Department of Mines, Petroleum and Exploration

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	11172/1
Permit type:	Purpose Permit
Applicant name:	Hamersley HMS Pty Limited
Application received:	3 July 2025
Application area:	13 hectares
Purpose of clearing:	Road construction and associated activities
Method of clearing:	Mechanical Removal
Tenure:	*Iron Ore (Hope Downs) Agreement Act 1992*, Mineral Lease 282SA (AM 70/282)
Location (LGA area/s):	Shire of East Pilbara
Colloquial name:	Bedded Hilltop Project

1.2. Description of clearing activities

Hamersley HMS Pty Limited proposes to clear up to 13 hectares of native vegetation within a boundary of approximately 38.95 hectares, for the purpose of road construction and associated activities. The project is located approximately 68 kilometres northwest of Newman, within the Shire of East Pilbara.

The application is to allow for the development of an access track to facilitate the installation and operation of communications infrastructure at the Bedded Hill Top (BHT) East site (Rio Tinto, 2025a). Currently the average road width within the application area is three to four metres wide, excluding windrows, the road is proposed to be increased by two to three metres, totalling to approximately six metres wide (Appendix A).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	27 November 2025
Decision area:	13 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Mines, Petroleum and Exploration (DMPE) advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix B), relevant datasets (Appendix H), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation survey, and fauna survey, 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 flora;
- impacts to conservation significant fauna and their associated habitat;
- potential impacts to adjacent high conservation significance vegetation community;
- impacts to riparian vegetation; and
- potential increase in incidence or intensity of flooding.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely 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;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat; ahead of the clearing activity, and restrict clearing activities to daytime hours; and
- retain the vegetative material and topsoil removed by clearing authorised under this Permit and stockpile the vegetative material and topsoil in an area that has already been cleared.

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 (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
- the polluter pays principle

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)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Iron Ore (Hope Downs) Agreement Act 1992*

Relevant agreements (treaties) considered during the assessment include:

- Japan-Australia Migratory Bird Agreement
- China-Australia Migratory Bird Agreement
- Republic of Korea-Australia Migratory Bird Agreement

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)
- Technical guidance – *Sampling of short range endemic invertebrate fauna* (EPA, 2016b)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

The original application authorised the clearing of 20 hectares of native vegetation within a boundary of 38.95 hectares. During the assessment the scope of the clearing was reviewed and the clearing authorised was reduced to 13 hectares, within the same boundary. The amount of authorised clearing was revised and reduced to minimise the impact to conservation significant fauna habitat within the application area.

It has been noted that the applicant has altered the southern boundary of their application area to excise known locations of dense priority flora populations on the south-facing slope of the application area.

Additionally, the proposed road construction and associated activities will take place over land that has previously been cleared for an access track and exploration works. Raised blade clearing technique will be used where possible and all disturbed areas All disturbed areas are to be rehabilitated in accordance with the requirements of the NVCP (Hamersly HMS Pty Limited, 2025).

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (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.

The assessment against the clearing principles identified that the impacts of the proposed clearing present a risk to biological values (fauna, flora and vegetation). The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values (flora, vegetation unit, and priority ecological community) - Clearing Principle (a)

Assessment

Flora

Astron Environmental Services (Astron) undertook a detailed flora and vegetation assessment over the application area and broader survey area covering approximately 10,817.7 hectares (Astron, 2019b). The survey was conducted in three phases, 1 to 12 November 2017, 18 to 30 May 2018 and 20 to 31 May 2019 (Astron, 2019b). Rainfall twelve months prior to phase one was above the long term mean rainfall, rainfall twelve months prior to phase two and three was below the long term mean rainfall (Astron, 2019b).

Astron (2019b) identified low rainfall conditions as a limitation to ephemeral or short-lived perennial conservation significant flora species not being recorded during the flora survey. Steep slopes and breakaway habitat were identified as a limitation due to habitat being difficult to safely traverse, resulting in some areas of the application area not being thoroughly traversed (Astron, 2019b).

Priority flora within application area

Lepidium catapycnon (P4) was recorded within and adjacent to the application area (Astron, 2019b). The application area largely excludes the population of *Lepidium catapycnon*, present on south-facing hill slopes, south of the application area (Figure 3). There are few records of *Lepidium catapycnon* within the application area, some of which may have been cleared in the process of previous exploration and road construction activities. It is unlikely that the clearing of individuals within the application area will significantly impact this species on a local or regional level.

Priority flora adjacent to application area

Eremophila sp. West Angelas (S. van Leeuwen 4068) (P3), and *Grevillea Saxicola* (P3) were recorded directly adjacent to the application area (Figure 1) (Astron, 2019b). *Ptilotus mollis* (P4) and *Triodia* sp. Mt Ella (M.E. Trudgen 12739) (P3) were recorded less than four kilometres and two kilometres east of the application area respectively (Figure 1) (Astron, 2019b). Noting the close proximity to the application area and suitable habitat within the application area these species occurrence may extend into the application area.

There are records of *Grevillea Saxicola* present south of the application area within H2 vegetation unit, in which it makes up a dominant feature of, there are also records adjacent to the application in H2, H6, and D1 vegetation units. H2 vegetation unit is mainly present on the boarder of the application area, however D1 vegetation unit does extend into the application area.

Eremophila sp. West Angelas (S. van Leeuwen 4068) was recorded from three populations on the south facing upper debris slopes adjacent to application area within vegetation unit H2 (Astron, 2019b). This species is known from few records and likely has a limited distribution (Astron, 2019b), however as H2 vegetation is limited within the application area.

Populations of *Triodia* sp. Mt Ella (M.E. Trudgen 12739) were recorded less than two kilometres east of the application area within a large gorge system on east and southeast facing slopes below an ironstone escarpment on BHT (Figure 1) (Astron, 2019b). This species has been recorded within H1 and H2 vegetation units which are present within the application area (Figure 1 Table 1) (Astron, 2019b).

Ptilotus mollis was recorded from four populations in the broader survey area in D1, H1, H2, H4, H6 vegetation units and cleared habitat, populations were associated with hillslopes below small breakaways (Table 1) (Astron, 2091b). The application area contains suitable D1, H1 and H4 vegetation in hillslopes below breakaway habitat.

Drainage line and floodplain species

The application area contains suitable habitat for the follow species within drainage line and floodplain habitats;

- *Amaranthus centralis* (P3); and
- *Aristida lazaridis* (P3).

Amaranthus centralis is an annual herb, distributed from the Pilbara region across southern Northern Territory, northern South Australia and west Queensland (Palmer, 2009; WA Herbarium, 1998-). *Amaranthus centralis* grows in red sand and sandy to clayey loam soils in ephemeral watercourses, riverbanks and permanent pools lined with eucalypts and *Acacia* shrublands. This species was not recorded in the flora survey, however, is most likely to occur within D4 and D5 vegetation units, which are absent from the application area (Astron, 2019b; Palmer, 2009).

Aristida lazaridis is a tufted perennial, grass-like or herb known from the Hamersley IBRA subregion, however records are present within Queensland. This species occurs within plains, floodplains, drainage areas, edges of creek lines and ironstone hills (WA Herbarium, 1998-; Astron, 2019b). *Aristida lazaridis* was recorded within drainage, hill and plain vegetation units in the broader survey area, D1 vegetation unit contains suitable habitat for this species (Astron, 2019b).

Breakaway, hillslope and rocky hill species

The application area contains suitable habitat for the follow species within breakaway, rocky hill and hillslope habitats;

- *Acacia bromilowiana* (P4);
- *Acacia effusa* (P3);
- *Eremophila magnifica* subsp. *magnifica* (P4);
- *Eremophila magnifica* subsp. *velutina* (P3);
- *Gompholobium karijini* (P2);
- *Indigofera gilesii* (P3);

- *Isotropis parviflora* (P3);
- *Pilbara trudgenii* (P3);
- *Triodia basitricha* (P3).

Acacia bromilowiana is a tree or shrub, 12 metres high, which inhabits rocky hills, breakaways, scree slopes, gorges, creek beds, and has been recorded within D1, D3, H1 and H4 vegetation units within the broader survey area (Astron, 2019b; WA Herbarium, 1998 -). The application area does contain suitable habitat for this species within D1 and H1 vegetation, however given this species form, it is likely it would have been detectable at the time of the survey.

Acacia effusa inhabits lower scree slopes of low rocky ranges along diffuse drainage lines (Maslin, 1982), with the application area likely providing suitable habitat for this species at the base of the hillslope and breakaway habitats, adjacent to drainage line habitat. The application area provides very marginal areas of suitable habitat for this species.

Eremophila magnifica subsp. *magnifica* inhabits rocky hills, rocky screes, breakaways, slopes and gorges within the Hamersley Range area (Astron, 2019b; WA Herbarium, 1998-). This species has been recorded within the broader survey area within D3 and H7 vegetation (Astron, 2019b), however hillslope and breakaway habitat within the application area may still provide suitable habitat for this species.

Eremophila magnifica subsp. *velutina*, *Indigofera gilesii,* and *Pilbara trudgenii* have a habitat preference of gullies, gorges and breakaways associated with the Hamersley Ranges and therefore have greatest potential to occur in within D3, H1 and H2 vegetation units (Astron, 2019b). Astron (2019b) noted these habitats are often difficult to safely traverse, which resulted in areas not being thoroughly traversed, therefore there is potential for conservation significant species to occur within the application area but were not observed during the survey.

Given *Eremophila magnifica* subsp. *velutina* is known across multiple bioregions these species unlikely to be significantly impacted by the proposed clearing if individuals are present. *Indigofera gilesii* is also known across multiple bioregions, however, does not have known records within conservation estate.

The application area is outside of the known range for *Pilbara trudgenii*, if this species were to be present it would be a range extension by approximately 25 kilometres east, given this species is also absent from suitable breakaways within the broader survey area, between the closest known record and the application area, it's occurrence is unlikely.

Gompholobium karijini inhabits low undulating hills, skeletal soils on the edges of deep ravines or plateaux on banded ironstone within the Fortescue and Hamersley regions (Astron, 2019; WA Herbarium, 1998-). The application area provides suitable vegetation and habitat for this species within drainage and hillslope habitat; however, the nearest record of this species is approximately 47 kilometres southeast.

Isotropis parviflora is a short-lived perennial shrub known from Fortescue and Hamersley subregions within the Pilbara and has several records within the local surrounds (50 kilometres) (WA Herbarium, 1998-; GIS Database). *Isotropis parviflora* has previously been recorded from slopes of stony hills and is most likely to be associated with vegetation units H3, H8 and H11, and possibly within H4, H7 and H10 (Astron, 2019b). The application area likely contains suitable habitat for this species within low hills and slopes supporting H3 and H4 vegetation associations. A sample site in H3 vegetation within the application area did not detect this species, however not all suitable habitat was searched.

