Department of Energy, Mines, Industry Regulation and Safety

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10719/1
Permit type:	Purpose Permit
Applicant name:	BHP Iron Ore Pty Ltd
Application received:	9 August 2024
Application area:	500 hectares
Purpose of clearing:	Rehabilitation activities, conducting environmental surveys, mineral exploration, geotechnical investigations, hydrological investigations, borrow pits, installation of meteorological masts and LiDAR stations and any associated activities.
Method of clearing:	Mechanical Removal
Tenure:	*Iron Ore (Marillana Creek) Agreement Act 1991* Mining Lease 270SA
Location (LGA area/s):	Shire of Ashburton and Shire of East Pilbara
Colloquial name:	Marillana Exploration

1.2. Description of clearing activities

BHP Iron Ore Pty Ltd proposes to clear up to 500 hectares of native vegetation within a boundary of approximately 10,878 hectares, for the purpose of rehabilitation activities, conducting environmental surveys, mineral exploration, geotechnical investigations, hydrological investigations, borrow pits, installation of meteorological masts and LiDAR stations, and any associated activities. The project is located approximately 82 kilometres northwest of Newman, within the Shire of East Pilbara.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	24 July 2025
Decision area:	500 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 Energy, Mines, Industry Regulation and Safety (DEMIRS) 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 F), supporting information provided by the applicant (Appendix A) including the results of a flora and vegetation survey and a 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 Delegated Officer also took into consideration the purpose of the clearing to initiate rehabilitation activities and conduct further environmental surveys.

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;
- the loss of native vegetation that is suitable habitat for conservation significant fauna; and
- impacts to riparian vegetation.

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 pre-clearance surveys to identify and avoid priority and threatened flora;
- undertake slow, progressive one-directional clearing to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity;
- limit or avoid clearing in significant habitats for conservation significant fauna;
- retain cleared vegetation and topsoil and respread this on a cleared area within 12 months of clearing to ensure fauna habitat is not permanently lost;
- where possible avoid western pebble mound mouse with a 10 metre buffer; and
- avoid clearing riparian vegetation when possible and maintain waterflows if a watercourse is impacted.

1.5. Site map

A site map of proposed clearing is provided in Figure 1 below.

