



14 March 2021

Malleefowl Assessment – Proposed Southern Waste Rock Dump

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Our Reference: GRL 003

1. Introduction

1.1 Background

Western Ecological was commissioned by Gascoyne Resources Limited (Gascoyne) to undertake a Malleefowl (*Leipoa ocellata*) assessment in the proposed southern waste rock dump (WRD) area (survey area) at the Dalgaranga project as part of a mining proposal. The Malleefowl is a threatened species that is listed as Vulnerable under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and the *Western Australian Biodiversity Conservation Act 2016* (BC Act). The Dalgaranga project is located approximately 65 km north west of Mount Magnet in the Murchison region of Western Australia (WA) (Figure 1).

1.2 Objectives and Scope

The scope of work (SoW) to be undertaken was as follows:

- Targeted searches and a habitat assessment for the Malleefowl in the proposed southern WRD where suitable habitat is present
- Document the above in a short letter report.

1.3 Legislative context

Fauna in Western Australia is protected formally and informally by various legislative and non-legislative measures, which are as follows:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) – Commonwealth Government*
- *Environmental Protection Act 1986 (EP Act) – WA State Government*
- *Biodiversity Conservation Act 2016 (BC Act) – WA State Government.*

Non-legislative measures:

- WA Department of Biodiversity, Conservation and Attractions (DBCA) Priority lists for flora, ecological communities and fauna.

A short description of each is given below. Other definitions, including species conservation categories, are provided in Appendix 1.

EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) aims to protect matters of national environmental significance, which are detailed in Appendix 1. Under the EPBC Act, the Commonwealth Department of Agriculture, Water and the Environment (DAWE) lists protected species and Threatened Ecological Communities (TECs) by criteria set out in the Act. Species are conservation significant if they are listed as Threatened (i.e., Critically Endangered, Endangered and Vulnerable) or Migratory.



Bird species protected as Migratory under the EPBC Act include those listed under international migratory bird agreements relating to the protection of birds, which migrate between Australia and other countries, for which Australia has agreed. This includes the Japan-Australia Migratory Bird Agreement (JAMBA), the China-Australia Migratory Bird Agreement (CAMBA), the Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

Some marine fauna or terrestrial fauna that use marine habitats are listed as Marine under the EPBC Act. These species are only considered conservation significant when a proposed development occurs in a Commonwealth marine area (i.e., any Commonwealth Waters or Commonwealth Marine Protected Area). Outside of such areas, the EPBC Act does not consider these species to be matters of national environmental significance, so are not protected under the Act.

BC Act

The *Biodiversity Conservation Act 2016* (BC Act) replaced both the *Wildlife Conservation Act 1950* and the *Sandalwood Act 1929* and came into effect on 1 January 2019. The aim of the new Act is to conserve and protect biodiversity and to promote the ecologically sustainable use of biodiversity components in the State, and will bring more activities within the scope of biodiversity laws.

Taxa listed as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1a, 1b, and 1c), or is a rediscovered species to be regarded as threatened species under section 26(2) of the BC Act. Other categories include extinct or extinct in the wild and they are listed under section 23 (1) of the BC Act (Appendix 1).

If species meet one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection, they are covered under section 13(1) of the BC Act and are called specially protected species. Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act can't also be listed as Specially Protected species (see Appendix 1 for a more detailed description of each threat category).

Threatened Ecological Communities (TECs) are also covered under the BC Act and are placed into three categories of critically endangered, endangered or vulnerable under section 27(1a, 1b, and 1c) of the BC Act depending on their threat status.

DBCA Priority Species and Communities

DBCA lists species that are possibly threatened but that do not meet criteria for listing under the BC Act, or are otherwise data deficient, and adds them to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora. Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring. Consideration of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations (see Appendix 1 for more detail of the priority codes).

The DBCA also has a list of Priority Ecological Communities (PECs) that have scant information available to be considered a TEC, or which are rare but not currently threatened. Ecological communities that do not meet survey criteria or that are not sufficiently defined are added to the PEC list under priorities 1, 2 and 3. These three categories are ranked in order of priority for survey and/or definition of the community, and evaluation of conservation status, so that consideration can be given to their declaration as a TEC. Ecological communities that are adequately known, and are rare but not threatened or meet criteria for near threatened, or that have been recently removed from the threatened list, are placed in priority 4. These ecological communities require regular monitoring. Conservation dependent ecological communities are placed in priority 5.