Triodia basitricha habitat is described as slopes or crests of rocky hills, however, has been recorded within floodplain, drainage line and plain habitats (Barrett and Barrett, 2015; WA Herbarium, 1998-). This species is known from Ashburton, Chichester, Fortescue, Hamersley subregions, often being recorded in abundance or as the dominant species (WA Herbarium, 1998-). The application area does contain suitable habitat for this species, given this species habit of being recorded within large groups, it is likely it would have been detectable at the time of the survey.

Plain and low hill species

The application area contains suitable habitat for the follow species within plain and low undulating hill habitats;

- *Aristida jerichoensis var. subspinulifera* (P3); and
- *Streptoglossa* sp. Cracking clays (S. van Leeuwen et al. PBS 7353) (P3).

Aristida jerichoensis var. subspinulifera is associated with hardpan, loam, clay loam plains with open *Acacia* woodlands over *Triodia* and other grasses, often near drainage lines (Astron, 2019b; WA Herbarium, 1998 -). This species is most likely to occur within plain vegetation units, P1 vegetation unit contains suitable habitat for this species (Astron, 2019b). P1 vegetation is located adjacent to a drainage line making habitat more suitable for *Aristida jerichoensis* var*. subspinulifera*, however, this makes up approximately less than 0.2 hectares of the application area.

Streptoglossa sp. Cracking clays (S. van Leeuwen et al. PBS 7353) is known from few records in the Gascoyne and Pilbara region, most records are from cracking clay soils however this species is known from red brown sandy clay loam plains (WA Herbarium, 1998-). Vegetation within plain habitat is marginally suitable for this species, based on previous records, given the distance to the closest record it is unlikely this species will occur within marginally suitable habitat.

Vegetation unit H2

Vegetation unit H2 occurs on south-facing upper debris slopes of BHT and supports dense populations of multiple conservation significant flora (Astron, 2019b). This vegetation community, lower-slope mulga, was largely unaffected by the 2015 fire and may act as a refuge for conservation significant flora taxa (Astron, 2019b). This vegetation unit is in very good to excellent condition and is considered to have high conservation significance at a local scale (Astron, 2019b).

Whilst the H2 vegetation unit is not mapped within the application area, this vegetation unit is directly adjacent to the application area at multiple locations (Figure 1). Clearing adjacent to this vegetation unit has the potential to spread weeds into this community, impact priority flora habitat and increase edge effects.

Weeli Wolli Spring Community (P1)

The Weeli Wolli Spring Community is characterised by riparian woodland and forest associations with sedge and herbfield understory that fringe pools and associated water bodies along the main channels of the Weeli Wolli Creek (DBCA, 2023). The PEC is dominated by Coolibah (*Eucalyptus victrix*), River Red Gum (*Eucalyptus camaldulensis*) and in shallow groundwater areas Silver Cadjeput (*Melaleuca argentea*), with a diverse understory of vegetation, grasses and sedges (EPA, 2018). The spring and creekline contain high diversity of stygofauna and support a very rich microbat assemblage (DBCA, 2023).

The application area does not contain vegetation synonymous with the Weeli Wolli Spring Community (Astron, 2019b). This PEC is only known to two locations the application area lies within the buffer region of the mapped PEC upstream from the application area (GIS Database). There are two minor ephemeral drainage lines within the application area that potentially flow downstream into the other mapped Weeli Wolli PEC after significant rainfall. Altering flow patterns within the application area has potential to have downstream impacts to this PEC (EPA, 2018). Implementation of a watercourse management condition to ensure the existing surface flow is maintained will minimise potential impacts to the Weeli Wolli Spring community.

Conclusion

Priority flora within and adjacent to the application area

Lepidium catapycnon is the only priority species known to occur within the application area. Impacts to populations of *Lepidium catapycnon*, *Eremophila* sp. West Angelas (S. van Leeuwen 4068), *Grevillea saxicola*, *Triodia* sp. Mt Ella (M.E. Trudgen 12739), *Ptilotus mollis* are unlikely to be significantly impacted by the proposed clearing given the established populations outside of the application area. It should be noted that priority species listed extend into adjacent Ministerial Statement No. 1248, and under this statement *Lepidium* catapycnon, *Eremophila* sp. West Angelas (S. van Leeuwen 4068), and *Ptilotus mollis* are required to have no more 30% disturbed within the local area (State of Western Australia, 2025). It should be noted that the clearing of priority flora within the application area may contribute to cumulative impacts on a local scale.

Drainage line and floodplain species

The application area contains suitable habitat for *Amaranthus centralis* and *Aristida lazaridis,* however it is unlikely these species will significantly be impacted by the proposed clearing if present, given these species are known from various habitats which extend beyond the application area.

Breakaway, hillslope and rocky hill species

The application area provides suitable habitat for these species, however given the extent of the clearing and previous degradation in the area the likelihood of these species occurring within the application area is reduced. It should be noted that all species excluding *Indigofera gilesii* and *Isotropis parviflora* have known records within conservation areas within the Pilbara region. *Isotropis parviflora* and *Indigofera gilesii* have potential to occur within the application area however given the size of the proposed clearing and the existing disturbance within the application area, it is unlikely these species will be significantly impacted by the proposed clearing.

Plains and low hill species

Given the application area provides limited suitable habitat for these species it is unlikely that the proposed clearing of plain habitat will significantly impact these species on a local or regional scale.

Vegetation unit H2

Potential impacts to the biodiversity of this vegetation association as a result of the proposed clearing may be minimised by implementing a weed management condition.

Weeli Wolli Spring Community

The implementation of a water management condition and weed management condition can reduce potential impacts to the PEC downstream.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- vegetation management – avoid riparian vegetation and where a watercourse is to be impacted by clearing, the permit holder shall ensure that the existing surface flow is maintained or reinstated downstream into existing natural drainage lines.

3.2.2. Biological values (fauna) - Clearing Principles (a) and *(b)*

Assessment

Fauna

Astron Environmental Services (Astron) undertook a multiple phase Level 2 fauna survey and short range endemic (SRE) invertebrate fauna assessment over the application area and a broader survey area, of approximately 10,817.7 hectares (Astron, 2019a). Astron (2019a) undertook systematic fauna sampling, targeted Matters of National Environmental Significance (MNES) species, as a part of their Level 2 fauna survey. The survey was conducted in three phases, 1 to 12 November 2017, 18 to 30 May 2018 and 20 to 31 May 2019 (Astron, 2019a). Astron (2019a) identified the following limitations: areas difficult to traverse, fire impacting portion of application area, and dry seasonal conditions prior to phase 2 and phase 3 sampling. Additionally, during the scoping stage of the assessment the Delegated Officer identified that limited survey work had been conducted within the application area (see Figure 4).

Fork-tailed swift (*Apus pacificus*, MI)

This species is almost exclusively aerial, however when on-ground occupies a wide range of habitats (Commonwealth of Australia, 2008). This species has a moderate likelihood of occurring within the application area and has previously been recorded within the general area (Astron, 2019a).

Ghost bat (*Macroderma gigas*, VU)

Within the Pilbara ghost bats forage along drainage lines and riparian corridors, alluvial plains supporting mulga woodlands and tussock grasslands, as well as in sparse woodlands along ridge lines (Northover et al., 2023; Bat Call WA, 2021a). Ghost bats roost in caves, rock crevices and disused mine adits, moving periodically between roosts in response to prey availability and seasonal conditions, although rely on a permanent underground roost with a warm and humid microclimate to maintain homeostasis (Northover et al., 2023).

The application area contains suitable foraging and dispersal habitat within minor drainage and rocky hill habitat (Astron, 2019a). Breakaway habitat contains potential shelter and foraging habitat (Astron, 2019a). Astron (2019a) recorded ghost bat on nine occasions within the broader survey area, however given the presence of the previous road within breakaway habitat, it is unlikely that breakaway habitat within the application area will contain caves or rock crevices suitable for roosting.

Grey Falcon (*Falco hypoleucos*, VU)

The grey falcon forages over open plains and timbered watercourses, breeds and nests in old nests of other large birds in tall trees along watercourses, particularly River Red Gums (*Eucalyptus camaldulensis*) and Coolibah (*E. coolabah*) (Menkhorst et al., 2019). The grey falcon has a moderate likelihood of occurring within the application area, with records of breeding pairs and individuals within the local surrounds (50 kilometres) of the Hope Downs 2 area (Astron, 2019a; Astron, 2023). The application area contains suitable foraging habitat; however, habitat is not restricted to the application area. Minor drainage line habitat is not considered to contain suitable breeding habitat due to the lack of mature trees within this habitat unit (Astron, 2023). The closest potential breeding habitat is within discharge points of the Weeli Wolli Creek that support riparian vegetation and tall established trees (Astron, 2023).

Letter-winged kite (*Elanus scriptus*, P4)

This species inhabits desert grasslands and timbered watercourses, an individual was opportunistically sighted within minor drainage line habitat, approximately 25 kilometres away, within the broader survey area (Astron, 2019a; Menkhorst et al., 2019). The letter-winged kite is sparsely distributed across western Australia and is rarely encountered across its range, and given its preferred habitat is widespread within the Pilbara region, is unlikely to be dependent on the application area for survival (Astron, 2019a; GIS Database).

Long-tailed dunnart (*Antechinomys longicaudatus*, P4)

This species is known from several widespread localities between northeastern Pilbara, Goldfields and the Gibson Desert, and extends into the Macdonnell ranges in the northern territory (Menkhorst and Knight, 2011; GIS Database). Long tailed dunnarts inhabit flat-topped hills, lateritic plateaus, sandstone ranges and breakaways with exposed rock and rocky screes with hummock grasses and shrubs (Menkhorst and Knight, 2011; WA Museum, n.d.). The application area likely contains suitable habitat for this species in breakaway and rocky hill habitat, however there are no known long-tailed dunnart populations near the application area (GIS Database).

Night parrot (*Pezoporus occidentalis*, CR)

Night parrot inhabits semi-arid grasslands for roosting and nesting where long-unburnt spinifex hummocks are present (specifically *Triodia longiceps* and *T. infesta*) (Northover et al., 2023). Night parrots utilise floodplains, drainage lines and run-off areas to forage and will travel large distances to areas with floristically diverse herbs and seeds vegetation to forage (Northover et al., 2023).

The application area contains suitable foraging and dispersal habitat within minor drainage line habitat (Astron, 2019a); however, this habitat is not restricted to the application area and has previously been fragmented and degraded by road

construction. Additionally, the application area lacks long-unburnt spinifex hummocks and therefore does not provide suitable nesting for this species (Astron, 2019a; Astron, 2019c; GIS Database).

