites is still to be determined. The locations of vegetation monitoring sites, vegetation communities and comparative sites will influence the location of the fauna monitoring sites. Potential sites for the first phase of monitoring are illustrated in Figure 7.1. Monitoring sites will be identified and set up prior to ground disturbing activities.

Basic monitoring site localities will be established:

- Basic monitoring site localities will be established within the Project Area where no ground disturbing activities will take place. These sites will be located within the Project Area but outside of the expected mine path and associated areas of disturbance. These sites will provide data on the abundance and diversity of fauna species at sites not physically directly disturbed by the mining process; and
- Permanent monitoring sites will be established within disturbed areas after rehabilitation has taken place. These sites will provide data on the return of fauna into rehabilitated areas, and provide a comparative analysis with baseline studies and monitoring sites within undisturbed areas. This will provide a determination of the success of the rehabilitation through the achievement of the performance indicators.

All trapping techniques used during the previous surveys (Ninox Wildlife Consulting, 2005) will be used at permanent monitoring sites. These techniques will consist of fenced pitfall traps, fenced (paired) funnel traps, 10 x Elliott box traps and 2 x wire cage traps. Traps will be left open for six nights in each survey. Birds will be sampled by means of timed 'area searches' in the vicinity of each fauna trapping

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site over five days during each survey. As these permanent fauna monitoring sites will be sampled over several years, consideration will be given to the incorporation of any new survey techniques as they become available in the future (Ninox Wildlife Consulting, 2006).

### **7.3 Malleefowl Populations**

Condition 9-2 (4) of Ministerial Statement No. 723 requires Gunson to monitor Malleefowl populations both inside and outside the Project Area for comparative purposes. This will be accomplished using a combination of monitoring techniques identified in Sections 7.3.1 and 7.3.2. Sightings will also be reported to the Malleefowl Preservation Group (MPG) so that data can be used to monitor the regional population.

#### **7.3.1 Nesting Mounds**

The MPG was formed in 1992 as a response to the decline of Malleefowl in the Gnowangerup Shire. Subsequently, a standard approach to surveying and monitoring Malleefowl nesting mounds was established: the ‘Human Chaining’ method. This method will be used to identify Malleefowl mounds within areas of the Project Area to be disturbed.

Up to 12 people will walk transects within the survey area at approximately 10 m apart and adjacent to one another. Each person will look for Malleefowl mounds up to 5 m either side of their transect line. When mounds are located, the mound location (using GPS) and condition will be recorded.

Any nesting mounds that appear to be active and are within the defined area of disturbance will be visually assessed immediately prior to disturbance. If ground disturbance is not planned for the duration of egg incubation the nest will be left undisturbed. However, if preparation for mining is planned prior to the emergence of chicks, the eggs will be removed for artificial incubation with the subsequent time and location for the release of chicks to be discussed with DEC (Ninox Wildlife Consulting, 2006).

#### **7.3.2 Malleefowl Activity**

In conjunction with the ‘Human Chaining’ method of Malleefowl monitoring, an assessment of Malleefowl activity will be conducted at each monitoring site by searching along cleared lines for fresh prints. At this stage the number, location and length of lines is undetermined.

Malleefowl are extremely difficult to observe, therefore this method will provide an assessment of the level of activity within a given area (Ninox Wildlife Consulting, 2006). Fresh footprints will be noted using a GPS unit and the area surveyed over three consecutive days. These lines will be monitored annually, over a consecutive three day period, to assess Malleefowl activity prior to and during mining activities.

