



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	7445/2
Permit type:	Purpose Permit
Applicant name:	Mt Magnet Gold Pty Ltd
Application received:	31 October 2022
Application area:	800 hectares
Purpose of clearing:	Mineral Production and Associated Activities
Method of clearing:	Mechanical Removal
Tenure:	Mining Leases 58/4, 58/5, 58/8, 58/11, 58/30, 58/47, 58/64, 58/78, 58/79, 58/81, 58/120, 58/121, 58/130, 58/136, 58/146, 58/157, 58/172, 58/179, 58/181, 58/185, 58/186, 58/187, 58/191, 58/192, 58/193, 58/194, 58/195, 58/198, 58/202, 58/205, 58/208, 58/209, 58/231, 58/232, 58/234, 58/235, 58/236, 58/248, 58/285, 58/286, 58/320 Miscellaneous Licence 58/20
Location (LGA area/s):	Shire of Mount Magnet
Colloquial name:	Mount Magnet Project

1.2. Description of clearing activities

Mt Magnet Gold Pty Ltd proposes to clear up to 800 hectares of native vegetation within a boundary of approximately 5,684 hectares, for the purpose of mineral production and associated activities. The project is located approximately 400 metres west of Mount Magnet, within the Shire of Mount Magnet.

The application is to allow for the mining operations which consists of 65 open pits (including backfilled open pits), 45 Waste Rock Landforms (WRL), 4 Tailings Storage Facilities (TSF's), 2 closed and 1 active underground (UG) mine and a range of supporting infrastructure (mill, power plant, run of mine pads (ROM), roads, pipelines and powerlines).

Clearing permit CPS 7445/1 was granted by the Department of Mines and Petroleum (now the Department of Mines, Industry Regulation and Safety) on 30 March 2017 and was valid from 22 April 2017 to 31 January 2023. The permit authorised the clearing of up to 800 hectares of native vegetation within a boundary of approximately 5,684 hectares, for the purpose of mineral production and associated activities.

On 31 October 2022, the Permit Holder applied to amend CPS 7445/1 to extend the duration of the permit by five years, until 31 January 2028, as mining operations are ongoing. No changes are proposed to the amount of authorised clearing.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	20 December 2022
Decision area:	800 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Mines, Industry Regulation and Safety (DMIRS) on 31 October 2022. DMIRS advertised the application for a public comment for a period of seven days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix D), supporting information provided by the applicant (Niche Environmental Services, 2010a; 2010b; Outback Ecology Services, 2012; Western Botanical, 2006a; 2006b; 2006c; 2007a; 207b) the clearing principles set out in Schedule 5 of the EP Act (Appendix C), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- impacts to conservation significant fauna;

- impacts to conservation significant flora; and
- potential land degradation.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be managed by conditions and is not likely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- undertake clearing activities in a slow, progressive manner into one direction; and
- engage an environmental specialist to identify active Malleefowl mounds if clearing is occurring between 1 September and 31 January.

The assessment has not changed since the assessment for CPS 7445/1. The Delegated Officer determined that the proposed amendment to extend the permit another five years is not likely to lead to an unacceptable risk to environmental values.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

While no evidence of avoidance or mitigation measures was provided to support this application, it is noted in the mining proposal the following mitigation and management techniques:

- any priority flora in the vicinity of clearing boundaries shall be identified with clearly recognisable standardised tape to ensure they are avoided during clearing activities;
- weed management plan is implemented to control the spread and introduction of weed species;
- haul road dust suppression using water trucks is conducted; and
- ensure the impact of mining activities on fauna is minimised by addressing the potential for fauna deaths in employee induction and outlining methods to avoid or minimise the potential for deaths such as enforcing speed limits on haul roads.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix B) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

A review of current environmental information reveals that the assessment against the clearing principles has not changed significantly from the Clearing Permit Decision Report CPS 7445/1.