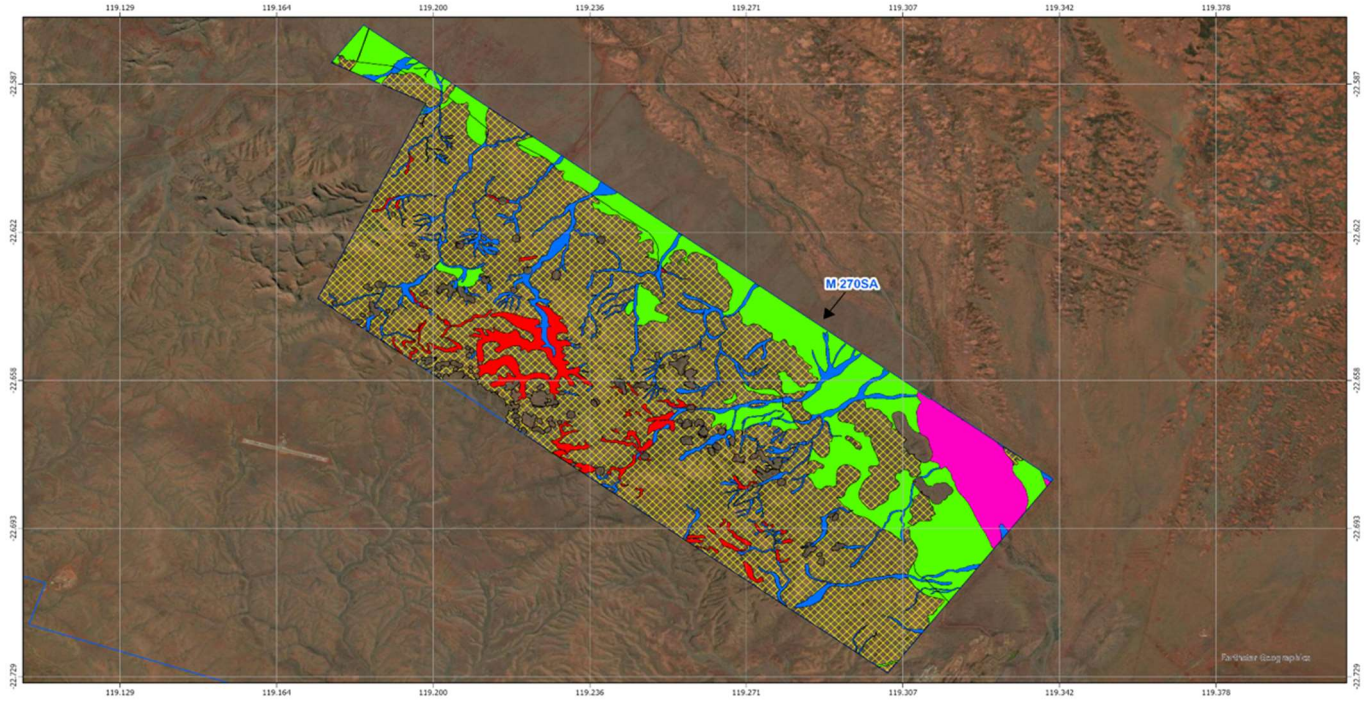

Figure 1. Map of the application area. The yellow area indicates the area within which conditional authorised clearing can occur under the granted clearing permit. The red areas indicate where clearing cannot occur. The blue areas indicate where clearing is limited to clearing access tracks only. The pink areas indicate where clearing is limited to five hectares, for the purpose of access tracks. The green areas indicate where clearing is limited to 88 hectares.

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)
- *Biosecurity and Agriculture Management Act 2007* (BAM 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 (Marillana Creek) Agreement Act 1991*

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)
- Guidance for the Assessment of Environmental Factors – *Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* (EPA, 2004)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016a)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2016b)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

Supporting documentation submitted by the applicant, demonstrates that the proposed clearing footprint was designed to avoid the mapped extent and buffer of the Priority 3 Ecological Community named '*Vegetation of sand dunes of the Hamersley Range/ Fortescue Valley'* (BHP, 2024). It also avoids all known locations of the Threatened flora species *Synostemon hamersleyensis,* which have been clipped from the application area using a 50 metre buffer, except where there is existing disturbance so this disturbance can be rehabilitated (BHP, 2024).

Additionally, 20 suitable and 13 unsuitable caves for the ghost bat (Vulnerable) have been clipped out of the application area with a 50 metre buffer (BHP, 2024). The 10 known waterholes that could be suitable habitat for the Pilbara Olive Python (Vulnerable) have been clipped out of the application area with a 10 metre buffer (BHP, 2024).

The Permit Holder has proposed the following commitments to minimise impacts from the proposed clearing (BHP, 2024; 2025):

- Clearing will be kept to the minimum amount to safely undertake the proposed activities;
- Previously cleared areas will be utilised where practicable ahead of clearing of undisturbed areas;
- control of established weed populations will be carried out according to BHP's standard Weed Control and Management Procedures;
- active Pebble-mouse mounds will be avoided using a 10 metre buffer, where practicable;
- existing cleared tracks will be used to cross Weeli Wolli Creek; and
- where practicable, existing cleared tracks will be used to cross the unnamed non-perennial minor drainage line. If it is necessary for new crossings to be installed, clearing will be kept to a bare minimum and will be constructed flat level to the surface (i.e. a simple clearing with no bunds) to maintain the natural surface flow.

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.

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 and vegetation) - Clearing Principles (a) and (c)

Assessment

Threatened flora

Synostemon hamersleyensis (EN)

While the application area has been designed to avoid most of the records of this species, some locations that have been previously disturbed contain records of this species which have been kept in the application area for rehabilitation purposes. *Synostemon hamersleyensis* was recorded from 28 locations associated with steep and very steep upper hillslopes, breakaway slopes, gorges and cliff lines. Plants were typically present at low density ranging from one to ten individuals. Vegetation in which it occurred, was non-specific but characterised by a Low Woodland (to Low Open Woodland) strata of low trees, High Open Shrubland of tall shrubs, with Hummock Grassland (to Open Hummock Grassland) of variable spinifex species, occasionally with Open Tussock Grassland (Onshore Environmental, 2016).

Priority flora

The Priority flora species listed in Appendix B.2 were not recorded in the application area (BHP, 2024; Onshore Environmental, 2016; Western Australian Herbarium, 1998-; GIS Database) but the species highlighted green are considered likely to occur in the application area due to the proximity and habitat suitability of the application area for these species.