Northern quoll (*Dasycercus hallucatus*, EN)

The northern quoll inhabits a variety of habitats, with a preference to complex rocky areas in the Pilbara (Commonwealth of Australia, 2008; Northover et al., 2023). Northern quolls take refuge and raise young in dens, particularly small caves and crevices in rocky outcrops and mesas (Northover et al., 2023). The application area contains suitable foraging and dispersal habitat in minor drainage line and rocky hill habitat and potential shelter and foraging habitat in breakaway habitat (Astron, 2019a). Astron (2019a) recorded northern quolls within the broader survey area, less than three kilometres west of the application area. This fauna survey did not extend into the application area, however given the presence of northern quoll in similar habitat adjacent to the application area it is likely they are present within the application area.

Breakaway and rocky hill habitat within the application area has previously been fragmented by exploration and road construction activities (Appendix A). Given suitable northern quoll habitat has previously been degraded and fragmented it is unlikely that road widening will contribute to further significant impacts to northern quoll habitat. The proposed clearing will likely increase edge effects; however, road widening is assumed to occur within land already impacted by edge effects.

Peregrine falcon (*Falco peregrinus*, OS)
Peregrine falcons inhabit most environments and nest in recesses of cliff faces, rocky ledges in tall vertical cliff faces, tall trees near drainage lines, tree hollows or in old nests of other large birds (Astron, 2019a; Menkhorst et al., 2019). Peregrine falcons' mate for life in pairs maintaining a home range of 20 to 30 kilometres square (Menkhorst et al., 2019). This species has a moderate likelihood of occurrence and is known within ten kilometres of the application area (Astron, 2019a; GIS Database). The application area contains suitable foraging habitat; however, habitat is not restricted to the application area. Minor drainage line habitat is not considered to contain suitable breeding habitat due to the lack of mature trees within this habitat type (Astron, 2023).

Pilbara barking gecko (*Underwoodisaurus seorsus*, P2)

The Pilbara barking gecko inhabits rocky areas with spinifex and low tree cover within mid elevations in the Hamersly Ranges (Astron, 2019a; Wilson and Swan, 2021). This species has a high likelihood of occurring within rocky hill habitat, however, has previously been absent from trap sites in adjacent suitable habitat impacted by clearing and fire (Astron, 2019a; GIS Database).

Pilbara leaf-nosed bat (*Rhinonicteris aurantia*, VU)

The Pilbara leaf-nosed bat (PLNB) forages in a variety of habitats, particularly highly productive *Triodia* hummock grasslands with complex riparian zones where water is permanently available (Northover et al., 2023). The PLNB is also known to forage in plains, low hills, gullies, ridgelines, mesas, and deep gorge habitats (Bat Call WA, 2021b). During the day the PLNB roosts in dark zones of caves and underground mines where conditions are stable, warm and humid, roosts area often located near watercourses or pools (Bat Call WA, 2021b).

The Pilbara leaf-nosed bat is highly likely to utilise the application area as it has previously been recorded approximately eight kilometres west of the application area, this species is likely to be found across a majority of habitats excluding cleared areas (Astron, 2019a). Low slopes and hills, mulga woodland and rocky hill habitat provides suitable foraging and dispersal habitat, and breakaway habitat is considered to provide potential shelter and foraging habitat, as well as gorge and gully habitat which is adjacent to the application area (Astron, 2019a). However given the presence of the previous road within breakaway habitat, it is unlikely that breakaway habitat within the application area will contain caves or caves with suitable depth to support a PLNB roost site.

Pilbara olive python (*Liasis olivaceus barroni,* VU)
The Pilbara olive python (POP) prefers escarpments, gorges and water holes in the ranges of the Pilbara, however, have also been found in adjacent spinifex grasslands (Astron, 2019a; Commonwealth of Australia, 2008). This species prefers microhabitats which are under rock piles, on top of rocks or under spinifex (Commonwealth of Australia, 2008). Individuals usually occupy caves and overhangs in gorge and breakaway habitats, as these provide suitable denning and ambush sites (Astron, 2019a). These sites are often in close proximity to water and rocky outcrops that attract suitable sized prey for the POP (Commonwealth of Australia, 2008).

The application area contains suitable foraging and dispersal habitat and potential shelter habitat in breakaway and minor drainage habitats, and in gorge/gully habitat adjacent to the application area, however the application area also contains large areas of limited foraging and dispersal habitat (Astron, 2019a). Astron (2019a) identified suitable foraging and dispersal habitat in drainage lines with dense vegetation and in rocky habitats not in close proximity to water. Potential shelter habitat was identified in rocky habitats (breakaways) along drainage lines (Astron, 2019a).

Western pebble-mound mouse (*Pseudomys chapmani*, P4)
The western pebble-mound mouse is a burrowing rodent species confined to central and east Pilbara, these species construct complex burrows in rocky substrate, topped with 'fortress style' pebble mounds (Firman et al., 2025; Menkhorst and Knight, 2011). This species is known to occur within rocky hill, stony plain and mulga woodland habitats, and has potential to occur within low hill and slope habitat, which are present within the application area (Astron, 2019a).

Invertebrates

Alacran Environmental Science (Alacran) (2019) undertook a desktop assessment of SRE invertebrates within approximately 40,000 kilometres square centred on the broader survey area (approximately 10,817.7 hectares), and identified and assessed invertebrates sampled during two field surveys undertaken by Astron. Gorge/gully, breakaway, rocky hills and minor drainage habitats were identified as suitable habitats for SRE species, particularly south-facing gorges, rocky slopes and breakaways (Astron, 2019a).

In the broader survey area, a total of 66 taxa were recorded, 17 were determined to be widespread, 48 were considered potential SRE and one species was a confirmed SRE species, *Karaops banyjima* (Alacran, 2019; Astron, 2019a). *Karaops banyjima* was recorded approximately three kilometres east of the application area within a south facing gorge / gully at Bedded Hilltops. As gorge / gully habitat is absent from the application area it is unlikely this species will be present within the application area. Other potential SRE and widespread invertebrates were recorded from this same location, however as gorge/ gully habitat does not extend into the application area these are also unlikely to be present.

Astron (2019a) identified that BHT contains a large isolated, east- west running ridge which supports south facing rocky slopes and breakaways, as well as gullies and gorges, which provides suitable habitat for SRE's. As the application area largely excludes this ridge and south facing slopes, it is unlikely for SRE species to be present within the application area. Potential SRE species were recorded within breakaway, rocky hills and minor drainage habitats, however these habitats are sufficiently represented outside of the application area (EPA, 2024).

Known priority invertebrate species Area C antichiropus millipede (*Antichiropus pendiculus*) (P1) and Bond's antichiropus millipede (*Antichiropus cirratus*) (P1) were not recorded within the application area or broader survey area. No *Antichiropus* spp. samples collected matched either known priority species (Alacran, 2019).

Conclusion

Fork-tailed swift

This species is unlikely to be significantly impacted by the proposed clearing as this species is almost exclusively aerial and can utilise a wide variety of habitats, if present it is likely to only utilise the airspace above the application area.

Ghost bat and Pilbara leaf-nosed bat

These species are likely to utilise the application area for foraging. Given suitable breakaway habitat has been previously fragmented it is unlikely the proposed clearing will significantly contribute to the loss significant habitat for these species. Additionally, breakaway habitat within the application area has previously been cleared for the construction of a road, indicating breakaway habitat present is unlikely to contain suitable caves or overhangs for roosting.

Grey falcon and Peregrine falcon

This species is unlikely to be significantly impacted by the proposed clearing, as foraging habitat is not restricted to the application area.

Long-tailed dunnart

Given the absence and distance of recent records it is unlikely this species is present within the application area. If this species were to be present it is unlikely to be significantly impacted by the proposed clearing.

Northern quoll

It is highly likely this species will be present within and adjacent to the application area, however suitable habitat within the application area has already been fragmented. To minimise the impacts of the proposed clearing to this species, clearing will be restricted to daylight hours when northern quoll is inactive.

Pilbara barking gecko

The proposed clearing is likely to impact suitable rocky hill habitat for this species, however given this species has previously been absent from degraded and cleared areas it is unlikely this species will be present within the application area as habitat has been cleared. This species may be present within adjacent habitat and may be impacted by road widening increasing edge effects.

Pilbara olive python

The proposed clearing is unlikely to significantly contribute to the loss of suitable habitat for this species as the application area lacks gorge and gully habitat, and breakaway habitat has previously been fragmented and degraded. The proposed widening of the pre-existing road will likely contribute to edge effects, however it is assumed the proposed clearing will occur within areas already impacted by edge effect.

Western pebble-mound mouse

The proposed clearing is likely to impact suitable habitat for this species, however habitat is not restricted to the application area, given the extent of the proposed clearing is unlikely to significantly impact this species.

Invertebrates

The proposed clearing is unlikely to significantly impact potential and known SRE and priority invertebrate species as suitable habitat is either absent or sufficiently represented in the local surrounds.

Conditions

To address the above impacts, the following management measures will be required as conditions on the clearing permit:

- avoid, minimise to reduce the impacts and extent of clearing;

- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity; and
- restricting clearing activities to daylight hours.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 18 July 2025 by the Department of Mines, Petroleum and Exploration 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 (DPLH, 2025). This claim has been registered with the National Native Title Tribunal Court on behalf of the claimant group. 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 no registered Aboriginal Sites of Significance within the application area (DPLH, 2025). 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.

The application area is adjacent to Ministerial Statement No.1248, the proponent must therefore ensure that they meet the environmental requirements of their Ministerial Statement, when clearing for this NVCP. It should also be noted the proponent has another adjacent proposal pending with the EPA currently.

It is noted that the proposed clearing may impact on ghost bat (*Macroderma gigas*), night parrot (*Pezoporus occidentalis*), northern quoll (*Dasyurus hallucatus*), Pilbara-leaf nosed bat (*Rhinonicteris aurantia*), and Pilbara olive python (*Liasis olivaceus barroni*) which are a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). The proponent may be required to refer the project to the (Commonwealth) Department of Climate Change, Energy, the Environment and Water for environmental impact assessment under the EPBC Act. The proponent is advised to contact the Department of Climate Change, Energy, the Environment and Water for further information regarding notification and referral responsibilities under the EPBC Act.