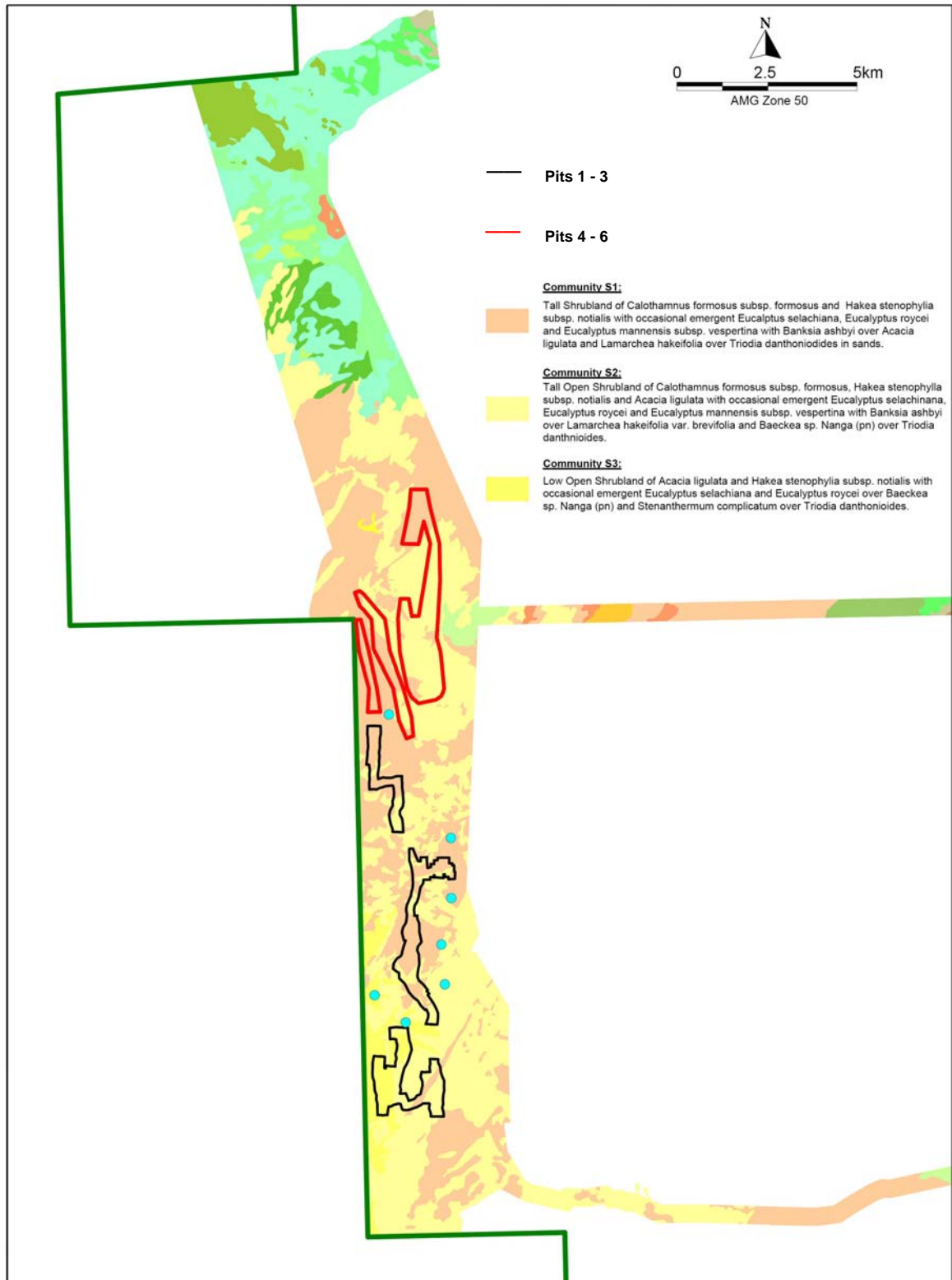


Figure 7.1: Possible Locations of Fauna Monitoring Sites

**Table 7.1  
Vertebrate Fauna Monitoring Programme Requirements**

Objectives	Aspect	Programme	Proposed Initial Locations	How	When
<ul style="list-style-type: none"> <li>Assess possible impacts on fauna populations, species diversity and abundance due to mining;</li> <li>Assess the progress and success of fauna re-colonisation of rehabilitated areas; and</li> <li>Comply with Condition 9-2 (1) of Ministerial Statement No. 723.</li> </ul>	Native fauna	Species diversity and abundance	<ul style="list-style-type: none"> <li>Rehabilitated areas within the Project Area; and</li> <li>Within the Project Area where no ground disturbing activities will take place.</li> </ul>	<ul style="list-style-type: none"> <li>Trapping;</li> <li>Site observation; and</li> <li>Timed searches.</li> </ul>	Annually
<ul style="list-style-type: none"> <li>Show where Malleefowl populations may be declining, stable or increasing; and</li> <li>Comply with Condition 9-2 (4) of Ministerial Statement No. 723.</li> </ul>	Malleefowl	Malleefowl abundance	<ul style="list-style-type: none"> <li>Rehabilitated areas within the Project Area; and</li> <li>Within the Project Area where no ground disturbing activities will take place.</li> </ul>	Malleefowl activity within cleared transects.	Annually
			<ul style="list-style-type: none"> <li>Areas to be disturbed within the Project Area.</li> </ul>	'Human Chaining' method for active mounds.	Ahead of mining activities
<ul style="list-style-type: none"> <li>To provide information on the effectiveness of feral animal control strategies;</li> <li>Comply with Condition 9-2 (5) and (6) of Ministerial Statement No. 723.</li> </ul>	Feral animals	Species diversity and abundance	<ul style="list-style-type: none"> <li>Rehabilitated areas within the Project Area; and</li> <li>Within the Project Area where no ground disturbing activities will take place.</li> </ul>	<ul style="list-style-type: none"> <li>Trapping; and</li> <li>Site observation.</li> </ul>	Annually

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## 7.4 Feral Animal Monitoring

In conjunction with the Department of Agriculture and Food and DEC, Gunson will monitor feral animal populations to provide information on the effectiveness of control strategies in benefiting Malleefowl populations. Feral animal populations will be monitored using the permanent fauna monitoring sites as discussed in Section 7.2.