Weed species

Seven introduced flora species (weeds) have been recorded within the application area. None are listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007*. These are typical introduced species commonly recorded in the Pilbara region (BHP, 2024). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area.

Conclusion

Given the latest targeted flora survey (Onshore Environmental, 2016) was conducted in November 2015, the assessing officer determined a new targeted survey was necessary to appropriately assess the impacts the proposed clearing would have on conservation significant flora.

For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant flora can be managed by taking steps to minimise the risk of the introduction and spread of weeds, and to prevent the proposed clearing to be undertaken before appropriate surveys are conducted (except for the purpose of rehabilitation and conducting the required surveys).

Conditions

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

- Weed control condition to ensure hygiene measures are taken to avoid introducing weeds into the application area; and
- Flora management condition to conduct targeted flora surveys prior to clearing for any purpose other than rehabilitation and conducting the required surveys to identify threatened flora and priority flora in the application area.

3.2.2. Biological values (fauna and fauna habitats) - Clearing Principle (b)

Assessment

The surveys undertaken across the application area have resulted in five fauna species of significance being recorded from within the application area (BHP, 2024). The recorded species are described below.

- ***Anilios ganei*** **(Gane's blind snake) (P1)**
  The Pilbara Flat-headed Blind Snake is known to occur from widely separated areas between Newman and Pannawonica (Wilson and Swan, 2021). It is a very cryptic species most often recorded in rocky or stony areas and considered to be possibly associated with moist gorges and gullies (Wilson and Swan, 2021). Two records of this species have been found in the application area (Biologic, 2019).

  Suitable habitat for this species occurs in the application area. This species was recorded within an alluvial floodplain. This habitat type (Drainage Area/Floodplain) occurs in the application area. The Hillcrest/Hillslope habitats of the application area may also provide suitable habitat for this species, so it may disperse and forage through the application area (BHP, 2024). Suitable habitat for this species may be provided by Gorge/Gully, Hillcrest/Hillslope, Major Drainage Line, Minor Drainage Line, Drainage Area/Floodplain and Stony Plain habitat types (Biologic, 2019).

- ***Apus pacificus*** **(fork-tailed swift) (MI)**
  Fork-tailed swifts are migratory birds present in Australia during October to April approximately (Menkhorst et al., 2019) are entirely aerial within the Pilbara and may forage sporadically over the application area in the summer months (BHP, 2024). Usually seen in high flying foraging flocks, often over 100 metres above ground or canopy. Most abundant over inland plains but can occur over any terrestrial habitat and sometimes over sea (Menkhorst et al., 2019).

- ***Falco peregrinus*** **(peregrine falcon) (OS)**
  The peregrine falcon is uncommon but wide ranging across Australia. They occur mainly along coastal cliffs, rivers and ranges as well as wooded watercourses and lakes (BHP, 2024). It inhabits most environments with suitable nest sites (cliff faces preferred, including man-made ones (Menkhorst et al., 2019). Seven individuals have been recorded on five occasions within the application area.

  All habitat types within the application area may provide potential foraging habitat for this species. Nesting and foraging habitat is provided by Gorge/Gully while foraging habitat is provided by the Major Drainage Line and Drainage Area/Floodplain (Biologic, 2019).

- ***Liasis olivaceus*** **subsp.** ***barroni*** **(Pilbara olive python) (VU)**
  The Pilbara olive python's range is restricted to gorges and escarpments of the Pilbara and Gascoyne regions (Wilson and Swan, 2021). Habitat consists of rocky escarpments, gorges and waterholes within the Pilbara region. All known waterholes have been excised from the application area. The preferred microhabitat for this species are under rock piles, on top of rocks and under spinifex as well as in artificial features such as overburden heaps, railway embankments and sewerage treatment ponds (BHP, 2024). Pilbara olive pythons are typically encountered in riparian areas during the warmer months and in rocky habitats at other times of the year (DBCA, 2023). This species was recorded at four locations within the application area in the Gorge/Gully habitat and the Minor Drainage Line habitats (Biologic, 2019).

  This species may utilise the Gorge/Gully, Major Drainage Line, Minor Drainage Line and Drainage Area/Floodplain habitats of the application area in a transitory nature when conditions are suitable (BHP, 2024; Biologic, 2019). Considering the presence of these habitat features and previous records, the species is highly likely to permanently reside in the application area (Biologic, 2019).