Informal Recognition of Threatened Fauna

Certain populations or communities of fauna may be of local significance or interest because of their patterns of distribution and abundance. For example, fauna may be locally significant because they are range extensions to the previously known distribution or are newly discovered species (and have the potential to be of conservation significance). In addition, many species are in decline as a result of threatening processes (land clearing, grazing, and changed fire regimes) and relict populations of such species assume local importance for DBCA. It is not uncommon for DBCA to make comment on these species of interest.

2. Methods

2.1 Survey Guidance

The Malleefowl assessment was completed in accordance with the following EPA and DAWE requirements for the environmental surveying and reporting of fauna surveys in WA, where relevant and practical, and as documented in:

- EPA Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment (EPA 2020)
- Survey Guidelines for Australia's Threatened Birds. EPBC Act survey guidelines 6.2(2010) (DSEWPaC)
- National Recovery Plan for Malleefowl *Leipoa ocellata* Department for Environment and Heritage (J. Benshemesh 2007).

2.2 Database Search

A search of the DBCA threatened fauna database was undertaken to see if there were records of the Malleefowl in and near the survey area (DBCA 2020) (Appendix 2). The search area was centred on 27° 51' 24" S and 117° 12' 53" E. Originally a radial search area of 60 km was submitted to DBCA for the threatened fauna database, however, a larger buffer of 100 km was applied by DBCA in order to select a greater number of Malleefowl records that adequately demonstrate the potential for this species in the search area.

2.3 Field Assessment

The field assessment was undertaken on the 4th March 2021 by one qualified and experienced Zoologist (Dr Ron Firth) and Senior Environmental Advisor from Gascoyne (Jacques van Rensburg).

Malleefowl Assessment

Prior to the field assessment, the original intent was to walk a series of systematic transects across the survey area looking for Malleefowl and their signs (i.e., nesting mounds and or tracks) if suitable Malleefowl habitat was deemed present. However, when the survey area was visited it was considered unsuitable for Malleefowl (see Results and Discussion sections below). As a consequence, the broad habitats present were instead described and visited on foot at several locations throughout the survey area.

One very old Malleefowl mound that was termed extinct has been previously identified in the survey area (MBCContracting 2016 and 2017) and it was visited to confirm its status.

Fauna Habitat

While walking the survey area a number of photo points were taken to illustrate the broad fauna habitat types present in the proposed southern waste rock dump (Appendix 3). A description and map of the main broad fauna habitats in the survey area are provided.

The habitats were evaluated for their potential to support Malleefowl, with this based on previous surveys in the project area, habitats present, known distributions and ecology of species from the literature and survey personnel's extensive experience.

3. Results

3.1 Database Results

The DBCA threatened fauna database search returned 32 records of the Malleefowl (Figure 2). The earliest record was from 1964, with the location given as Yalgoo and based on the coordinates in the database, the location is approximately 85 km south west of the project area (Figure 2 and Appendix 2). The latest record comes from 2016, and the location provided is Daggar Hills and based on the coordinates in the database, the location is approximately 55 km south east of the project area (Figure 2 and Appendix 2). The closest record to the project area is from 2001 and is approximately just over 40 km south east (Figure 2 and Appendix 2).

Please note that not all of the 32 Malleefowl records in the DBCA threatened fauna database are presented in Figure 2, as the map scale would have to be larger, which would result in some loss of scale and project area context.

3.2 Field Assessment

Malleefowl Assessment

As already mentioned in the methods section above the habitats in the survey area were unsuitable for Malleefowl. This was further confirmed by the absence of Malleefowl and their signs such as nesting mounds and tracks.

The very old Malleefowl mound that has been recorded in the survey area during past fauna assessments was re-visited (Plate 1 and Figure 3). This mound is barely recognisable and has eroded to such a point that it is now a semi-circle (instead of a complete cone) and only about 5 cm at the highest point above the surrounding substrate (mounds are typically 0.5 to 1 m in height).