All trapping techniques used during the previous surveys (Ninox Wildlife Consulting, 2005) will be used at permanent monitoring sites to monitor feral animal activity. These techniques will consist of fenced pitfall traps, fenced (paired) funnel traps, 10 x Elliott box traps and 2 x wire cage traps. Traps will be left open for six nights in each survey. Opportunistic observations and searches for the presence of feral animals will also play a large part in feral animal monitoring. As these permanent fauna monitoring sites will be sampled over several years, consideration will be given to the incorporation of any new survey techniques as they become available in the future (Ninox Wildlife Consulting, 2006).

An increase in feral animal species diversity or abundance will lead to a review of the feral animal programme developed in consultation with DEC.

## 7.5 Inspections

### 7.5.1 Domestic Waste Enclosures

Weekly inspections of the Project Area will check and record the integrity of waste enclosures, including garbage and food waste containers, for signs of breaches by feral and native fauna. This monitoring procedure is the responsibility of the EH&S Officer and will be conducted throughout construction, operation and rehabilitation of the Project.

### 7.5.2 Process Water Ponds and Open Seepage Interception Trenches

An inspection of all process water ponds and open seepage interception trenches for trapped animals will occur every morning. All storage areas, interception trenches and slimes trenches will be visually monitored to determine whether fauna are accessing these water sources. The success of this inspection strategy may need to be reviewed over time. The responsibility for this monitoring, which is to be conducted throughout the construction and operation of the Project, is that of the EH&S Officer. However, it is important that the personnel conducting the inspections have the appropriate skills and experience to conduct this task.

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## 8.1 Overview

Gunson will initiate contingency actions if problems are identified during the monitoring process, stakeholders become concerned with an aspect of the mining process, or a factor that is exacerbated by the mining process becomes apparent. Possible aspects of fauna management which may require contingency actions have been presented below.