3.2.1 *Biological values – Clearing Principles (a) and (b)*

From 22 April 2017 to 30 June 2022, 385.01 hectares of native vegetation has been cleared pursuant to clearing permit CPS 7445/1 (Mt Magnet Gold, 2022). The proposed amendment involves extending the period in which clearing is authorised by five years, until 31 January 2028, as mining operations are ongoing. No changes are proposed to the amount of authorised clearing.

No new biological information has been provided in support of the amendment application. The environmental values of the application area are well understood and are described in the previous version of the Decision Report, based on biological studies undertaken by Western Botanical (2006a; 2006b; 2006c; 2007a; 2007b), Niche Environmental Services (2010a; 2010b) and

Outback Ecology Services (2012). Similarly, the environmental impacts of the proposed clearing have been previously assessed and conditionally approved via clearing permit CPS 7445/1.

A review of current environmental information (Appendix B) reveals that the assessment against the clearing principles has not changed from the Clearing Permit Decision Report CPS 7445/1. Extending the period in which clearing is authorised by a further five years is unlikely to change the environmental impacts of the proposed clearing.

The amendment application has been assessed against the clearing principles, planning instruments and other matters in accordance with section 51O of the *Environmental Protection Act 1986*, and the proposed clearing may be at variance to Principles (f) and (g) is not likely to be at variance to Principles (a), (b), (c), (d), (h), (i) and (j) and is not at variance to Principle (e).

A review of the previous list of priority flora species was undertaken by the previous assessing officer and it is noted that records for all priority flora species discussed in the previous decision report have increased (Western Australian Herbarium, 1998-). Extending the duration of the permit is therefore not considered to have a significant effect on the priority flora species discussed in the previous decision report. An additional three priority flora species have been considered as potentially occurring within the application area: *Acacia lapidosa* (Priority 1); *Drosera eremaea* (Priority 3); and *Petrophile pauciflora* (Priority 3) (GIS Database).

Acacia lapidosa, Priority 1, also known as the Mount Magnet Rock Wattle, is a low shrub that grows on rocky hills and plains in open Acacia-dominated shrubland (Western Australian Herbarium, 1998-). This species is native to Western Australia and is known from 11 records found only found within the Eastern Murchison and Western Murchison Interim Biogeographic Regionalisation for Australia (IBRA) subregions (Western Australian Herbarium, 1998-). The species has not been recorded within the application area, however it has been recorded within five kilometres and therefore, could potentially occur. As most of the application area has been previously surveyed and the application area contains a large portion of previously disturbed land, impacts to this species are unlikely to be significant.

Drosera eremaea, Priority 3, is a tuberous geophyte or shrub with a sweet vanilla fragrance that has been recorded on low banded ironstone ridges and granite plain with outcropping exfoliating granite (Western Australian Herbarium, 1998-). The species is native to Western Australia and is known from 138 records found across the Eastern Murchison, Edel, Southern Cross, Tallering and Western Murchison IBRA subregions. The species has not been recorded within the application area, however it has been recorded within two kilometres and therefore, could potentially occur. As most of the application area has been previously surveyed, the application area contains a large portion of previously disturbed land, and there are substantial records existing for this species, impacts to this species are unlikely to be significant.

Petrophile pauciflora, Priority 3, is a shrub that can grow to one metre in height (Western Australian Herbarium, 1998-). This species has been recorded in decaying and dissected granite breakways (Western Australian Herbarium, 1998-). *Petrophile pauciflora* is native to Western Australia and is known from 23 records found across the Eastern Murchison, Merredin, Tallering and Western Murchison IBRA subregions. The species has not been recorded within the application area, however it has been recorded within one kilometre and therefore, could potentially occur. As most of the application area has been previously surveyed and the application area contains a large portion of previously disturbed land, impacts to this species are unlikely to be significant.