Plate 1. Very old and disused Malleefowl mound in the survey area (note small 20 L backpack in centre of mound).

Fauna Habitat

While walking the survey area, four broad fauna habitat types were identified in the survey area, with this based on vegetation structure (primarily the extent of vegetation cover in the upper storey), species composition and substrate (Figure 3 and Appendix 3). A brief broad description of each habitat type is provided below as is a photo.

Sparse Mulga Shrubland

This habitat consisted of a sparse to scattered cover of Mulga (*Acacia aneura*) on stony plains, with limited cover in the midstorey of for example *Acacia* spp. and *Eremophila* spp. and a very sparse to an absence of ground cover. This habitat is unsuitable for Malleefowl.



Plate 2. An example of Sparse Mulga Shrubland habitat (Photo Point 6).

Low Rocky Hill

This habitat consisted of a very scattered cover of Mulga on laterite, with limited to no vegetation cover in the midstorey and almost no ground cover on low rocky hills (this habitat in the survey area is several metres above the surrounding landscape). This habitat is unsuitable for Malleefowl.



Plate 3. An example of Low Rocky Hill habitat (Photo Point 4).

Calcrete Plain

This habitat occurred on a plain with a calcrete substrate of stones on the surface. There was very little vegetation cover apart from some low scattered shrubs (*Acacia* spp. and *Eremophila* spp.). This habitat is unsuitable for Malleefowl.



Plate 4. The Calcrete Plain habitat (Photo Point 5).

Mulga Shrubland

Mulga was present in the upper storey of this habitat, with a sparse midstorey of for example *Acacia* spp., *Eremophila* spp. and *Grevillea* spp. and a very sparse to a near absent ground layer of vegetation. This habitat is unsuitable for Malleefowl.



Plate 5. An example of Mulga Shrubland habitat (Photo Point 10).



4. Discussion

During the assessment of the survey area no Malleefowl were sighted, nor were their mounds or tracks. The DBCA threatened fauna database search returned 32 records of the Malleefowl within a 100 km radial search area and the closest record to the survey area was just over 40 km south east.

One very old (or extinct) and disused Malleefowl mound was found in the survey area while a flora survey was being undertaken in 2012 (Native Vegetation Solutions 2016, MBCContracting 2016). This mound is barely recognisable and has eroded to such a point that it is now a semi-circle (instead of a complete cone) and only about 5 cm at the highest point above the surrounding substrate (mounds are typically 0.5 to 1 m in height). This very old mound will never be used again for nesting as it has degraded to such an extent that it is almost indistinguishable from the surrounding substrate. It is very difficult to assign an estimated age to this mound as we do not know the rate of mound weathering, with this being dependent to some extent on the material from which the mound is constructed, its location in the landscape (surrounding vegetation) and weather (i.e., rainfall quantities and how much occurs during a particular rainfall event, wind and extreme storm events). However, given the relatively low annual rainfall (~ 250 mm) in the region, rates of erosion are likely to be low, consequently, we estimate that the mound is greater than 50 years old.

Three previous fauna surveys in the Dalgaranga project area that included targeted Malleefowl searches did not detect Malleefowl, their mounds or tracks in areas that included or were close to the current survey area (MBCContracting 2016 and 2017, Western Ecological 2020).

The habitats present in the survey area are unsuitable because they are too open and have very little to no vegetation cover in the upper storey for Malleefowl to build their mounds. Malleefowl prefer habitat with a dense canopy and an open ground layer in which they can construct their mounds (Benshemesh 2007). Benshemesh (1992) also found that dense canopy cover was the most important feature associated with high breeding densities at sites in Victoria. There are also very few to no shrub species in the midstorey habitats of the survey area which might provide a food source. Studies have also shown that a wide range of food shrubs, rather than an abundance of any one species is probably important for Malleefowl during for example droughts (Harlen & Priddel 1996). This is supported by studies showing that Malleefowl are more abundant in areas where shrubs are more diverse (Woinarski 1989). These birds also have a relatively large home range that can be up to 4 km² in low rainfall areas (Booth 1987).