## 8.2 Threatened Fauna

A Threatened Fauna Management Plan will be prepared, implemented and made publicly available, in the event that Threatened Fauna, other than Malleefowl, and including those listed as “threatened” under the EPBC Act, are identified in the Project Area, in compliance with Condition 9-5. The Threatened Fauna Management Plan will be prepared to the requirements of the Minister for the Environment on advice of the EPA and DEC, and will include:

1. The recorded location of Threatened Fauna species;
2. A description of the habitat in which the Threatened Fauna is found;
3. The degree of impact of the proposed works on Threatened Fauna or its identified habitat;
4. A management strategy for the protection of Threatened Fauna species, including relocation, or other action recommended by the DEC; and
5. Post-activity monitoring plan for Threatened Fauna species.

The Threatened Fauna Management Plan, or Declared Rare Fauna Management Plan as described by the DEH, must also be prepared to the requirements of the (Australian Government) Minister for the Environment and Heritage, in accordance with Condition 7 of the DEH Approval Decision – Coburn Mineral Sand Project (EPBC 2003/1221).

## 8.3 Diversity and Abundance of Native Fauna

Should the performance indicators for the diversity and abundance of native fauna not be met, as set in Table 5.1, implementation of one or more of the contingency actions below may need to be considered, though this will largely depend on the timing since rehabilitation and the current circumstances:

- Importation of appropriate fauna habitat such as mulch, logs, mature trees and/or nest boxes;
- A review of the performance indicators, it may be necessary to refine these with stakeholder agreement. These may be refined to indicate whether preferable habitat types are available, such as leaf litter, mulch, understorey vegetation, logs, hollows etc.;

- 
- A review of the rehabilitation success and rehabilitation performance indicators. Fauna will not relocate to an area if the appropriate vegetation is not present, which will largely be a factor of rehabilitation success; and
  - A review of the abundance and diversity of feral animals. Increased feral animal numbers may be responsible for native fauna performance indicators not being met. Should this be found to be the case, contingency actions outlined in Section 8.5 may need to be implemented.

## 8.4 Malleefowl Abundance

Movement of Malleefowl to rehabilitated areas will not occur until a reasonable level of vegetation and protection has been established within the area. Based on advice from the DEC, it can take as long as 15 years to regenerate after significant disturbance. The return of Malleefowl to disturbed areas is therefore heavily reliant upon the successful implementation of the Priority Flora, Flora and Vegetation Management Plan and the Progressive Rehabilitation Programme.

Contingency actions to be implemented should performance indicators for Malleefowl abundance not be reached, will be considered after baseline surveys are completed, monitoring data obtained and compared to plant communities, and rehabilitation of areas has commenced. Contingency actions in this instance will most likely be based on providing suitable habitat for Malleefowl, as well as feral animal and stock control strategies.

## 8.5 Diversity and Abundance of Feral Animals

Should monitoring programmes indicate the diversity and abundance of feral animals have significantly increased due to mining activities, the contingency actions below should be considered:

- Review and revise (where necessary) waste disposal procedures and storage;
- Investigate fencing options for the Project;
- Review the success of the feral animal baiting programme and discuss with the Department of Agriculture and Food, Project Eden and DEC other feral animal baiting options; and
- Review the Coburn pastoral lease de-stocking/re-stocking programme and implement changes where necessary.

## 8.6 Inspections of Open Seepage Trenches and Process Water Ponds

Should fauna be found in open seepage trenches and/or process water ponds during daily inspections, the contingency actions below should be considered:

- Inspections of areas of higher incidences of trapped fauna may need to occur more frequently;

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- Life buoys may need to be situated near trenches/ponds to allow trapped birds a chance to escape. Life buoys thrown close to a bird may give the animal a chance to climb onto the buoy, dry-off and escape;
  - Inspection or further installation of fences and self release mats around trenches and ponds;
  - Review the 'no firearms policy' and initiate discussions with relevant stakeholders to obtain a firearm licence. This will enable the EH&S to have trapped animals euthanized humanely; and
  - Contact DEC's Wild Care 24 hour hotline on (08) 9474 9055 for advice.