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 applicant

Summary of comments	Consideration of comment
Information and shapefiles provided by the applicant regarding the overlap of the application area and Ministerial Statement 1248.	Information provided was considered during the assessment of Section 3.3 Relevant planning instruments and other measures.
Information provided by the applicant regarding the Department's request for the authorised clearing area or boundary area to be reduced to minimise impact to MNES. Applicant reduced authorised clearing area, boundary remains the same to accommodate safety concerns.	Information provided was considered during the assessment of Principle (b) and Section 3.1 Avoidance and mitigation measures.
Information provided by the applicant regarding the Department's request for information on previous clearing activities (road construction and exploration activities) within the application area, specifically the width of the road within the application area.	Information provided was considered during the assessment of Principle (b), (a) and Section 3.1 Avoidance and mitigation measures.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is surrounded by native vegetation and mining infrastructure within the extensive land use zone of Western Australia (GIS Database). The predominant land use in the Hamersley subregion is grazing, UCL and Crown reserves, native pastures, conservation, mining and urban (CALM, 2002).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The application area is not located within any DBCA legislated conservation areas (GIS Database) The nearest conservation area is Karijini National Park located approximately 51 kilometres west of the application area (GIS Database).
Vegetation description	The application area occurs within the IBRA Pilbara bioregion in the Hamersley subregion (PIL3) (GIS Database). The vegetation of the application area is broadly mapped as the following Beard vegetation associations: **Hamersley 18:** Low woodland, open low woodland or sparse woodland; mulga (*Acacia aneura*) and associated species; and **Hamersley 82:** Hummock grasslands, low tree steppe; bloodwoods & snappy gum *Triodia* spp., *Corymbia dichromophloia, Eucalyptus leucophloia* (GIS Database). A flora and vegetation survey was conducted over the application area by Astron during November 2017, May 2018 and March 2019 (Astron 2019). The following vegetation associations were recorded within the application area (Astron, 2019): **Vegetation of Drainage Lines** • **D1:** *Corymbia hamersleyana* sens. lat., *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *Petalostylis labicheoides, Acacia monticola, A. maitlandii* scattered tall shrubs to tall shrubland over *Dodonaea lanceolata* var. *lanceolata, Androcalva luteiflora* scattered shrubs to open shrubland over *Triodia pungens* very open hummock grassland to open hummock grassland with *Themeda triandra, Eriachne mucronata* very open tussock grassland to open tussock grassland **Vegetation of Hills and Slopes** • **H1:** *Eucalyptus leucophloia* subsp. *leucophloia, Corymbia hamersleyana* sens. lat. scattered low trees to low open woodland over *Petalostylis labicheoides*, *Senna glutinosa* subsp. *glutinosa* scattered tall shrubs over *Gompholobium oreophilum, Acacia hilliana*, *A. spondylophylla* low open shrubland to low shrubland over *Triodia vanleeuwenii, T. wiseana, T. pungens* open hummock grassland with *Amphipogon sericeus* scattered tussock grasses. • **H2:** *Eucalyptus repullulans* scattered low mallees over *Acacia catenulate* subsp. *occidentalis, A. aptaneura, (Grevillea saxicola)* tall shrubland to tall open scrub over *Scaevola acacioides, Dodonaea pachyneura, Eremophila latrobei* subsp. *liformis* scattered shrubs to open shrubland over *Triodia* pungens scattered hummock grasses to very open hummock grassland with *Eriachne mucronata* scattered tussock grasses to very open tussock grassland • **H3:** *Corymbia deserticola* subsp. *deserticola* scattered low trees over *Acacia inaequilatera, Hakea chordophylla* scattered tall shrubs to tall open shrubland over *Senna glutinosa* subsp. *pruinosa* scattered shrubs over *Triodia vanleeuwenii* open hummock grassland with *Amphipogon sericeus* scattered tussock grasses to very open tussock grassland.

	• **H4:** *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees over *Senna glutinosa* subsp. *glutinosa, S. glutinosa* subsp. *pruinosa* scattered shrubs over *Triodia vanleeuwenii* and/or *T. wiseana* open hummock grassland to hummock grassland. **Vegetation of Plains** • **P1:** *Acacia aptaneura, A. catenulata* subsp. *occidentalis, (A. pruinocarpa)* tall shrubland to tall open scrub over *Eremophila forrestii* subsp.*forrestii* open shrubland to shrubland over *Triodia pungens,* (*T. vanleeuwenii*) scattered hummock grasses to very open hummock grassland.
Vegetation condition	The vegetation survey and aerial imagery indicate the vegetation within the proposed clearing area is in Excellent to Completely Degraded (Trudgen,1991) condition, described as: • **Excellent:** Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. to • **Completely Degraded:** Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs. The full Trudgen (1991) condition rating scale is provided in Appendix D.
Climate and landform	The climate is semi-desert tropical, the average annual rainfall is 327.5 millimetres recorded at Newman Aero, rainfall typically occurs in summer cyclonic or thunderstorm events, however winter rainfall is not uncommon (BoM, 2025; CALM, 2002). The application area is mapped within elevation areas of 640 to 800 meters Australian height datum (GIS Database).
Soil description and land degradation risk	The soil is mapped as a part of the following land systems (DPIRD, 2025a; DPIRD, 2025b; Van Vreeswyk et al., 2004; GIS Database): • **Platform system (285Pl):** Very gently inclined upper plains with extensive marginal dissection zones with gently inclined steep slopes. Closely spaced dendritic or sub-parallel drainage patterns with narrow floors in upper parts. Floors incised up to 30 metres with steep stable marginal slopes and becoming wider down slope. Surface mantles of very abundant pebbles and cobbles. This land system is generally not susceptible to soil erosion. • **Newman system (285Ne):** Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. Erosional surfaces; plateaux and mountains-extensive high plateaux mountains and strike ridges with vertical escarpments and steep scree slopes and more gently inclined lower slopes. Moderately spaced dendritic and rectangular tributary drainage patterns of narrow valleys and gorges with narrow drainage floor sand channels. This land system is generally not susceptible to soil erosion.
Waterbodies	The desktop assessment and aerial imagery indicates that two non-perennial watercourses transect the area proposed to be cleared (GIS Database).
Hydrogeography	The application area is located within the Pilbara Groundwater Area proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS Database). The closest Public Drinking Water Source Area is Newman Water Reserve approximately 41 kilometres southeast of the application area (GIS Database). There are no Wetlands of International Importance or Nationally Important Wetlands that occur within the application area or in the local surrounds (50 kilometres) (GIS Database). The mapped groundwater salinity is between approximately 500 to 1,000 milligrams per litre total dissolved solids which is described as fresh (GIS Database).
Flora	There is one threatened flora species known within the local surrounds (50 kilometres) (GIS Database). There is 52 priority flora species known within the local surrounds (50 kilometres) (GIS Database).
Ecological communities	There are no threatened ecological communities within the local surrounds (50 kilometres) (GIS Database). There are seven priority ecological communities within the local surrounds (50 kilometres), see Appendix C.5 (GIS Database).
Fauna	There are 13 threatened fauna species known within the local surrounds (50 kilometres) (Astron, 2019a; GIS Database). There are 10 priority fauna species known within the local surrounds (50 kilometres) (GIS Database).
Fauna habitat	Four broad fauna habitats were identified within the application area, in addition to cleared habitat (Astron, 2019a); • **Breakaway:** Breakaway or ridge line, falling away to steep scree slope or drainage. Caves (roost/feed caves), cracks and crevices, sheltered leaf litter • **Low Hills and Slopes:** Low stony hills and slopes with dissected valleys and drainage on stony soils. Termite mounds, *Triodia* hummocks, minimal leaf litter • **Minor Drainage:** Open drainage areas on stony soils. Waterbodies only present during times of heavy inundation. Hollow bearing trees and logs, thick groundcover/vegetation, deep leaf litter • **Rocky Hill:** Stony hills on high ranges with dissected valleys and gorges. Shallow overhangs, boulders and crevices.

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA Managed Land (proportion of pre-European extent) (%)
IBRA Bioregion - Pilbara	17,808,657.04	17,731,764.88	99.57	1,801,714.98	10.12
Beard vegetation associations - State					
Veg Assoc 18	19,892,306.46	19,843,148.07	99.75	1,317,179.00	6.62
Veg Assoc 82	2,565,901.28	2,553,206.19	99.51	295,377.96	11.51
Beard vegetation associations - Bioregion					
Veg Assoc 18	676,556.72	671,843.35	99.30	170,297.48	25.17
Veg Assoc 82	2,563,583.23	2,550,888.14	99.50	295,377.96	11.52

Government of Western Australia (2019)

B.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (Appendix H.1), and biological survey information, impacts to the following conservation significant flora required further consideration (Astron, 2019; GIS Database).

Species name	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Requires further consideration [Y/N]
Threatened				
Synostemon hamersleyensis	Y - limited	<40	35	Y – discussed in Appendix C
Priority 1				
Calotis squamigera	N	<44	5	N
Paranotis sp. Pilbara (H. Ajduk HAOP04a)	N	<35	7	N
Sida sp. Turee Creek (P.-L.de Kock PLDK1116)	N	<48	4	N
Uvedalia clementii	N	<24	10	N
Priority 2				
Cladium procerum	N	<17	15	N
Gompholobium karijini	Y	<47	43	Y – discussed in Section 3.2.1
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	N	<4	38	N
Kohautia australiensis	N	<47	9	N
Tetratheca fordiana	N	<48	13	N
Triodia karijini	N	<25	14	N
Priority 3				
Acacia effusa	Y	<25	33	Y – discussed in Section 3.2.1
Acacia subtiliformis	N	<5	26	N
Amaranthus centralis	Y	<29	8	Y – discussed in Section 3.2.1
Aristida jerichoensis var. *subspinulifera*	Y	<18	49	Y – discussed in Section 3.2.1
Aristida lazaridis	Y	<14	29	Y – discussed in Section 3.2.1
Dampiera metallorum	N	<23	22	N
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	N	<42	46	N

Species name	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Requires further consideration [Y/N]
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	N	<27	8	N
Eremophila magnifica subsp. *velutina*	Y	<41	23	Y – discussed in Section 3.2.1
Eremophila naaykensii	N	<8	22	N
Eremophila sp. West Angelas (S. van Leeuwen 4068)	Y	<1	8	Y – discussed in Section 3.2.1
Euphorbia australis var. *glabra*	N	<45	23	N
Euphorbia stevenii	N	<49	17	N
Fimbristylis sieberiana	N	<16	30	N
Glycine falcata	N	<47	14	N
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	N	<8	53	N
Grevillea saxicola	Y	<1	40	Y – discussed in Section 3.2.1
Gymnanthera cunninghamii	N	<14	45	N
Indigofera gilesii	Y	<13	40	Y – discussed in Section 3.2.1
Ipomoea racemigera	N	<35	23	N
Isotropis parviflora	Y	<14	34	Y – discussed in Section 3.2.1
Neptunia longipila	N	<46	17	N
Olearia mucronata	N	<47	14	N
Oxalis sp. Pilbara (M.E. Trudgen 12725)	N	<13	18	N
Pilbara trudgenii	Y	<25	12	Y – discussed in Section 3.2.1
Rostellularia adscendens var. *latifolia*	N	<3	53	N
Sida sp. Hamersley Range (K. Newbey 10692)	N	<50	26	N
Solanum kentrocaule	N	<27	22	N
Streptoglossa sp. Cracking clays (S. van Leeuwen et al. PBS 7353)	Y	<41	13	Y – discussed in Section 3.2.1
Stylidium weeliwolli	N	<2	30	N
Swainsona thompsoniana	N	<50	33	N
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	N	<15	60	N
Triodia basitricha	Y	<30	49	Y – discussed in Section 3.2.1
Triodia sp. Mt Ella (M.E. Trudgen 12739)	Y	<2	40	Y – discussed in Section 3.2.1
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	N	<19	26	N
Priority 4				
Acacia bromilowiana	Y	<2	30	Y – discussed in Section 3.2.1
Eremophila magnifica subsp. *magnifica*	Y	<5	47	Y – discussed in Section 3.2.1
Eremophila youngii sp. *lepidota*	N	<50	23	N
Lepidium catapycnon	Y	0	39	Y – discussed in Section 3.2.1
Ptilotus mollis	Y	<4	48	Y – discussed in Section 3.2.1
Rhynchosia bungarensis	N	<44	115	N
Sida sp. Barlee Range (S. van Leeuwen 1642)	N	<23	61	N

B.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (Appendix F.1), and biological survey information, impacts to the following conservation significant flora required further consideration (Astron, 2019; GIS Database).