There are large numbers of Goats in the greater Dalgaranga project area and several individuals were seen while walking in the survey area. Goats are likely to be causing habitat degradation as they are known to browse extensively on shrubs. Fox scats have previously been recorded in the project area (MBCContracting 2017). Predation by the introduced Fox is also thought to be limiting the abundance of Malleefowl and in many areas may be a major cause of decline (Benshemesh 2007).

The one very old and disused mound (historical mound) in the survey area indicates that Malleefowl historically occurred in the survey area (and Dalgaranga project area), but given the results of the previous targeted searches (MBCContracting 2016 and 2017, Western Ecological 2020) and this current assessment (including no suitable habitat), the likelihood of Malleefowl now occurring in the survey area and the Dalgaranga project area, are highly unlikely.



5. References

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Figures

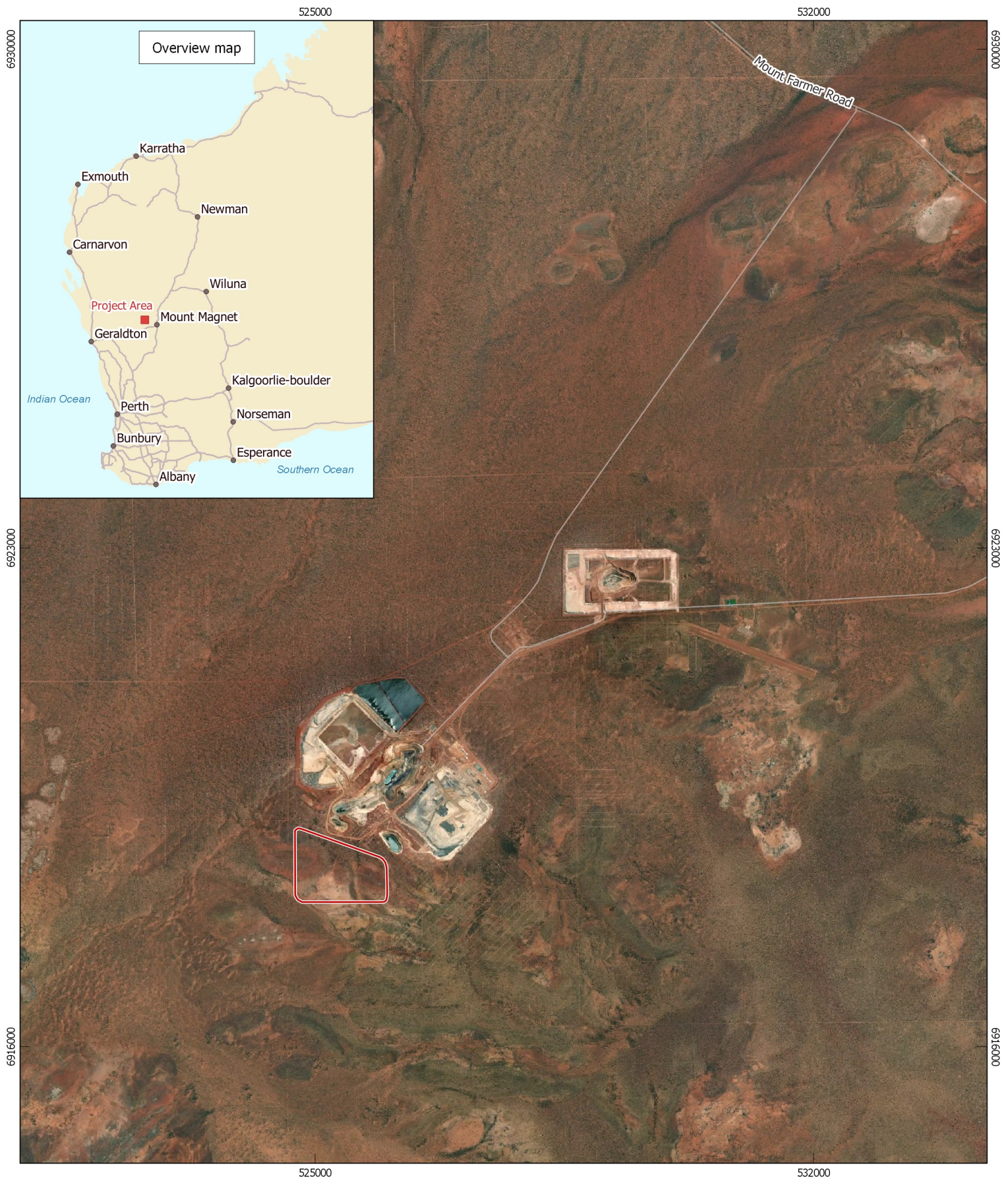
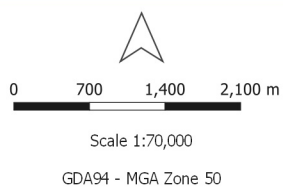