## 8.7 Waste Enclosure Inspections

Should weekly inspections of waste enclosures, including garbage and food waste containers, indicate that feral or native animals have breached the integrity of enclosures, the following contingency actions will be considered:

- Repair any fences that have been breached and investigate possible ways to secure the area;
- Replace garbage and waste containers, with a review of waste disposal and containment technology; and
- Review of waste disposal and containment procedures, and the Solid and Liquids Waste Management Plan.

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## 9.1 During the EIA Process

Gunson undertook stakeholder consultation with CALM, DEH, Department of Environment (DoE), Department of Industry and Resources (DoIR), Shire of Shark Bay Shire, surrounding pastoralists and traditional Aboriginal custodians prior to submission of the PER in relation to the management of fauna. Issues raised during this consultation and Gunson's responses are documented in Section 5 of the PER (URS, 2005). Public comment was also received during the eight-week public review period for the PER, with issues raised and Gunson's responses documented in the Proponent's Response to Submissions (URS, 2006a).

The key stakeholder issues included:

- Malleefowl population monitoring and protection;
- Comparisons with World Heritage Property;
- Predator baiting; and
- Feral animal control strategies.

## 9.2 During Preparation of this MP

Ministerial Condition 9-1 requires that this Fauna MP be prepared to meet the requirements of the Minister for the Environment on advice of the EPA and CALM (now DEC). In addition, the DEC's guidelines on the preparation of EMPs state that it is the relevant advisory agencies and other stakeholders have been provided with an opportunity to provide input to the draft MP. The relevant stakeholders for this MP are:

- EPA; and
- DEC Conservation Branch.

To obtain advice from the DEC Conservation Branch, a draft MP was submitted to the DEC (Midwest Region and Environmental Management Branch) for review. A draft was also submitted to the SBWHP Community Consultative Committee (CCC) and Scientific Advisory Committee (SAC) to obtain their comments. Feedback from the DEC Conservation Branch, SBWHP CCC and SBWHP SAC was addressed during the preparation of this version of the MP, prior to submission to the DEC Statement Management Section.

Documentation on the comments received from the DEC Conservation Branch, SBWHP CCC and SBWHP SAC, and the way in which these comments were addressed in the MP has been submitted to the DEC Statement Management Section under separate cover. It is understood that the DEC Statement Management Section will consult with the EPA to obtain its input on this version of the MP.

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The final MP was prepared following receipt of comments from the EPA and was submitted to the EPA through the DEC Statement Management Section and the DEC Audit branch for approval.

### **9.3 Consultation during Construction and Operation**

Stakeholder consultation will continue throughout the life of the Project and will address any issues raised by stakeholders.

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Gunson will establish and maintain a programme and procedures for periodic audits of the EMP, including this MP. The current audit programme is outlined in URS (2006b). Maintenance and implementation of the audit programme will be the responsibility of Gunson's EH&S Officer.

Environmental audits can occur in many forms, but have a common objective: to assess the environmental performance of a facility in order to identify risks and potential liabilities. For this Project, the audits will also be required to provide information and evidence for the reports required under the Ministerial Statement, which are listed in Section 12 of this MP.

The format of the audit will depend on the issue or area being reviewed but could include the following phases:

- Development of the audit protocol.
- Completion of a questionnaire by site personnel prior to a site visit by the auditor.
- Site visit, comprising interviews, site inspections and/or direct measurement.
- Review of relevant documentation and records.
- Preparation and submission of the audit report.

This MP will be audited on an annual basis and the outcomes included in the relevant reports required under Ministerial Condition 5 (see Section 12). Information on the results of the audits will also be provided to Gunson management for review.