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)
Birds				
Caspian tern (*Hydroprogne caspia*)	MI	N	N	<28
Common greenshank (*Tringa nebularia*)	MI	N	N	<39
Common sandpiper (*Actitis hypoleucos*)	MI	N	N	<37
Fork-tailed swift (*Apus pacificus*)	MI	Y	Y	<17
Grey falcon (*Falco hypoleucos*)	VU	Y	Y	<24
Letter-winged kite (*Elanus scriptus*)	P4	Y	Y	<25
Night parrot (*Pezoporus occidentalis*)	CR	Y	Y - Some	<44
Oriental plover (*Charadrius veredus*)	MI	N	N	<14
Peregrine falcon (*Falco peregrinus*)	OS	Y	Y	<7
Mammals				
Brush-tailed mulgara (*Dasycercus blythi*)	P4	Y	Y	<33
Ghost bat (*Macroderma gigas*)	VU	Y	Y	<8
Greater bilby (*Macrotis lagotis*)	VU	N	N	<19
Lakeland Downs short-tailed mouse (*Leggadina lakedownensis*)	P4	N	Y	<44
Long-tailed dunnart (*Antechinomys longicaudatus*)	P4	Y	Y	<40
Northern quoll (*Dasyurus hallucatus*)	EN	Y	Y	<3
Pilbara leaf-nosed bat (*Rhinonicteris aurantia* (Pilbara form)	VU	Y	Y	<8
Western pebble-mound mouse (*Pseudomys chapmani*)	P4	Y	Y	<2
Reptiles				
Gane's blind snake (*Anilios ganei*)	P1	N	Y	<10
Pilbara barking gecko (*Underwoodisaurus seorsus*)	P2	Y	Y	<11
Pilbara olive python (*Liasis olivaceus barroni*)	VU	Y	Y	<2
Unpatterned robust slider (Robertson Range) (*Lerista macropisthopus remota)*	P2	Y	N	<13
Invertebrates				
Area C antichiropus millipede (*Antichiropus pendiculus*)	P1	Unknown	Unknown	<12
Bond's antichiropus millipede (*Antichiropus cirratus*)	P1	Unknown	Unknown	<13

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, MI: migratory, CD: conservation dependent, OS: other specially protected, P: priority

B.5. Ecological community analysis table

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Mapped extent of occurrence (ha)	Are surveys adequate to identify? [Y, N, N/A]
Weeli Wolli Spring Community	P1	N	Y - Some	Y	Within buffer, >2	285	Y
Kumina Land System	P3	N	Y	N	>22	15,093	Y

Community name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Mapped extent of occurrence (ha)	Are surveys adequate to identify? [Y, N, N/A]
Riparian flora and plant communities of springs and river pools with high water permanence of the Pilbara Region	P2	N	N	N	>25	430	Y
Coolibah - Lignum Flats: sub type 1: Coolibah and mulga woodland over lignum and tussock grasses on clay plains (Coondewanna and Wanamunna flats and Mt Bruce Flats)	P3	N	N	N	>23	2,464	Y
Coolibah - Lignum Flats: sub type 2: Coolibah woodlands over lignum (*Duma florulenta*) over swamp wanderrie (Lake Robinson)	P1	N	N	N	>37	567	Y
West Angelas Cracking-Clays	P1	N	N	N	>36	475	Y
Vegetation of sand dunes of the Hamersley Range/Fortescue Valley	P3	N	N	N	>41	5,185	Y

T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority

Appendix C. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The area proposed to be cleared contains locally and regionally significant flora, fauna, and habitats.	At variance	Yes *Refer to Section 3.2.1 and 3.2.2 above.*
Principle (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."* Assessment: The area proposed to be cleared contains suitable habitat for conservation significant fauna, including matters of national significance.	At variance	Yes *Refer to Section 3.2.2, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora was recorded within the application area (Astron, 2019b). Threatened flora specie *Synostemon hamersleyensis* inhabits breakaways and rocky outcrops either side of incised gullies, vegetation is typically dominated by *Eucalyptus leucophloia* and lacks a significant *Triodia* component (Astron, 2019b; Telford and Naaykens, 2015). Vegetation communities *Synostemon hamersleyensis* is associated with consist of scattered trees to low open woodland of *Eucalyptus leucophloia* and *E. gamophylla* or *Corymbia hamersleyana* with scattered shrubs of *Senna glutinosa subsp. glutinosa, Grevillea wickhamii, Acacia arida, A. spondylophylla, Gompholobium oreophilum, Dampiera candicans and Stylobasium spathulatum* over *Triodia wiseana* open hummock grassland (WA Herbarium, 1998-, Telford and Naaykens, 2015).	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
The application area contains some of the associated species within H1, H4 vegetation types (Appendix A) however only the H4 vegetation type occurs within breakaway and rocky hill habitat that is adjacent to a gully/gorge. This habitat occurs on the southwest margin of the application area; however, suitable habitat does not extend into the application and therefore is unlikely to be significant or necessary for the continued existence of this species if present.		
Principle (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."* Assessment: The area proposed to be cleared does not contain species that can indicate a threatened ecological community (TEC). There are no known TECs within the application area (GIS Database).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The extent of the mapped vegetation type area is consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia, 2001). The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area (GIS Database).	Not at variance	No
Principle (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."* Assessment: Given the distance to the nearest conservation area, the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given the application area transects a large minor ephemeral watercourse the proposed clearing is likely to impact on vegetation growing within the watercourse. The vegetation type that is associated with this ephemeral watercourse is D1, drainage line vegetation (Astron, 2019b). Potential impacts to vegetation associated with this watercourse can be minimised by the implementation of a watercourse management condition.	At variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils are generally not susceptible to soil erosion (DPIRD, 2025a; DPIRD, 2025b; Van Vreeswyk et al., 2004). Noting the extent of the application area, the proposed clearing is not likely to have an appreciable impact on land degradation.	Not likely to be at variance	No
Principle (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."* Assessment: Given no major water courses, wetlands or Public Drinking Water Sources Areas are recorded within the application area, the proposed clearing is unlikely to impact surface or ground water quality.	Not likely to be at variance	No
Principle (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."* Assessment: The average rainfall in Newman is 327.5 millimetres, rainfall is typically received during summer cyclonic or thunderstorm events, however winter rainfall can also	May be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
occur (BoM, 2025; CALM, 2002). The application area is mapped within elevation areas of 640 to 800 meters Australian height datum (GIS Database). Noting the mapped contours within the application area and the presences of drainage habitat in low lying areas below hillslopes habitat, there is potential for the clearing of native vegetation on hilltops and slopes to increase the risk of local flooding in low lying areas following significant rainfall events. Ensuring surface flow is maintained or reinstated downstream into natural drainage lines can reduce the risk of flooding.		

Appendix D. 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 Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

Condition	Description
Excellent	Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement.
Very good	Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks.
Good	More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds.
Poor	Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds.
Very poor	Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species.
Completely degraded	Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or 'parkland cleared' with their flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Vegetation mapping and vegetation type descriptions

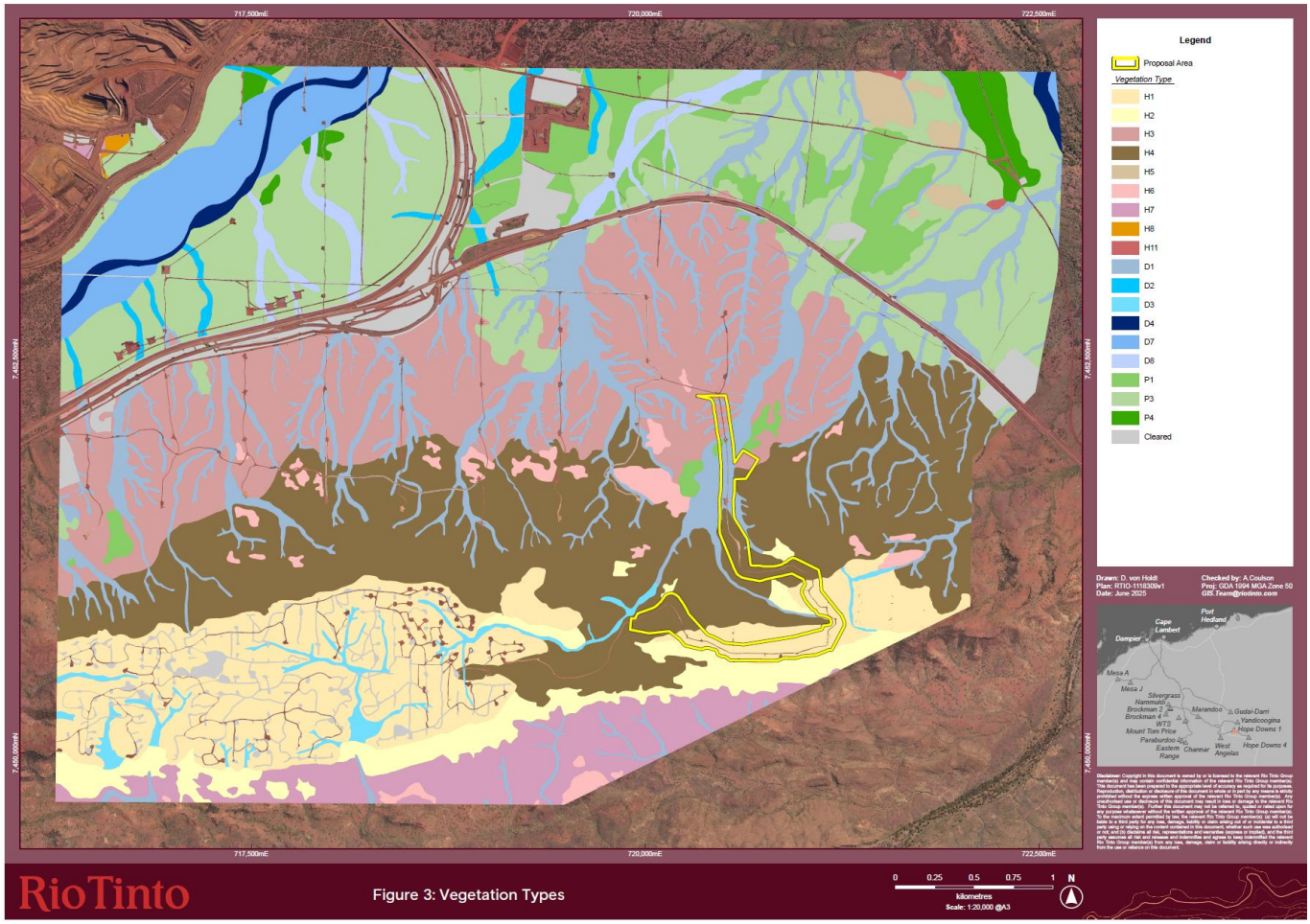


Figure 1. Vegetation mapping within the application area and local surrounds (Rio Tinto, 2025b).