Figure 1: Project Location

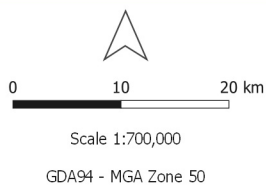


Legend
 Survey Area





Figure 2: Malleefowl Database Records



Legend

- ▲ DBCA Malleefowl Record
- Project Area



524800

525600

6919200

6919200

6918400

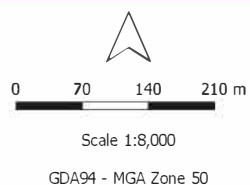
6918400

524800

525600



Figure 3: Fauna Habitat and Assessment Sites



Legend

- ▲ Very Old Malleefowl Mound
- Survey Area
- Mulga Shrubland
- 11 Photo Points
- Sparse Mulga Shrubland
- Tracks
- Calcrete Plain
- Low Rocky Hill



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Appendix 1: Conservation Categories



Categories of Threatened Fauna Species under the EPBC Act

Conservation Code	Description
Ex	<p>Extinct</p> <p>Taxa which at a particular time if, at the time, there is no reasonable doubt that the last member of the species has died.</p>
ExW	<p>Extinct in the Wild</p> <p>Taxa which are known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p>
CE	<p>Critically Endangered</p> <p>Taxa which at a particular time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p>
En	<p>Endangered</p> <p>Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>
Vu	<p>Vulnerable</p> <p>Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.</p>

Source: Environment Protection and Biodiversity Conservation Act 1999.



CONSERVATION CODES

For Western Australian Flora and Fauna

Threatened, Extinct and Specially Protected fauna or flora¹ are species² which have been adequately searched for and are deemed to be, in the wild, threatened, extinct or in need of special protection, and have been gazetted as such.

The *Wildlife Conservation (Specially Protected Fauna) Notice 2018* and the *Wildlife Conservation (Rare Flora) Notice 2018* have been transitioned under regulations 170, 171 and 172 of the *Biodiversity Conservation Regulations 2018* to be the lists of Threatened, Extinct and Specially Protected species under Part 2 of the *Biodiversity Conservation Act 2016*.

Categories of Threatened, Extinct and Specially Protected fauna and flora are:

T **Threatened species**

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of 'Specially Protected Fauna' listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of 'Rare Flora' listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**

Threatened species considered to be "*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**

Threatened species considered to be "*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**

Threatened species considered to be "*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*".

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct species

Listed by order of the Minister as extinct under section 23(1) of the BC Act as extinct or extinct in the wild.

EX Extinct species

Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).

Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species

Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species

Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)

Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species

Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P **Priority species**

Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

1 **Priority 1: Poorly-known species**

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

2 **Priority 2: Poorly-known species**

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

3 **Priority 3: Poorly-known species**

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

4 **Priority 4: Rare, Near Threatened and other species in need of monitoring**

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

¹ The definition of flora includes algae, fungi and lichens

² Species includes all taxa (plural of taxon - a classificatory group of any taxonomic rank, e.g. a family, genus, species or any infraspecific category i.e. subspecies or variety, or a distinct population).