- ***Pseudomys chapmani* (Western pebble-mound mouse) (P4)**
  The Western pebble-mound mouse is restricted to the Pilbara region, where it is recognised as an endemic species (BHP, 2024; Menkhorst and Knight, 2011). It is found on stony hillsides with hummock grassland and shelters in complex burrow systems built beneath mounds of pebbles collected from the surface (Menkhorst and Knight, 2011). Abandoned mounds in disturbed areas suggest that the species is under threat by grazing and mining activities (BHP, 2024). This species was recorded and typically occurs within the Hillcrest/Hillslope and Stony Plain habitats within the application area (BHP, 2024; Biologic, 2019).

Two other fauna species have been recorded from solely from habitat features which have been excluded from the application area. Given the proximity of the habitat features and the highly mobile nature of these species they are considered to be recorded within the application area:

- ***Dasyurus hallucatus* (northern quoll) (EN)**
  The northern quoll is restricted to six main areas, 2 of which are in WA (north Kimberly and Hamersley Range in the Pilbara region) (BHP, 2024; Menkhorst and Knight, 2011). Within the Pilbara, the prevalence of northern quolls is highest within complex rocky areas in the north, west and central Pilbara (DBCA, 2023). This species is most abundant in rocky eucalypt woodland but occurs in a range of vegetation types; dens in tree hollows and rock crevices (Menkhorst and Knight, 2011). Northern quolls can be found in a variety of habitats. Complex, rocky landforms often in close proximity to permanent water are considered critical habitat as they provide refuge from predators and other threats, access to food, and shelter for denning (DBCA, 2023). Therefore, habitat critical to survival is that where northern quolls are least exposed to threats or least likely to be in the future. Rocky areas provide prime habitat for northern quoll (Hill and Ward, 2010). Watercourses facilitate connectivity for dispersal and foraging (DBCA, 2023).

  This species was recorded on two occasions in the survey area in the Gorge/Gully habitat (Biologic, 2019). One record of the northern quoll (scat) within a small area of Minor Drainage Line habitat in the north of the application area, has been excluded from the application area as it falls within a cave exclusion zone. The Gorge/Gully and Major Drainage Line habitats provide key foraging and dispersal habitat for the species (BHP, 2024).

- ***Macroderma gigas* (ghost bat) (VU)**
  Ghost bats are patchily distributed across three areas of northern Australia, in WA these areas are the Kimberly and Pilbara regions. However, the Pilbara population of ghost bats is isolated by extensive sandy deserts. They are generally associated with Gorge/Gully or drainage line habitats, requiring an undisturbed cave, deep fissure or disused mine shaft in which to roost. The ghost bat forages in areas of open woodland (BHP, 2024; Menkhorst and Knight, 2011). Within the Pilbara, the species is known to forage in productive habitat including drainage lines and along riparian corridors, on alluvial plains supporting mulga woodland and tussock grassland, sparse woodland along ridge lines, as well as cave entrances where other bats are hunted (DBCA, 2023).

  This species may forage over the Drainage Area/Floodplain, Stony Plain, Gorge/ Gully, Minor Drainage Line and Major Drainage Line habitats of the application area as part of a larger home range (BHP, 2024).

Based on the occurrence of the habitat types and significant fauna species previously recorded in the vicinity one additional species is considered to possibly occur within the application area (BHP, 2024).

- ***Falco hypoleucos* (grey falcon) (VU)**
  The Grey Falcon occurs at low densities across inland Australia. This species frequents timbered lowlands, particularly Acacia shrublands that are crossed by tree-lined drainage systems (Threatened Species Scientific Committee, 2020). The species also frequents spinifex and tussock grassland (BHP, 2024).

  This species has not been recorded, however it is possible that potential nesting habitat for this species may occur in the large trees found in the Minor and Major Drainage Line habitat of the application area. This species may also forage within the drainage line and other broader habitats of the application area (BHP, 2024).

Additional to the species discussed above, a database search and evaluation of the fauna habitats present (Biologic, 2019; GIS Database) identified that the proposed clearing may have significant impacts on the following species (Appendix B.3).

- ***Dasycercus blythi* (brush-tailed mulgara) (P4)**
  Mulgaras are generally found in arid regions that support *Triodia* grasslands (DEC, n.d.). Three records of this species were located within four kilometres of the application area (GIS Database). The Sand Plain and Hillcrest/Hillslope habitat may be suitable for this species (Biologic, 2019).