In addition to formal audits by internal or external auditors to meet the reporting requirements for Ministerial Condition 5, internal area or facility inspections will be conducted to assess the effectiveness of day-to-day environmental management. This will allow opportunities for improvements in environmental performance to be identified and acted upon as soon as possible. The inspections will occur on a weekly, monthly or less frequent basis, depending on the area or facility being reviewed.

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This MP will be reviewed on an annual basis or more frequently if required, to address the following:

- Any changes in Project design or operation that require modifications to the environmental management procedures outlined in this MP;
- Any issues identified as a result of internal and external audits, and Gunson management review of the audit outcomes, in relation to the suitability, adequacy and effectiveness of this MP in meeting the agreed objectives; and
- Corrective or preventative actions developed in response to environmental incidents and non-conformances.

Revision of this MP may also be triggered by Conditions 10 and 11 of the Commonwealth environmental approval. These conditions are as follows:

10. If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans, programs or measures referred to in paragraphs 1 to 8, the person taking the action may submit for the Minister's approval a revised version of any such plan, program or measure. If the Minister approves a revised plan, program or measure so submitted, the person taking the action must implement that plan, program or measure instead of the plan, program or measure as originally approved.
11. If the Minister believes it is necessary or desirable for the better protection of the environment relevant to the species or World Heritage values mentioned in this Approval to do so, the Minister may request the person taking the action to make specified revisions to a plan, program or measure approved pursuant to paragraphs 1 to 8, and to submit the revised plan, program or measure for the Minister's approval. The person taking the action must comply with any such request. If the Minister approves a revised plan, program or measure pursuant to this condition, the person taking the action must implement that plan, program or measure instead of the plan, program or measure as originally approved.

The revised MP will be submitted to the relevant stakeholders (see Section 9) for review and approval.

The revision number for the MP will be recorded on the document's signature page.

## 12.1 Internal Reporting

Environmental records are evidence of the ongoing environmental performance of the Project and demonstrate conformance with legal and other requirements. Environmental records to be maintained by Gunson and/or its contractors will include:

- A register of legal and other regulatory requirements including licences and permits;
- A register of environmental aspects and impacts;
- Incident reports;
- Training records;
- Inspection, calibration and maintenance records;
- Monitoring data;
- A register of non-conformances;
- Public complaints and responses to these; and
- Internal and external audits and reviews.

## 12.2 External Reporting under the State Ministerial Approval

The reporting requirements defined under Ministerial Statement No. 723 are as described below. There is a degree of overlap for these reports, and it is expected that some of these reports will be combined to simplify the review process.

### 12.2.1 Compliance Reports

Compliance reports are required under Ministerial Condition 5-1 to address:

- The status of implementation of the proposal, as defined in Schedule 1 of the Ministerial Statement;
- Evidence of compliance with the conditions and commitments; and
- The performance of the environmental management plans and programs.

These reports are to be submitted to on an annual basis, or more frequently if sign-off of a condition or commitment is required more rapidly than annually.

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### 12.2.2 Performance Review Reports

Performance review reports are required every five years after the start of operations. These are required to address:

1. The major environmental issues associated with implementing the project; the environmental objectives for those issues; the methodologies used to achieve these; and the key indicators of environmental performance measured against those objectives;
2. The level of progress in the achievement of sound environmental performance, including Australian industry benchmarking, and the use of best available technology where practicable;
3. Significant improvements gained in environmental management, including the use of external peer reviews;
4. Stakeholder and community consultation about environmental performance and the outcomes of that consultation, including a report of any on-going concerns being expressed; and
5. The proposed environmental objectives over the next five years, including improvements in technology and management processes.

### 12.2.3 Independent Audit Report

Ministerial Condition 5-3 requires that an independent auditor prepare a report on each condition/commitment included in the Ministerial Statement which requires preparation of a management plan, programme, strategy or system. The objective of the report is to determine whether the requirements of these conditions and commitments have been fulfilled within the stated timeframe.