The gilled slender blue-tongue (*Cyclodomorphus branchialis*) is found in the mid-west region of Western Australia between Murchison and Irwin Rivers and extending inland to the Mt Magnet area (Shea & Miller, 1995). The species is a ground-dwelling lizard with a nocturnal habitat, sheltering by day below low vegetation, leaf-litter, and under fallen timber and beneath rocks (Shea & Milller, 1995). According to Outback Ecology Services (2012), the study area contains a small amount of habitat for *Cyclodomorphus branchialis*, however, the habitat is not considered significant habitat for this species as large amounts of better quality habitat is available outside the application area. As there have been historical records of this species within the application area and the available surveys are over ten years old, to reduce fauna fatality of this species, a clearing condition (slow directional clearing) should be implemented.

Malleefowl (*Leipoa ocellata*) are found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias (DaWE, 2022). This species requires a sandy substrate with an abundance of leaf litter for breeding (DaWE, 2022). Malleefowl are known to occur in the region and may utilise the area for foraging, but the application area is not likely to represent significant habitat for this species as similar habitat can be found in the adjacent areas. However, this species known to occur within at least five kilometres from the application area and therefore measures should be taken to identify the presence of any active Malleefowl mounds.

Conclusion:

Based on the above assessment, the proposed clearing will result in a small amount of disturbance to available fauna habitat.

For the reasons set out above, it is considered that the impacts of the proposed clearing on fauna habitats can be managed by the implementation of management conditions, which are summarised below.

Conditions:

The conditions currently imposed on clearing permit CPS 7445/1 are considered adequate for amended permit CPS 7445/2, with the addition of the slow directional clearing, malleefowl, and the avoid, minimise conditions:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- commence construction no later than three months after undertaking clearing to reduce the risk of erosion;
- undertake clearing activities in a slow, progressive manner into one direction; and
- engage an environmental specialist to identify active Malleefowl mounds if clearing is occurring between 1 September and 31 January

3.3. Relevant planning instruments and other matters

The clearing permit amendment application was advertised on 22 November 2022 by the Department of Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one Native Title claim over the area under application (WC1996/098) (DPLH, 2022). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are several registered Aboriginal Sites of Significance within the application area (DPLH, 2022). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

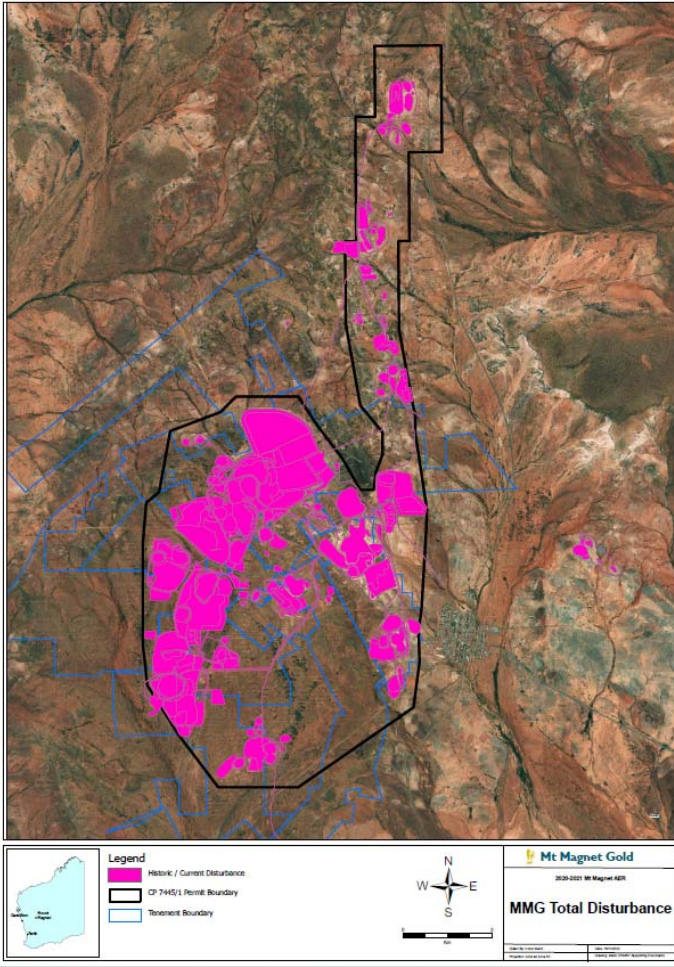
Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Additional information provided by the applicant