- ***Leggadina lakedownensis* (northern short-tailed mouse) (P4)**
  The northern short-tailed mouse is known to occur in stony hummock grassland in the Pilbara region (Menkhorst and Knight, 2011). The Stony Plain habitat in the application area may be suitable for this species. Three records of this species were located within the local area buffer (50 kilometres). All three records were over 43 kilometres away from the application area (GIS Database).

- ***Lerista macropisthopus remota* (unpatterned robust slider) (P2)**
  The unpatterned robust slider can be found in *Acacia* shrublands and woodlands in semi-arid and arid climates in Western Australia. It shelters in loose soil under leaf litter at the bases of shrubs (Wilson and Swan, 2021). The Mulga Woodland and Hillcrest/Hillslope habitats may be suitable for this species.

- ***Macrotis lagotis* (greater bilby) (VU)**
  Within WA, wild bilby populations are restricted to the Pilbara, Kimberly, and central desert and rangelands regions (DBCA, 2023). The greater bilby is known to inhabit a wide range of substrate and vegetation types, including residual,

fluvial and sand plain landforms with typically low shrub cover of *Acacia* spp. with hummock (*Triodia* spp.) and tussock grasses (DBCA, 2023; Menkhorst and Knight, 2011).

The Sand Plain habitat may provide core habitat for other species of conservation significance not assessed as part of the fauna survey but potentially solely reliant on this habitat type such as the greater bilby (Biologic, 2019)

- ***Pezoporus occidentalis*** **(night parrot) (CR)**
  The night parrot is terrestrial, nocturnal, and highly cryptic in nature (DBCA, 2023). It may visit surface water to drink after dark but is not reliant on it. It roosts by day in a short tunnel inside of long-unburnt *Triodia* hummock, on stony or sandy substrate. Probably also roosts in dense, low chenopods. Relatively sedentary, night parrots inhabit roost sites continuously over several years (DBCA, 2023). It easily flies long distances to reach food sources, including chenopods growing in runoff areas, floodplains, and waterholes (DBCA, 2023; Menkhorst et al., 2019). In WA, almost all high probability and confirmed records are associated with drainage lines, particularly paleodrainage lines (DBCA, 2023).

  The application area falls within the High Priority Survey Bioregions for night Parrot (DBCA, 2024). The application area contains potentially suitable habitat for this species in Sand Plain, and Drainage Area/Floodplain habitats. These habitats contain stands of *Triodia* hummock grasses that grow to a suitable size and therefore, may potentially provide nesting habitat for the species (Biologic, 2019).

- ***Rhinonicteris aurantia*** **(Pilbara) (Pilbara leaf-nosed bat) (VU)**
  The Pilbara leaf-nosed bat (PLNB) occurs within the Pilbara region and three satellite locations surrounding the Pilbara. Permanent diurnal roosts have been detected throughout most of the Chichester and Hamersley subregions of the Pilbara. Foraging in a variety of habitats including the characteristic *Triodia* hummock grasslands of the Pilbara, the PLNB favours the highly productive and structurally complex riparian zones where water is permanently available, and insect biomass is sufficiently high (DBCA, 2023). This species has not been recorded in the application area.

  Critical habitat, as defined by Bat Call WA (2021), includes permanent diurnal (categories 1 and 2) roosts that are essential for the daily and long-term survival of the PLNB; semi-permanent diurnal (category 3) roosts that are essential for the long-term survival of the PLNB; and any permanent pools close to permanent diurnal roosts (DBCA, 2023). These features if previously present have now been excised from the application area. It is considered unlikely that a resident population exists in the application area. However, individuals may infrequently forage across Gorge/ Gully, Major Drainage Line, Minor Drainage Line and Drainage Area/ Floodplain habitats (Biologic, 2019)

- ***Underwoodisaurus seorsus*** **(Pilbara barking gecko) (P2)**
  The Pilbara barking gecko is known to occur in the Hamersley Range in the Pilbara region. It shelters under rocks and other cover in rocky areas and in gorges with spinifex as the dominant ground cover and low tree cover (Cogger, 2018; Wilson and Swan, 2021). The Sand Plain and Stony Plain habitats in the application area may be suitable habitat for this species.