It is expected that this report could be included in the Compliance Reports submitted in accordance with Ministerial Condition 5-1.

### 12.2.4 Annual Environmental Report

An Annual Environmental Report (AER) is required under Ministerial Condition 5-4. The purpose of the AER is to report on:

- Implementation of Gunson's environmental commitments (but not the Ministerial Conditions); and
- Outcomes of any monitoring programs and performance reviews associated with the implementation of the MPs.

Unlike the other reports required under Ministerial Condition 5, this report is to be made available to the public.

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This report is not to be confused with the AER required by the DoIR as part of mining lease conditions (Section 12.4), or by the DEC in relation to licensing under Part V of the *Environmental Protection Act 1986* (Section 12.5).

### **12.3 External Reporting under the Commonwealth Ministerial Approval**

Condition 9 of the Commonwealth environmental approval issued under the EPBC Act requires that:

On 1 September of each year after the date of commencement of operations, the Project Director for the person taking the action must provide to the (Australian Government) Minister for the Environment and Heritage (the Minister) a certificate stating that the person taking the action has complied with the conditions of this Approval. This certificate must state, to the satisfaction of the Minister, the manner in which the approval conditions have been complied with. Should the Minister so direct, the person taking the action must appoint an independent auditor to audit compliance under this condition and make the results of that audit available to the Minister.

### **12.4 External Reporting under Mining Lease Conditions**

As part of the mining lease conditions set by the DoIR, Gunson will be required to submit an AER. The objectives of the AER are defined by the DoIR (Department of Minerals and Energy, 1996) as to:

- To concisely document the major mining activities for the reporting year and proposed activities for the following year;
- To concisely document environmental management and rehabilitation activities for the reporting year and proposed activities and developments in the following year;
- To assist operators in monitoring their own performance;
- To assist in the preparation of a completion report and audit for the DoIR on cessation of operations; and
- To provide basic information to DoIR about the extent of mining operations in the State and the standard of environmental management being achieved.

### **12.5 External Reporting under the Pollution Prevention Licence**

A pollution prevention licence will be required for the Project under Part V of the *Environmental Protection Act 1986*. This licence is not yet required. Once the licence has been issued, the need for reporting data relevant to this MP will be reviewed, and the MP amended if required.

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The key management actions to be carried out to achieve the objectives outlined in the Ministerial Statement No. 723 are summarised in Table 13.1. The table forms the basis of annual compliance reporting, monitoring and auditing.

**Table 13.1**  
**Key Management Actions Table**

Objective	Target	Ref	Key Management Action	DEC Reporting/Evidence	Status (to be updated in annual compliance reports)
Maintain the abundance, species diversity and geographical distribution of fauna.	See Table 5.1 for vertebrate fauna monitoring targets.	F1.1	Vertebrate fauna surveys, in the form of the establishment of the permanent monitoring sites (see Section 7.2), will be conducted ahead of mining, as required under Ministerial Condition 9-2 (2).	Results of fauna surveys will be summarised within the Annual Environmental Report (AER) and the fauna survey report provided as an appendix.	
		F1.2	Vertebrate fauna sightings (particularly Malleefowl sightings), will be recorded on a site database. Details to be recorded include but are not limited to: <ul style="list-style-type: none"> <li>• Species (if known);</li> <li>• Sex (if known);</li> <li>• Location (GPS coordinates if possible);</li> <li>• Weather conditions;</li> <li>• Vegetation type;</li> <li>• Reliability of identification;</li> <li>• Date and time of sighting; and</li> <li>• Name of observer.</li> </ul>	A summary of the vertebrate fauna sightings database will be provided within the AER.	
		F1.3	Implement the native fauna monitoring programme. See Section 7.2.	A summary of the monitoring programme will be provided within the AER.	