Hilltops/Hillslopes

H1
Eucalyptus leucophloia subsp. *leucophloia, Corymbia hamersleyana* sens. lat. scattered low trees to low open woodland over *Petalostylis labicheoides, Senna glutinosa* subsp. *glutinosa* scattered tall shrubs over *Gompholobium oreophilum, Acacia hilliana, A. spondylophylla* low open shrubland to low shrubland over *Triodia vanleeuwenii, T. wiseana, T. pungens* open hummock grassland with *Amphipogon sericeus* scattered tussock grasses

H2
Eucalyptus repullulans scattered low mallees over *Acacia catenulata* subsp. *occidentalis, A. aptaneura, (Grevillea saxicola)* tall shrubland to tall open scrub over *Scaevola acacioides, Dodonaea pachyneura, Eremophila latrobei* subsp. *filiformis* scattered shrubs to open shrubland over *Triodia* pungens scattered hummock grasses to very open hummock grassland with *Eriachne mucronata* scattered tussock grasses to very open tussock grassland

H3
Corymbia deserticola subsp. *deserticola* scattered low trees over *Acacia inaequilatera, Hakea chordophylla* scattered tall shrubs to tall open shrubland over *Senna glutinosa* subsp. *pruinosa* scattered shrubs over *Triodia vanleeuwenii* open hummock grassland with *Amphipogon sericeus* scattered tussock grasses to very open tussock grassland

H4
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees over *Senna glutinosa* subsp. *glutinosa, S. glutinosa* subsp. *pruinosa* scattered shrubs over *Triodia vanleeuwenii* and/or *T. wiseana* open hummock grassland to hummock grassland

H5
Eucalyptus socialis subsp. *eucentrica* scattered low mallees to low open mallee woodland over *Acacia bivenosa* scattered tall shrubs to tall open shrubland over *Senna glutinosa* subsp. × *luerssenii* scattered shrubs over *Ptilotus obovatus* scattered low shrubs over *Triodia wiseana* very open hummock grassland to open hummock grassland

H6
Acacia aptaneura, A. catenulata subsp. *occidentalis* tall open shrubland to tall shrubland over *Eremophila forrestii* subsp. *forrestii, Senna stricta* scattered shrubs to open shrubland over *Triodia pungens* and/or *T. vanleeuwenii* and/or *T. wiseana* scattered hummock grasses to very open hummock grassland with *Eriachne mucronata* scattered tussock grasses

H7
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees to low open woodland over *Senna glutinosa* subsp. *glutinosa, Acacia maitlandii* scattered shrubs over *Triodia wiseana* and/or *T. vanleeuwenii* and/or *T. pungens* open hummock grassland to hummock grassland

H8
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees to low open woodland over *Acacia pruinocarpa, Hakea chordophylla* scattered tall shrubs to tall open shrubland over *Triodia vanleeuwenii, (T. pungens)* open hummock grassland to hummock grassland with *Amphipogon sericeus* scattered tussock grasses

H9
Acacia arida, Grevillea wickhamii subsp. *hispidula* open shrubland over *Triodia wiseana* open hummock grassland with *Themeda sp. Mt Barricade (M.E. Trudgen 2471)* very open tussock grassland

Hilltops/Hillslopes cont.

H10
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees with *E. repullulans* and/or *E. socialis* subsp. *eucentrica* and/or *E. pilbarensis* scattered low mallees to low open mallee woodland over *Acacia bivenosa* scattered shrubs over *Triodia wiseana, (T. angusta)* open hummock grassland to hummock grassland

H11
Eucalyptus leucophloia subsp. *leucophloia* scattered low trees with *E. gamophylla* low open mallee woodland over *Acacia ancistrocarpa* scattered tall shrubs to tall open shrubland over *A. hilliana* scattered low shrubs to low open shrubland over *Triodia vanleeuwenii, (T. pungens)* open hummock grassland to hummock grassland

H12
Corymbia hamersleyana sens. lat. scattered low trees over *Acacia inaequilatera, Hakea chordophylla, A. bivenosa* scattered tall shrubs to tall open shrubland over *Senna artemisioides* subsp. *oligophylla* scattered low shrubs over *Triodia wiseana* open hummock grassland to hummock grassland with *Themeda* sp. *Mt Barricade (M.E. Trudgen 2471), Cymbopogon* ambiguus scattered tussock grasses and *Heliotropium ovalifolium, Corchorus lasiocarpus* subsp. *parvus* scattered herbs

Drainage

D1
Corymbia hamersleyana sens. lat., *Eucalyptus leucophloia* subsp. *leucophloia* scattered low trees to low open woodland over *Petalostylis labicheoides, Acacia monticola, A. maitlandii* scattered tall shrubs to tall shrubland over *Dodonaea lanceolata* var. *lanceolata, Androcalva luteiflora* scattered shrubs to open shrubland over *Triodia pungens* very open hummock grassland to open hummock grassland with *Themeda triandra, Eriachne mucronata* very open tussock grassland to open tussock grassland

D2
Acacia aptaneura, A. catenulata subsp. *occidentalis, A. pruinocarpa* tall shrubland to tall open scrub over *Petalostylis labicheoides* scattered shrubs to open shrubland over *Triodia pungens* very open hummock grassland with *Chrysopogon fallax* scattered tussock grasses

D3
Corymbia ferriticola, Eucalyptus leucophloia subsp. *leucophloia* low open woodland over *Petalostylis labicheoides, Acacia hamersleyensis, Dodonaea viscosa* subsp. *spatulata* tall open shrubland over *Triodia pungens* very open hummock grassland with *Eriachne mucronata, Themeda* sp. *Mt Barricade* (M.E. Trudgen 2471), *Cymbopogon ambiguus* very open tussock grassland to tussock grassland

D4
Eucalyptus victrix, (E. camaldulensis subsp. *obtusa)* low open woodland to open woodland over *Acacia citrinoviridis, Petalostylis labicheoides* scattered tall shrubs to tall shrubland over *Androcalva luteiflora, Gossypium sturtianum* var. *sturtianum* scattered shrubs to open shrubland over *Triodia longiceps* scattered hummock grasses to very open hummock grassland with *Themeda triandra, Eulalia aurea, (*Cenchrus ciliaris)* very open tussock grassland to tussock grassland and **Bidens bipinnata* scattered herbs

Drainage cont.

D5
Eucalyptus xerothermica scattered low trees to low open woodland over *Petalostylis labicheoides, Acacia maitlandii, A. pyrifolia* tall open shrubland to tall shrubland over *Androcalva luteiflora* scattered shrubs over *Triodia longiceps* very open hummock grassland to open hummock grassland with *Themeda triandra, Eulalia aurea* open tussock grassland to tussock grassland and **Bidens bipinnata* scattered herbs

D7
Acacia citrinoviridis, A. aptaneura, A. pruinocarpa scattered tall shrubs to tall shrubland over *Senna artemisioides* subsp. *oligophylla* scattered low shrubs over *Triodia longiceps* open hummock grassland to hummock grassland

D8
Eucalyptus xerothermica scattered low trees to low open woodland over *Acacia aptaneura, A. catenulata* subsp. *occidentalis* tall open shrubland to tall open scrub over *Triodia pungens* scattered hummock grasses to very open hummock grassland with *Themeda triandra* very open tussock grassland to open tussock grassland

Plains

P1
Acacia aptaneura, A. catenulata subsp. *occidentalis, (A. pruinocarpa)* tall shrubland to tall open scrub over *Eremophila forrestii* subsp. *forrestii* open shrubland to shrubland over *Triodia pungens, (T. vanleeuwenii)* scattered hummock grasses to very open hummock grassland

P2
Acacia aptaneura, A. pruinocarpa, A. tetragonophylla scattered tall shrubs to tall open shrubland over *Eremophila forrestii* subsp. *forrestii, A. synchronicia* scattered shrubs over *Ptilotus obovatus, Sida fibulifera* scattered low shrubs over *Aristida latifolia, Astrebla elymoides, Eragrostis xerophila* open tussock grassland to tussock grassland

P3
Acacia aptaneura, A. catenulata subsp. *occidentalis, A. pruinocarpa* tall open shrubland to tall shrubland over *Eremophila forrestii* subsp. *forrestii* scattered shrubs to open shrubland over *Triodia pungens* open hummock grassland to hummock grassland

P4
Acacia pruinocarpa, A. aptaneura, A. catenulata subsp. *occidentalis* tall open shrubland to tall shrubland over *Rhagodia eremaea* scattered shrubs

Special Cases

HD - Area cleared of vegetation

Figure 2. Vegetation type descriptions within the application area and local surrounds (Rio Tinto, 2025b).