Summary of comments	Consideration of comment
<p>The age of the survey was discussed with the proponent:</p> <ul style="list-style-type: none"> In 2017 during the application for CP 7445/1 permit, a specialist ecological consultant was engaged by Mt Magnet Gold Pty Ltd to undertake a review of the historical surveys previously undertaken. It was determined that there was little risk arising from potential clearing within the permit area and low / no impacts against the native vegetation clearing permit principles. In terms of ecosystem function, it was considered that the five years since the permit was issued has not changed that assessment, especially with the continued grazing pressure from pastoral use. The below figure illustrates the historic and current disturbance present within the application area. 	<p>The application area covers areas that have been degraded by mining, pastoral and town common activities over 125 years. The current survey data is considered appropriate for extension of the permit duration for another five years, however, any further extension of duration or other amendments to the permit warrants further biological surveys.</p>

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is located approximately 400 metres west of Mount Magnet within the Shire of Mount Magnet (GIS Database). The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation and mining infrastructure (GIS Database).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	There are no conservation areas located within the application area (GIS Database). The closest conservation area is a DBCA legislated land (Lakeside National Park) located approximately 40 kilometres north of the application area (GIS Database).

Characteristic	Details
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>312: Succulent steppe with very open shrubs; very sparse mulga and <i>Acacia sclerosperma</i> over saltbush and bluebush; and</p> <p>313: Succulent steppe with open scrub; scattered <i>Acacia sclerosperma</i> and <i>Acacia victoriae</i> over bluebush (GIS Database).</p> <p>Several flora and vegetation surveys have been undertaken over the application area since 1993, with the most recent surveys having been undertaken by Niche Environmental Services (2010a; 2010b) and Outback Ecology Services (2012). These surveys have identified the following 29 vegetation associations:</p> <p><u>Clay-Loam Plain</u></p> <p>Acacia Forests and Woodlands (MVG6)</p> <p><i>Acacia aneura</i> var. <i>aneura</i> and <i>Eremophila oldfieldii</i> Low Forest B Over <i>A. grasbyi</i> and <i>A. tetragonophylla</i> Scrub Over <i>Eremophila simulans</i> subsp. <i>lapidensis</i>, <i>Eremophila platycalyx</i> subsp. <i>platycalyx</i> and <i>Senna artemisioides</i> subsp. <i>x sturtii</i> Heath B Over <i>Maireana georgei</i>, <i>M. convexa</i> and <i>M. triptera</i> Low Heath D.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> Open Low Woodland A Over <i>Philotheca brucei</i>, <i>Thryptomene decussata</i> and <i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i> Heath B.