Conclusion

The Gorge/Gully, Sand Plain, Major Drainage Line, Minor Drainage Line, and Drainage Area/Floodplain habitats provide suitable foraging, dispersal, denning, and nesting habitat for various conservation significant fauna species of the region. The proposed clearing has the potential to impact on these habitats. The species that are likely to occur in these habitats are listed below:

- *Anilios ganei* (Gane's blind snake) (P1)
- *Falco peregrinus* (peregrine falcon) (OS)
- *Liasis olivaceus* subsp. *barroni* (Pilbara olive python) (VU)
- *Dasyurus hallucatus* (northern quoll) (EN)
- *Macroderma gigas* (ghost bat) (VU)
- *Falco hypoleucos* (grey falcon) (VU)
- *Dasycercus blythi* (brush-tailed mulgara) (P4)
- *Macrotis lagotis* (greater bilby) (VU)
- *Pezoporus occidentalis* (night parrot) (CR)
- *Rhinonicteris aurantia* (Pilbara) (Pilbara leaf-nosed bat) (VU)
- *Underwoodisaurus seorsus* (Pilbara barking gecko) (P2)

The Mulga Woodland and Stony Plain habitats are not likely to be significantly impacted due to the small extent of these habitats in the application area (5.72 hectares and 7.91 hectares respectively). The Hillcrest/Hillslope is a common habitat in the region, occurring wherever there are ranges. Extensive areas of this habitat occur outside the application area, throughout the Hamersley Range. This habitat is well represented within national parks and conservation reserves in the Pilbara bioregion (Biologic, 2019). For these reasons these habitats and the species below are not likely to be significantly impacted.

- *Pseudomys chapmani* (Western pebble-mound mouse) (P4)
- *Leggadina lakedownensis* (northern short-tailed mouse) (P4)
- *Lerista macropisthopus remota* (unpatterned robust slider) (P2)

Additionally, the fork-tailed swift (*Apus pacificus*) (MI) is a completely aerial species and not reliant on terrestrial habitats. Therefore, it is unlikely to be significantly impacted by the proposed clearing.

Taking into consideration granted and proposed clearing permits, over 40,000 hectares of native vegetation in the local region (200 kilometres buffer) could be impacted from the proposed and granted developments in the area (GIS Database).

For the reasons set out above, it is considered that the impacts of the proposed clearing on conservation significant fauna can be managed by taking steps to avoid and minimise clearing in habitats suitable for conservation significant fauna, slow directional clearing to allow fauna to move into adjacent vegetation and rehabilitating the site post clearing to ensure the habitat is not permanently lost.

The applicant may have notification responsibilities under the EPBC Act for impacts to peregrine falcon, Pilbara olive python, northern quoll, ghost bat, grey falcon, grater bilby, night parrot, and Pilbara leaf-nosed bat and their habitats, as set out in the EPBC Act. The applicant has been advised to contact the federal Department of Climate Change, Energy, the Environment and Water (DCCEEW) to discuss EPBC Act referral requirements.

Conditions

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

- Slow directional clearing to allow fauna to move into adjacent vegetation ahead of the clearing activity will minimise impact to individuals;
- Restricted clearing (Gorge/Gully, Sand Plain, Major Drainage Line habitats);
- Limited clearing (Drainage Area/Floodplain and Minor Drainage Line habitats); and
- Active pebble mouse mounds will be avoided using a 10 metre buffer, where practicable.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 15 November 2024 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application. On 20 May 2025 the application was readvertised as the application area was slightly reduced and multiple purposes were added to the application.

There are two native title claims (WCD2014/001 and WCD2018/008) over the area under application (DPLH, 2025). These claims have been determined by the Federal Court on behalf of the claimant groups (Banjima People and Nyiyaparli People). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are three 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 located within the EPA assessment for the BHP Pilbara Expansion Strategic Proposal (Assessment Number: 1934) (GIS Database). This proposal is to assess the construction and operation of iron ore mine developments. This proposal is not assessing mineral exploration, or other activities proposed for this clearing permit.