Appendix F. Priority flora locations and associated vegetation units

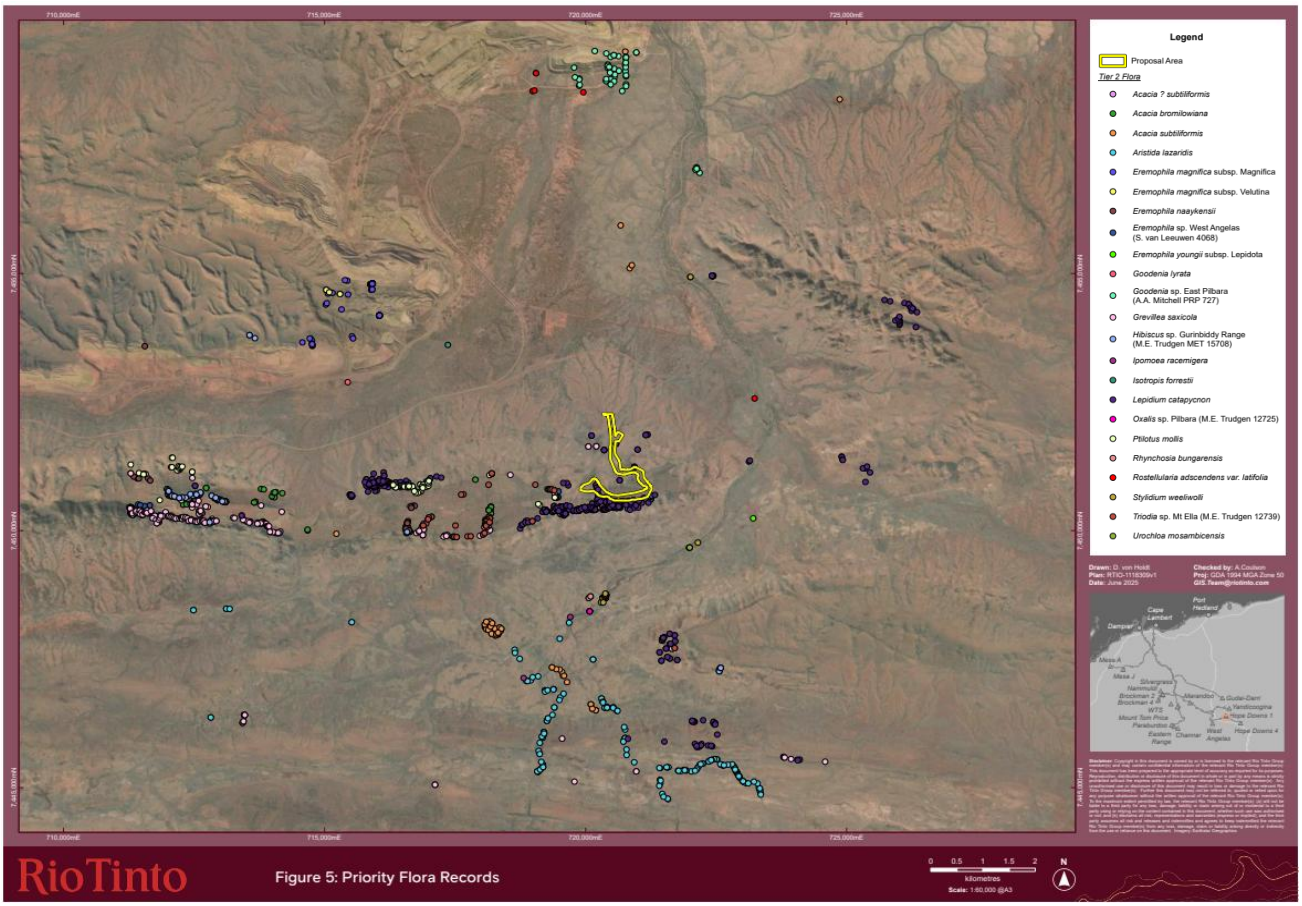


Figure 3. Priority flora locations from Astron (2019b) detailed flora and vegetation assessment within the application area and surrounds (Rio Tinto, 2025b).

Table 1. Priority flora recorded within Astron (2019b) survey area and associated vegetation unit within the survey area (Astron 2019b).

Species	Survey area		All records	Habitat in survey area	Vegetation unit/s in survey area
	Recorded abundance from current survey	Abundance from all surveys[1]			
Eremophila sp. West Angelas (S. van Leeuwen 4068) P1	532	777	1,040	Very steep hillslopes, base of breakaways. High in the landscape	H1, H2
Aristida lazaridis P2	2,765	2,765	4,316	Plains, drainage lines, associated flood out areas.	D1, D4, H8, P2, P3, Cleared
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) P2	386	488	1,548	Near summit of hills, high in landscape, gorges. gullies	D1, D3, H1, H2, H7, Cleared
Acacia subtiliformis P3[3]	0	2	93,366	On rocky calcrete plateaux, rocky slopes.	H1
Eremophila sp. Hamersley Range (K. Walker KW 136) P3	1,344	1,872	6,740	High in the landscape, cliff tops, gorge tops, steep rocky slopes.	D3, H1, H10, H2, H6
Goodenia lyrata P3[3]	0	1	127	Plains	P3
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727) P3[3]	0	80	80,290	Calcrete flats and rises	P2
Grevillea saxicola P3	1,669	1,898	2,514	Low rocky hills and associated slopes, footslopes and drainage features.	D1, D3, H1, H10, H2, H4, H6, H7, H8, Cleared
Rhagodia sp. Hamersley (M. Trudgen 17794) P3	77	84	7,446	Mulga plains, south facing slopes of ironstone hills.	D2, D5, D8, H2, P1, P2, P3, Cleared
Triodia sp. Mt Ella (M.E. Trudgen 12739) P3	3,542	4,457	46,851	Amongst rocks and outcrops, east and south-east facing gorge slopes, south facing breakaways.	D3, H1, H2, H7
Acacia bromilowiana P4	132	362	1,956	Rocky hills, breakaways, scree slopes, gorges, creek beds.	D1, D3, H1, H4, Cleared
Eremophila magnifica subsp. *magnifica* P4	3	22	1,690	Rocky hills, breakaways, slopes and gorges	D3, H7
Lepidium catapycnon P4	4,723	11,455	49,070	Hill top, slopes and drainage features.	D1, H1, H2, H3, H4, H7, Cleared

Species	Survey area		All records	Habitat in survey area	Vegetation unit/s in survey area
	Recorded abundance from current survey	Abundance from all surveys[1]			
Ptilotus mollis P4	50	432	946	Stony hills and screes, hillslopes below small breakaways.	D1, H1, H2, H4, H6, Cleared

[1] – Includes all current points that occur within the survey area and previous points occurring in the locality (Table N.2, Appendix N)

[2] – Includes all records compiled from Rio Tinto database, the current survey, all previous surveys in a 50 km radius and records supplied from the DBCA database searches.

[3] – Species not observed in current survey, but previous records exist within the survey area (Table N.2, Appendix N).

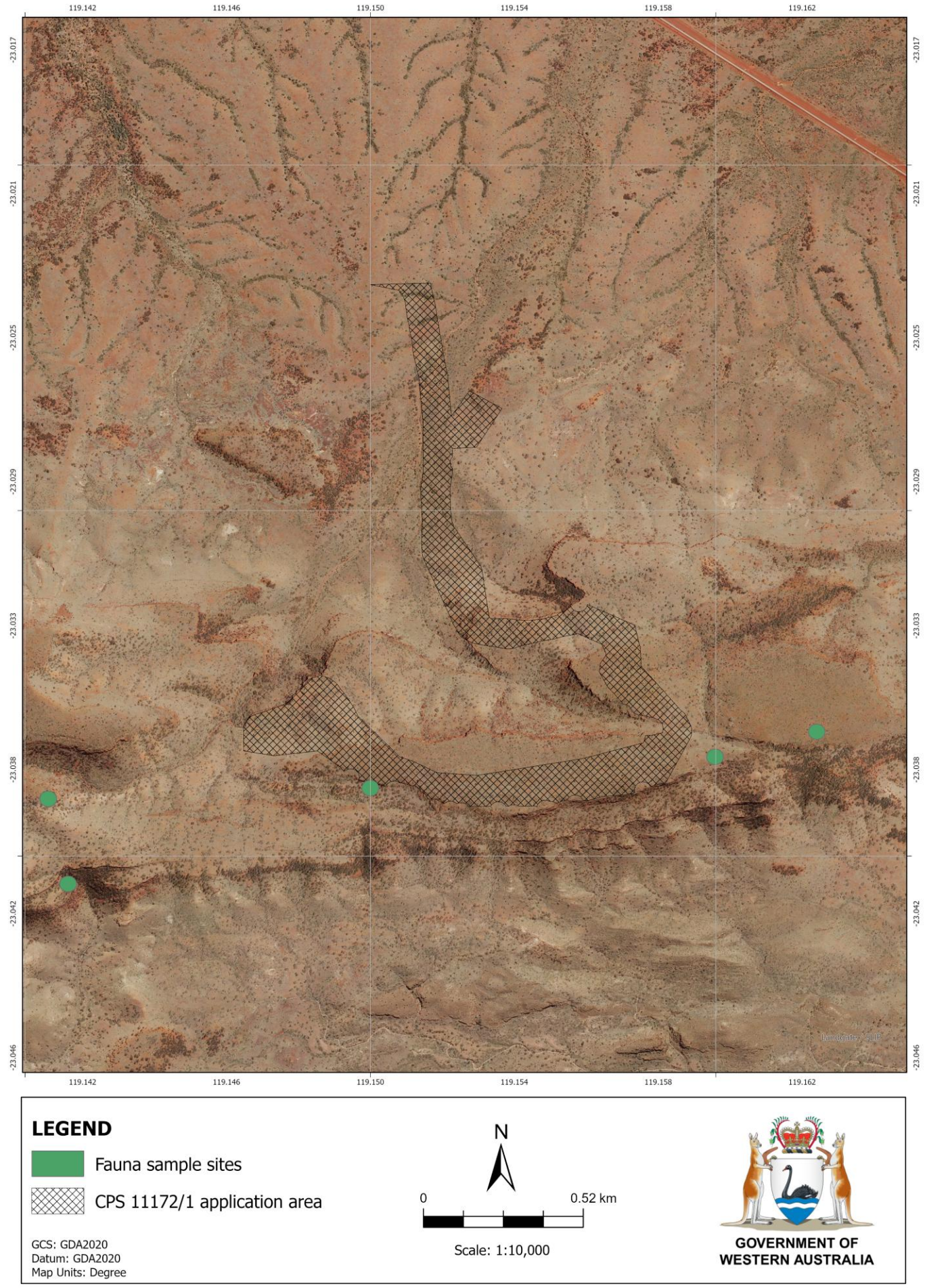


Figure 4. Fauna survey sample sites adjacent to the application area (Astron, 2019a).

Appendix H. Sources of information

H.1. GIS datasets

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

- 10 metre contours (DPIRD-073)
- Cadastre (Polygon) (LGATE-217)
- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- Clearing Instruments Conditions (Areas Subject to Conditions) (DWER-077)
- Clearing Instruments Proposals (Areas Applied to Clear) (DWER-075)
- Clearing Referral Proposal (DWER-116)
- Clearing Regulations - Environmentally Sensitive Areas (DWER-046)
- Clearing Regulations - Schedule One Areas (DWER-057)
- DBCA - Lands of Interest (DBCA-012)
- DBCA - Legislated Lands and Waters (DBCA-011)
- DBCA Fire History (DBCA-060)
- EPA Redbook Recommended Conservation Reserves 1976-1991 (DBCA-029)
- EPA Referred Schemes Pending (DWER-121)
- EPA Referred Significant Proposals (DWER-120)
- EPA Referred Significant Proposals Pending (DWER-103)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments - Catchments (DWER-028)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Local Government Area (LGA) Boundaries (LGATE-233)
- Localities (LGATE-234)
- Medium Scale Topo Contour (Line) (LGATE-015)
- Native Title (Determination) (LGATE-066)
- Native Title (NNTT) (LGATE-004)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Regional Parks (DBCA-026)
- Reserves (LGATE-227)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Rivers (DWER-036)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping - Best Available (DPIRD-027)
- Soil Landscape Mapping - Systems (DPIRD-064)
- Soil Landscape Mapping - Western Australia attributed by WA Soil Group (DPIRD-076)
- Surface Water Management Areas (DWER-041)
- Townsites (LGATE-248)
- WA Now Aerial Imagery
- Waterways Conservation Act Management Areas (DWER-072)
- Wild Rivers (DWER-087)
- WRIMS - Groundwater Areas (DWER-085)
- WRIMS - Surface Water Areas (DWER-082)

Restricted GIS Databases used:

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

H.2. References

Alacran Environmental Science (Alacran) (2019) Short-range Endemic Assessment of Invertebrates from the Hope Downs 2 Level 2 Survey Area, Prepared for Astron (Rio Tinto), October 2019.