</p> <p><i>Acacia craspedocarpa</i> and <i>Brachychiton gregorii</i> Low Woodland B Over <i>A. grasbyi</i>, <i>A. aneura</i> var. <i>aneura</i> and <i>Senna glaucifolia</i> Open Scrub Over <i>Thryptomene decussata</i>, <i>A. tetragonophylla</i> and <i>A. ramulosa</i> var. <i>ramulosa</i> Low Scrub B.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> Low Woodland B Over <i>Thryptomene decussata</i>, <i>A. rhodophloia</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> Dwarf Scrub C Over <i>Stylidium longibracteatum</i> Very Open Herbs.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> Low Woodland B Over <i>A. aneura</i> var. <i>tenuis</i> and <i>A. ramulosa</i> var. <i>ramulosa</i> Scrub Over <i>Eremophila punicea</i> and <i>Maireana thesioides</i> Dwarf Scrub C.</p> <p>Acacia Open Woodlands (MVG13)</p> <p>Low Open Woodland of <i>Acacia</i> spp. with occasional Low Open Shrubland of <i>Maireana</i> spp. and <i>Tecticornia</i> spp. on flats.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> Open Low Woodland B Over <i>A. aneura</i> var. <i>fuliginea</i> and <i>A. demissa</i> Scrub Over <i>A. quadrimarginea</i> and <i>Eremophila exilifolia</i> Heath B over <i>Ptilotus schwartzii</i> and <i>P. obovatus</i> var. <i>obovatus</i> Dwarf Scrub D.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> and <i>Brachychiton gregorii</i> Open Low Woodland B Over <i>A. craspedocarpa</i> and <i>Eremophila galeata</i> Dense Heath B Over <i>Eremophila punicea</i> and <i>Enchylaena tomentosa</i> var. <i>tomentosa</i> Low Heath C Over <i>Ptilotus obovatus</i> var. <i>obovatus</i> and <i>P. schwartzii</i> Open Herbs.</p> <p><i>Acacia aneura</i> var. <i>aneura</i>, <i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i> and <i>A. craspedocarpa</i> Open Low Woodland B Over <i>A. ramulosa</i> var. <i>ramulosa</i>, <i>A. exocarpoides</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> Low Scrub B.</p> <p><i>Acacia aneura</i> var. <i>aneura</i> and <i>Eremophila oldfieldii</i> subsp. <i>angustifolia</i> Open Woodland Over <i>A. quadrimarginea</i>, <i>A. craspedocarpa</i> and <i>A. grasbyi</i> Heath A Over <i>Eremophila punicea</i> and <i>Ptilotus obovatus</i> var. <i>obovatus</i> Dwarf Scrub.</p> <p>Acacia Shrublands (MVG16)</p> <p><i>Acacia ramulosa</i> var. <i>ramulosa</i>, <i>Acacia aneura</i> var. <i>aneura</i> Scrub over <i>Maireana villosa</i>, <i>Sclerolaena densiflora</i>, <i>Sclerolaena eriacantha</i> Dwarf Scrub.</p> <p><i>Acacia ramulosa</i> var. <i>ramulosa</i>, <i>Acacia aneura</i> var. <i>fuliginea</i> open scrub over <i>Monachather paradoxus</i>, <i>Eragrostis eriopoda</i> scattered grass.</p> <p><i>Acacia aneura</i> var. <i>aneura</i>, <i>A. quadrimarginea</i>, <i>Thryptomene decussata</i> Scrub over <i>A. rhodophloia</i> Open Dwarf Scrub D.</p> <p><i>Acacia grasbyi</i>, <i>Thryptomene decussata</i> and <i>Hakea preissii</i> Scrub Over <i>Olearia stuartii</i>, <i>Philotheca brucei</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> Low Scrub B over <i>Ptilotus obovatus</i> var. <i>obovatus</i>, <i>Stylidium longibracteatum</i> Dwarf Scrub D Over <i>Erodium cicutarium</i> Very Open Herbs.</p> <p><i>Acacia craspedocarpa</i> and <i>Acacia rhodophloia</i> Scrub Over <i>Acacia sibirica</i>, <i>Aluta aspera</i> subsp. <i>hesperia</i>, <i>Eremophila latrobei</i> subsp. <i>latrobei</i> Heath B.</p>