Appendix 2: DBCA Malleefowl Database Search Results

NAME_SCI	NAME_COM	CLASS	CONS_CODE	Date	DAY	MONTH	YEAR	SOURCE_ID	SOURCE	CERTAINTY	METHOD	TYPE	COUNT	LOCALITY	SITE	ACCURACY	GDA_LONG	GDA_LAT	NAME_ID	FAMILY	GENUS	SPECIES	KINGDOM
Leipoa ocellata	malleefowl	BIRD	VU	31/10/1980	31	10	1980	107505 7	BIRDATLAS1	Moderately certain	Observational	Sighting	1	LAKE AUSTIN	LAKE AUSTIN	108000	117.501400000000	-27.498700000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	24/09/1999	24	9	1999	43337 7	BIRDATLAS2	Moderately certain	Observational	Sighting	1	DAGGAR HILLS	20km NW of Mount Magnet	100	117.640800000000	-27.948700000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:4269	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:4270	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:4271	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:4891	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Yalgoo	10000	116.682800000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:4892	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Yalgoo	10000	116.682800000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	AVIF:6608	WAM_BIRDS	WAM Vouchered	Collection	Specimen	1	YALGOO	Yalgoo	10000	116.683300000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Gnows Nest via Yalgoo	10000	116.866700000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Yalgoo	10000	116.682800000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Yalgoo	10000	116.682800000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	urn:lsid:taxoi	WAM_BIRDS				0		Yalgoo	10000	116.682800000000	-28.350000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	31/07/2016	31	7	2016	82137	TFAUNA	Certain	Opportunistic sighting	Night sighting	1	Daggar Hills		1000	117.782200000000	-27.930300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	1/09/2001	1	9	2001	89915	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	YALGOO		1000	116.750000000000	-28.500000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	1/01/2001	1	1	2001	90022	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	DAGGAR HILLS		500	117.639400000000	-27.950000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	8/10/1972	8	10	1972	90081	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		1000	116.866700000000	-28.683300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	25/09/1966	25	9	1966	90138	TFAUNA	Moderately certain	Historical (written)	Secondary sign	1	YALGOO		1000	116.950000000000	-28.683300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	1/08/1996	1	8	1996	90243	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	DAGGAR HILLS		1000	117.346000000000	-28.205300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	90401	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	1	LAKE AUSTIN		50000	117.900000000000	-27.416600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	26/09/1966	26	9	1966	90828	TFAUNA	Moderately certain	Historical (written)	Secondary sign	1	YALGOO		50000	116.916700000000	-28.666600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	90829	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		1000	116.916700000000	-28.666600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	11/10/1964	11	10	1964	90830	TFAUNA	Moderately certain	Historical (written)	Secondary sign	0	YALGOO		1000	116.852000000000	-28.579400000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	28/07/1980	28	7	1980	90831	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		10000	116.916700000000	-28.666600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	8/10/1972	8	10	1972	90832	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		50000	116.916700000000	-28.666600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	1/10/1974	1	10	1974	90833	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		50000	116.850000000000	-28.583300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	20/07/1975	20	7	1975	90834	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		50000	116.916700000000	-28.666600000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	90929	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	YALGOO		50000	116.733300000000	-27.750000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	91824	TFAUNA	Moderately certain	Opportunistic sighting	Secondary sign	0	SOUTH MURCHISON		50000	117.183300000000	-27.133300000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU	1/01/1980	1	1	1980	91959	TFAUNA	Moderately certain	Opportunistic sighting	Sighting	1	LAKE AUSTIN		50000	117.500000000000	-27.500000000000	24557	Megapodiida	Leipoa	ocellata	Animalia
Leipoa ocellata	malleefowl	BIRD	VU		0	0	0	97366	TFAUNA	Certain	Historical (written)	Secondary sign	0	Cue		1000	117.852600000000	-27.447100000000	24557	Megapodiida	Leipoa	ocellata	Animalia

Appendix 3: Photo Points



Photo Point 1. Low Rocky Hill habitat.



Photo Point 2. Sparse Mulga Shrubland habitat.



Photo Point 3. Low Rocky Hill habitat.



Photo Point 4. Low Rocky Hill habitat.



Photo Point 5. Calcrete Plain habitat.



Photo Point 6. Sparse Mulga Shrubland habitat.



Photo Point 7. Low Rocky Hill habitat.



Photo Point 8. Low Rocky Hill habitat.



Photo Point 9. Mulga Shrubland habitat.



Photo Point 10. Mulga Shrubland habitat.



Photo Point 11. Sparse Mulga Shrubland habitat.