Astron Environmental Services (Astron) (2019a) Hope Downs 2 Proposal Fauna Survey - March 2019, Prepared for Rio Tinto, March 2019.

Astron Environmental Services (Astron) (2019b) Hope Downs 2 Proposal Flora and Vegetation Survey – May 2019, Prepared for Rio Tinto, May 2019.

Astron Environmental Services (Astron) (2019c) Matters of National Enviornmental Significance Fauna Assessment – September 2019, Prepared for Rio Tinto, September 2019. Available from: https://www.epa.wa.gov.au/sites/default/files/PER_documentation2/C6_HD2%20MNES%20Fauna%20Assessment.pdf

Astron Environmental Services (Astron) (2023) Hope Downs 2 Proposal – Grey Falcon Environmental Impact Assessment, August 2023, Prepared for Rio Tinto, August 2023. Available from: https://www.epa.wa.gov.au/sites/default/files/PER_documentation2/C5_HD2%20Proposal%20Grey%20Falcon%20EIA%20Letter.pdf

Barrett, R. L., & Barrett, M. D. (2015) Twenty-seven new species of vascular plants from Western Australia. *Nuytsia: Journal of the Western Australian Herbarium, 26*, 21--87. https://doi.org/10.58828/nuy00730

Bat Call WA (2021a) A review of ghost bat ecology, threats and survey requirements. Report prepared for the Department of Agriculture, Water and the Environment, Canberra. Available from: https://www.dcceew.gov.au/sites/default/files/documents/review-ghostbat-ecology-threats.pdf.

Bat Call WA (2021b) A review of Pilbara leaf-nosed bat ecology, threats and survey requirements. Report prepared for the Department of Agriculture, Water and the Environment, Canberra. Available from: https://www.dcceew.gov.au/sites/default/files/documents/review-pilbara-leaf-nosed-bat-ecology-threats.pdf.

Bureau of Meteorology (BoM) (2025) Bureau of Meteorology Website – Climate Data Online, Newman Aero (007176). Bureau of Meteorology. https://reg.bom.gov.au/climate/data/ (Accessed 01 September 2025).

Conservation and Land Management (CALM) (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.

Commonwealth of Australia (2001) *National Objectives and Targets for Biodiversity Conservation 2001-2005*, Canberra.

Commonwealth of Australia (2008) Species Profile and Threats Database. Department of Climate Change, Energy, the Environment and Water, Australia. https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl (Accessed 15 September 2025).

Department of Biodiversity, Conservation and Attractions (DBCA) (2023) Priority Ecological Communities for Western Austrakua Version 35. https://www.dbca.wa.gov.au/wildlife-and-ecosystems/threatened-ecological-communities (Accessed 03 October 2025).

Department of Planning, Lands and Heritage (DPLH) (2025) Aboriginal Cultural Heritage Inquiry System. Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS (Accessed 11 September 2025).

Department of Primary Industries and Regional Development (DPIRD) (2025a) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f (Accessed 10 September 2025).

Department of Primary Industries and Regional Development (DPIRD) (2025b) Advice received in relation to Clearing Permit Application CPS 11172/1. Office of the Commissioner of Soil and Land Conservation, Department of Primary Industries and Regional Development, Western Australia, July 2025.

Environmental Protection Authority (EPA) (2016a) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf

Environmental Protection Authority (EPA) (2016b) Technical Guidance – Sampling of short range endemic invertebrate fauna. https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Tech%20guidance-%20Sampling-SREs-Dec-2016.pdf

Environmental Protection Authority (EPA) (2018) Evaluation program report - Evaluating the environmental condition of Weeli Wolli Creek, February 2018. https://www.epa.wa.gov.au/sites/default/files/Publications/Weeli%20Wolli%20evaluation%20report%2014-02-18c.pdf

Environmental Protection Authority (EPA) (2020) Technical Guidance – Terrestrial Fauna Surveys. https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/2020.09.17%20-%20EPA%20Technical%20Guidance%20-%20Vertebrate%20Fauna%20Surveys%20-%20Final.pdf

Environmental Protection Authority (EPA) (2024) Hope Downs 2 – Hamersley HMS Pty Limited – Report 1773, November 2024. Available from: https://www.epa.wa.gov.au/sites/default/files/EPA_Report/EPA%20Report%201773%20-%20Hope%20Downs%202.pdf

Firman, R. C., Buckley, R. E., Angelis, W. D., and Rubenstein, D. R. (2025) A mouse that rocks: camera trapping shows that mound assessment criteria do not reliably predict pebble mouse (*Pseudomys chapmani*) activity

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

Hamersly HMS Pty Limited (2025) Clearing permit application form, CPS 11172/1, received 03 July 2025.

Maslin, B. R. (1982) Studies in the genus Acacia (Leguminosae : Mimosoideae). 11. Acacia species of the Hamersley Range area, Western Australia. *Nuytsia: Journal of the Western Australian Herbarium, 4*(1), 61--104. https://doi.org/10.58828/nuy00070

Menkhorst, P., and Knight, F. (2011) A Field Guide to the Mammals of Australia, Third Edition. Oxford University Press, Vicotria, Australia.

Menkhorst, P., Rogers, D., Clarke, R., Davies, J., Marsack, P., and Franklin K. (2019) *The Australian Bird Guide* (Revised Edition). CSIRO Publishing. (Accessed 06 October 2025).

Northover, A., Palmer, R., Burbridge, A. H., Pearson, D., Dziminski, M., Ottewell, K., Prada, D., Umbrello, L. and Gibson, L. (2023) Summary of knowledge for six faunal species that are Matters of National Environmental Significance in the Pilbara, Western Australia. Department of Biodiversity, Conservation and Attractions, Perth. Available from: summary-of-knowledge-for-six-faunal-species-that-are-mnes-in-the-pilbara_final-report.pdf (Accessed 15 September 2025).

Palmer, J. (2009) A conspectus of the genus Amaranthus (Amaranthaceae) in Australia. *Nuytsia: Journal of the Western Australian Herbarium, 19*(1), 111-114. https://www.biodiversitylibrary.org/part/365590 (Accessed 14 November 2025).

Rio Tinto (2025a) Bedded Hilltops NVCP Application Figures, June 2025.

Rio Tinto (2025b) Statement addressing the 10 Clearing Principles, Bedded Hill Top East – Communications Track, May 2025.

Telford, I. R. H., and Naaykens, J. (2015) *Synostemon hamersleyensis* (Phyllanthaceae), a new species endemic to the Pilbara, Western Australia. *Nuytsia: Journal of the Western Australia Herbarium*, 25, 31-37. https://doi.org/10.58828/nuy00735

Trudgen, M.E. (1991) Vegetation condition scale in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

State of Western Australia (2025) Ministerial Statement No. 1248, Statement that proposal may be implemented (Environmental Protection Act 1986): Hope Downs 2 Proposal. Published 12 June 2025. https://www.epa.wa.gov.au/sites/default/files/1MINSTAT/Ministerial%20Statement%201248.pdf

Van Vreeswyk, A.M.E., Payne, A.L., Leighton, K.A. and Hennig, P. (2004) An inventory and condition survey of the Pilbara Region, Western Australia. Technical Bulletin No. 92. Department of Agriculture, South Perth, Western Australia.

Western Australian Herbarium (WA Herbarium) (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dpaw.wa.gov.au/ (Accessed 11 September 2025).

Western Australian Museum Collections (WA Museum) (n.d.) *Long-tailed Dunnart: Sminthopsis longicaudata.* Western Australian Museum Collections. https://museum.wa.gov.au/online-collections/names/sminthopsis-longicaudata (Accessed 07 October 2025).

Wilson, S. and Swan, G. (2021) A complete guide to reptiles of Australia: Sixth Edition. Reed New Holland, Sydney, 2021.

4. Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* 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)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (now DMPE)
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DMPE)
DMP	Department of Mines and Petroleum, Western Australia (now DMPE)
DMPE	Department of Mines, Petroleum and Exploration
DoEE	Department of the Environment and Energy (now DCCEEW)
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	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth 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	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

DBCA (2023) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia:

Threatened species

T 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 the species of fauna that are listed as critically endangered, endangered or vulnerable threatened species.

Threatened flora is the species of flora that are listed as critically endangered, endangered or vulnerable threatened species.

The assessment of the conservation status of threatened species is in accordance with the BC Act listing criteria and the requirements of Ministerial Guideline Number 1 and Ministerial Guideline Number 2 that adopts the use of the International Union for Conservation of Nature (IUCN) Red List of Threatened Species Categories and Criteria, and is based on the national distribution of the species.

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.

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.

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.

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).

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.

Specially protected species

SP **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).

Migratory species include birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) or 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.

CD **Species of special conservation interest (conservation dependent fauna)**

Species of special conservation need that are 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).

Currently only fauna are listed as species of special conservation interest.

OS **Other specially protected species**

Species 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).

Currently only fauna are listed as species otherwise in need of special protection.

Priority species

P **Priority species**

Priority is not a listing category under the BC Act. The Priority Flora and Fauna lists are maintained by the department and are published on the department's website.

All fauna and flora are protected in WA following the provisions in Part 10 of the BC Act. The protection applies even when a species is not listed as threatened or specially protected, and regardless of land tenure (State managed land (Crown land), private land, or Commonwealth land).

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey 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 prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

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

Assessment of priority status 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 – known from few locations, none on conservation lands**

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, for example, 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 for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

P2 **Priority Two - Poorly-known species – known from few locations, some on conservation lands**

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, for example, 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 for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

P3 **Priority Three - Poorly-known species – known from several locations**

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. These species need 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 a conservation dependent specially protected species.

(c) Species that have been removed from the list of threatened species or lists of conservation dependent or other specially protected species, during the past five years for reasons other than taxonomy.

(d) Other species in need of monitoring.

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.