Characteristic	Details
	<p>Chenopod Shrublands, Samphire Shrublands and Forblands (MVG 22) <i>Acacia aneura</i> var. <i>aneura</i>, <i>Acacia grasbyi</i>, <i>Hakea preissii</i> scattered tall shrubs over <i>Maireana triptera</i>, <i>Sclerolaena densiflora</i> open dwarf scrub.</p> <p><i>Maireana triptera</i>, <i>Sclerolaena densiflora</i> Open Dwarf Scrub with occasional tall shrubs of <i>Acacia aneura</i> var. <i>aneura</i>, <i>Acacia grasbyi</i> and <i>Hakea preissii</i>.</p> <p>Other Shrublands (MVG 17) <i>Calytrix divergens</i> Open Dwarf Scrub on eroded duricrust.</p> <p><i>Eremophila exilifolia</i>, <i>Acacia</i> sp. narrow phyllode, and <i>Senna artemisioides</i> subsp. <i>filifolia</i> Low Scrub A over <i>Maireana pentagona</i> and <i>Solanum lasiophyllum</i> Open Dwarf Scrub C.</p> <p><i>Hakea preissii</i> Open Scrub over <i>Roycea divaricata</i> and <i>Maireana triptera</i> Dwarf scrub D.</p> <p><u>Closed Depression</u></p> <p>Chenopod Shrublands, Samphire Shrublands and Forblands (MVG 22) Low Open Shrubland of <i>Tecticornia disarticulata</i> on a clay pan.</p> <p><u>Hillslope/Ridge</u></p> <p>Acacia Forests and Woodlands (MVG6) Low Woodland of <i>Acacia</i> spp. over Low Open Shrubland of mixed species on a low Banded Ironstone Formation.</p> <p>Acacia Shrublands (MVG16) <i>Acacia aneura</i> var. <i>aneura</i> Open Scrub over <i>Thryptomene decussata</i>, <i>Philotheca brucei</i> subsp. <i>brucei</i> <i>Aluta aspera</i> subsp. <i>hesperia</i> <i>Eremophila latrobei</i> Open Low Scrub over mixed scattered Grass.</p> <p><u>Open Depression</u></p> <p>Acacia Forests and Woodlands (MVG6) Low Woodland of <i>Acacia</i> spp. over Low Open Shrubland of mixed species in an ephemeral drainage line.</p> <p><i>Acacia caesaneura</i>, <i>A. aneura</i> var. <i>aneura</i>, <i>A. grasbyi</i>, <i>A. ramulosa</i> var. <i>ramulosa</i> Thicket over <i>Maireana triptera</i>, <i>Sclerolaena densiflora</i> Open Dwarf Scrub.</p> <p>Acacia Forests and Woodlands (MVG6) Low Woodland of <i>Acacia</i> spp. over Low Open Shrubland of mixed species on gibber flat with quartz and ironstone.</p> <p><u>Rocky/stony Plain</u></p> <p>Acacia Shrublands (MVG16) <i>Acacia ramulosa</i> var. <i>ramulosa</i>, <i>Acacia aneura</i> var. <i>fuliginea</i> open scrub over <i>Monachather paradoxus</i>, <i>Eragrostis eriopoda</i> scattered grass on plains with lag gravel.</p> <p><i>Acacia grasbyi</i> and <i>A. quadrimarginea</i> Open Scrub over <i>Thryptomene decussata</i>, <i>Philotheca brucei</i> subsp. <i>brucei</i> and <i>Eremophila latrobei</i> subsp. <i>latrobei</i> Low Scrub.</p> <p>Chenopod Shrublands, Samphire Shrublands and Forblands (MVG 22) <i>Eremophila fraseri</i> subsp. <i>galeata</i>, <i>Acacia aneura</i> var. <i>aneura</i> Open Low Scrub over sparse chenopods and grasses.</p>
Vegetation condition	<p>The aerial imagery indicate the vegetation within the proposed clearing area is in 'Completely Degraded' to 'Very Good' (Keighery, 1994) condition, described as</p> <ul style="list-style-type: none"> • Very good: Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing. • Completely degraded: the structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs. <p>The full Keighery (1994) condition rating scale is provided in Appendix C.</p>