# Key Management Actions Table

**Table 13.1 (cont.'d)**

Objective	Target	Ref	Key Management Action	DEC Reporting/Evidence	Status
Maintain the abundance, species diversity and geographical distribution of fauna (cont.'d).	See Table 5.1 for feral animal monitoring targets.	F1.4	Weekly domestic waste enclosure inspections. See Section 7.5.1.	Inspection sheets will be kept on-site and produced for regulators/auditors if/when required.	
		F1.5	Best practice waste disposal and storage methods/procedures will be implemented, particularly for food wastes, in order to discourage scavenging by feral and native fauna. New technology and advances in waste disposal and containment will be employed wherever possible. Refer to the Solid and Liquid Waste Management Plan for further detail.	Best practice waste disposal and storage procedures will be kept on-site and produced for regulators/auditors if/when required.	
		F1.6	Feral animal populations will be monitored. See Section 7.4.	Monitoring results will be summarised within the AER.	
		F1.7	In conjunction with the Department of Agriculture and Food, Project Eden and DEC, Gunson will participate and provide funding for the Natural Heritage Trust Extension – Bushcare Program “Fox Control on Hamelin, Nanga, Coburn and Tamala Pastoral Leases,” to extend the programme to cover the entire Coburn pastoral lease. This programme aims to reduce fox and cat abundance through aerial dropping of 1080 (sodium fluoroacetate) dried meat baits at an average distribution of five per 100 hectares.	An annual summary of Gunson’s participation in the Bushcare Program will be included within the AER.	

# Key Management Actions Table

**Table 13.1 (cont.'d)**

Objective	Target	Ref	Key Management Action	DEC Reporting/Evidence	Status
Protection of all species listed under the EPBC Act, <i>Wildlife Conservation Act 1950</i> , DEC Priority Fauna List and other fauna species of particular conservation significance (e.g. undescribed taxa, range extensions, outliers).		F2.1	All employees and contractors will undergo site specific environmental awareness training during inductions, the fauna component of this training will include: <ul style="list-style-type: none"> <li>• Fauna of the area;</li> <li>• Issues related to fauna management and staff responsibilities;</li> <li>• The adverse impact of feral animals to the local ecosystem and the responsibility of staff in respect to feral animals; and</li> <li>• How staff report sightings of animals, including reference material for positively identifying animals.</li> </ul> Review of training by site personnel will be an annual requirement.	Up-to-date staff training records will be kept on-site and produced for regulators/auditors if/when required.	
	See Table 5.1 for Malleefowl monitoring targets.	F2.2	A baseline survey of the distribution and abundance of the Malleefowl shall be conducted both inside and outside the Project Area using methods described in Section 7.3.1 and 7.3.2.	Results of baseline surveys of the distribution and abundance of the Malleefowl shall be summarised within the AER and the report appendices.	
	Protection of Priority Fauna habitats, consistent with the provisions of the <i>Wildlife Conservation Act 1950</i> .	F3.1	Authorisation for all clearing must be given by the EH&S Officer.	Maps detailing areas that have been cleared and/or rehabilitated in the previous year to be submitted within the AER.	

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Department of Minerals and Energy (1996) *Guidelines for the Preparation of an Annual Environmental Report*. April 1996.

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URS Australia Pty Ltd (2006b) *Audit Programme. Coburn Mineral Sand Project Compliance Audit and Performance Review Programme*. Prepared for Gunson resources Limited, July 2006.

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URS Australia Pty Ltd (URS) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Gunson Resources Limited and only those third parties who have been authorised in writing by URS to rely on the report. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal dated 1 June 2006.

The methodology adopted and sources of information used by URS are outlined in this report. URS has made no independent verification of this information beyond the agreed scope of works and URS assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to URS was false.

This report was prepared between June and December 2006 and is based on the conditions encountered and information reviewed at the time of preparation. URS disclaims responsibility for any changes that may have occurred after this time.

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