Characteristic	Details
Climate and landform	The Mount Magnet area is on the border of desert and semi desert Mediterranean climatic regions (Botanica Consulting, 2017). According to climate data obtained from the Bureau of Meteorology (BoM), the mean annual rainfall the area experiences is 246.6 millilitres (BOM, 2022).
Soil description	The soils of the application area are broadly mapped as the following soil types: <ul style="list-style-type: none"> • 273Vi: Violet system. Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supporting groved mulga and bowgada shrublands and occasionally chenopod shrublands; • 273Wi: Wiluna system: Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supporting sparse mulga and other acacia shrublands with patches of halophytic shrubs; • 273Au: Austin system. Saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga and snakewood; • 273Ga: Gabanintha system. Greenstone ridges, hills and footslopes supporting sparse acacia and other mainly non-halophytic shrublands; and • 273Ju: Jundee system. Hardpan plains with variable gravelly mantles and minor sandy banks supporting weakly groved mulga shrublands (DPIRD, 2022).
Land degradation risk	The proposed area is located within five landscape systems: <ul style="list-style-type: none"> • Austin land system: Saline stony plains with low rises and drainage foci supporting low halophytic shrublands with scattered mulga; occurs mainly adjacent to lakes Austin and Annean, below greenstone hill systems. • Gabanintha land system: Ridges, hills and footslopes of various metamorphosed volcanic rocks (greenstones), supporting sparse acacia and other mainly non-halophytic shrublands. • Jundee land system: Hardpan wash plains with variable dark gravelly mantling and weakly groved vegetation; minor sandy banks; supports scattered mulga shrublands. Concentrated drainage zones and hardpan are mildly susceptible to accelerated erosion when degraded or severely degraded. • Violet land system: Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supports mulga and bowgada-dominated shrublands, with dense mulga groves and patchy halophytic shrublands. Drainage tracts and sandy surfaced gravelly plains are slightly to moderately susceptible to accelerated erosion if vegetation is degraded or the soil surface is disturbed. • Wiluna land system: Low greenstone hills with occasional lateritic breakaways and broad stony slopes, lower saline stony plains and broad drainage tracts; supports sparse mulga shrublands with patches of halophytic shrubs. Sandy surfaced gravelly plains, alluvial fans and plains and drainage floors are mildly to moderately susceptible to accelerated erosion when degraded (GIS Database).
Waterbodies	There are no permanent waterbodies or watercourses within the application area, however, there are several minor non perennial watercourse within the application area (GIS Database).
Hydrogeography	The nearest Public Drinking Water Source Area (PDWSA) is the Priority 2 Mount Magnet (Genga) Water Reserve located directly adjacent to the application area (GIS Database). The surface water diversions installed by the mine are considered to effectively remove the risk of contaminant transport lower down the catchment where the production bores are located, as surface water which represents the primary source of recharge to the borefield will be captured in mine pits (DoE, 2005) (cited in Cardno, 2014).
Flora	A number of flora surveys have been conducted in the region and 287 species have been identified as well as 29 vegetation communities comprising of five major vegetation groups (Botanica Consulting, 2017).
Ecological communities	According to available databases, there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest known TEC is located approximately 200 kilometres south west of the application area (GIS Database). According to Botanica Consulting (2017), no TECs have been recorded during previous surveys undertaken at the Mount Magnet site.
Fauna	Botanica Consulting have stated that a number of fauna surveys have been conducted over the mine life, the most recent study was conducted by Outback Ecology in 2012 (Botanica Consulting, 2017). A summary of the findings of all fauna surveys completed within the study area is listed below: <ul style="list-style-type: none"> • ten species of native mammals, including three dasyurid marsupials, one native rodent, three bats, two kangaroo and one monotreme; • twenty-four species of reptiles, including five snakes, seven dragons, six skinks, three gecko, one legless lizard and two monitor species;

Characteristic	Details
	<ul style="list-style-type: none"> three amphibian species; seventy-three avian species; five species of introduced mammals, including goats, rabbits, foxes, cats and house mice; and no stygofauna recorded (Botanica Consulting, 2017).

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion - Murchison	28,120,586.77	28,044,823.42	99.73	2,185,987.96	7.78
Beard vegetation associations - State					
Veg Assoc No. 312	41,502.26	39,527.97	95.24	0.00	0.00
Veg Assoc No. 313	68,843.52	65,261.44	94.80	1.79	0.00
Beard vegetation associations - Bioregion					
Veg Assoc No. 312	41,502.26	39,527.97	95.24	0.00	0.00
Veg Assoc No. 313	68,843.52	65,261.44	94.80	1.79	0.00

Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix D.1), and biological survey information, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Distance of closest record to application area (km)	Number of known records in florabase (total)
<i>Acacia burrowsiana</i>	Priority 3	Recorded within application area	28
<i>Acacia lapidosa</i>	Priority 1	<5	11
<i>Acacia speckii</i>	Priority 4	Recorded within application area	39
<i>Alyxia tetanifolia</i>	Priority 3	Recorded within application area	12
<i>Dodonaea amplisemina</i>	Priority 4	Recorded within application area	39
<i>Drosera eremaea</i>	Priority 3	1.7	138
<i>Goodenia neogoodenia</i>	Priority 4	12.6	20
<i>Grevillea inconspicua</i>	Priority 4	3.1	61
<i>Petrophile pauciflora</i>	Priority 3	0.17	23
<i>Ptilotus luteolus</i>	Priority 3	Recorded within application area	18
<i>Stenanthemum mediale</i>	Priority 1	Recorded within application area	21
<i>Verticordia jamiesonii</i>	Priority 3	Recorded within application area	34

B.4. Fauna analysis table

Species name	Common name	Conservation status	Distance of closest record to application area (km)
<i>Leipoa ocellata</i>	malleefowl	VU	5
<i>Cyclodomorphus branchialis</i>	gilled slender blue-tongue	VU	Recorded within application area
<i>Falco peregrinus</i>	peregrine falcon	OS	Recorded within application area

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation's ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

Measuring vegetation condition for the South West and Interzone Botanical Province (Keighery, 1994)

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix D. Sources of information

D.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Bush Forever (Regional Scheme) (DPLH-022)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)

- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

D.2. References

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- Botanica Consulting (2017) Environmental Assessment Mt Magnet Gold Project Clearing Permit Application. Report prepared for Mt Magnet Gold Pty Ltd, by Botanica Consulting, January 2017.
- Cardno (2014) Mining Proposal Boomer, Brown Hill, Golden Stream and O'Meara Pit Cutbacks Tenements M58/30, M58/232, M58/185, M58/187, M58/205, M58/64, M58/202, M58/136 and M58/181. Report prepared for Ramelius Resources Ltd by Cardno, April 2014.
- DaWE (2022) Species Profile and Threats Database. Department of Agriculture, Water and the Environment. <http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>
- Department of Environment Regulation (DER) (2013) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- Department of Planning, Lands and Heritage (DPLH) (2022) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 5 December 2022).
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- Government of Western Australia (2019) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. <https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics>
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mt Magnet Gold (2022) Mt Magnet Gold Pty Ltd application for clearing permit. Mt Magnet Gold Pty Ltd, October 2022.
- Niche Environmental Services (2010a) Level 1 Flora and Vegetation Survey over the Perseverance Project Area, Harmony Gold Mt Magnet. Report prepared for Harmony, March 2010.
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- Outback Ecology Services (2012) Mt Magnet Gold Project: Targeted Malleefowl Survey. Report prepared for Mt Magnet Gold Pty Ltd, March 2007.
- Shea & Miller (1995) A taxonomic revision of the *Cyclodomorphus branchialis* species group (Squamata: Scincidae). Records of the Australian Museum 47(3): 265-325, December 1995.
- Western Australian Herbarium (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 5 December 2022).
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- Western Botanical (2006c) Review of Flora, Vegetation and Conservation Values of the proposed Hesperus Waste Dump Harmony Gold, Mt Magnet. Report prepared for Harmony Gold Mt Magnet, November 2006.
- Western Botanical (2007a) Conservation Values of remnant flora and vegetation within current mining areas at Harmony Gold, Mt Magnet. Report prepared for Harmony Gold Mt Magnet, February 2007.
- Western Botanical (2007b) Preliminary Assessment of Conservation Values of Flora and Vegetation on Branded Ironstone Formations surrounding Harmony Gold operations, Mt Magnet. Report prepared for Harmony Gold Mt Magnet, April, 2007.

4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DAWE	Department of Agriculture, Water and the Environment, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia

DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia
DMP	Department of Mines and Petroleum, Western Australia (now DMIRS)
DoEE	Department of the Environment and Energy (now DAWE)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

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:

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.

P1

Priority One - 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.

P2 Priority Two - 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.

P3 Priority Three - 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.

P4 Priority Four - 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.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.