It is noted that the proposed clearing may impact on the peregrine falcon, Pilbara olive python, northern quoll, ghost bat, grey falcon, grater bilby, night parrot, and Pilbara leaf-nosed bat, 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 (Federal) Department of Climate Change, 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 and the Environment 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
The assessing officer requested that the application area be reduced.	The Permit Holder provided a new shapefile which excluded isolated and fragmented areas.
The assessing officer requested the location of Threatened flora species records and vegetation mapping data	The Permit Holder provided shapefiles with this data.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by the landscape of the Pilbara bioregion (GIS Database).
Ecological linkage	The application area does nor form part of any formal ecological linkages. The application area is located in an area with various ridges and cordillera landforms which could function as a wildlife corridor (GIS Database).
Conservation areas	The application area is not located in a conservation area. There are various conservation areas and DBCA lands of interest within 50 kilometres of the application area (GIS Database). These conservation areas are listed below: • Fortescue Marsh Nature Reserve (Purpose: Conservation of Flora and Fauna) • Karijini National Park (Purpose: National Park) • Ex Hillside Station (Proposed for conservation) • Ex Juna Downs Station (Proposed for conservation) • Ex Marillana Station (Proposed for conservation) • Ex Mulga Downs Station (Proposed for conservation)
Vegetation description	The vegetation of the application area is broadly mapped as the following Beard vegetation associations: 29: Sparse low woodland; mulga, discontinuous in scattered groups; 82: Hummock grasslands, low tree steppe; snappy gum over *Triodia wiseana*; and 111: Hummock grasslands, shrub steppe; *Eucalyptus gamophylla* over hard spinifex (GIS Database). Various flora and vegetation surveys have been conducted over the application area. A total of 162 baseline flora and vegetation surveys commissioned by BHP Billiton Iron Ore at its Pilbara based tenements between 2004 and 2013 were reviewed by Onshore Environmental Consultants Pty Ltd (Onshore Environmental, 2014) as part of the consolidation of regional vegetation mapping. The following consolidated vegetation associations were present in the application area (BHP, 2024):

Broad Floristic Formation	Vegetation Association Description	
Acacia High Shrubland	MA AtpApypAse Ecr ThmbTtCyp	High Shrubland of Acacia tumida var. pilbarensis, Acacia pyrifolia var. pyrifolia and Acacia sericophylla with Scattered Trees of Eucalyptus camaldulensis subsp. refulgens over Open Tussock Grassland of Themeda sp. Mt Barricade (M.E. Trudgen 2471), Themeda triandra and Cymbopogon procerus on brown loam and gravels on major drainage channels.
	MI AtpPlAm TpTs Ch Ell	High Shrubland of Acacia tumida var. pilbarensis, Petalostylis labicheoides and Grevillea wickhamii over Open Tussock Grassland of Cymbopogon ambiguus, Eriachne tenuiculmis and Themeda triandra with Low Open Woodland of Corymbia hamersleyana in minor drainage lines and gorges.
Acacia Low Open Forest	SA Aa TpTwTb CcChf	Low Open Forest of Acacia aptaneura over Open Hummock Grassland of Triodia pungens, Triodia wiseana and Triodia basedowii over Open Tussock Grassland of *Cenchrus ciliaris and Chrysopogon fallax on red brown sandy loam on sandy plains and undulating low hills.
Acacia Low Open Woodland	FP AaAciApr AsyAssAb Tp	Low Open Woodland of Acacia aptaneura, Acacia citrinoviridis and Acacia pruinocarpa over Open Shrubland of Acacia synchronicia, Acacia sclerosperma subsp. sclerosperma and Acacia bivenosa over Very Open Hummock Grassland of Triodia pungens on red brown clay loam on floodplains and medium drainage lines.
Acacia Low Woodland	FP ApAaApr AsyErffPto CcAriArc	Low Woodland of Acacia paraneura, Acacia aptaneura and Acacia pruinocarpa over Open Shrubland of Acacia synchronicia, Eremophila forrestii subsp. forrestii and Ptilotus obovatus over Open Tussock Grassland of *Cenchrus ciliaris, Aristida inaequiglumis and Aristida contorta on red brown loam on floodplains.
Acacia Open Scrub	MI AtpGrwhApy p TpTb CcCs	Open Scrub of Acacia tumida var. pilbarensis, Grevillea wickhamii subsp. hispidula and Acacia pyrifolia var. pyrifolia over Hummock Grassland of Triodia pungens and Triodia basedowii over Open Tussock Grassland of *Cenchrus ciliaris and *Cenchrus setiger on brown sandy loam on minor drainage lines and floodplains.
Cenchrus Open Tussock Grassland	GP CcCs AaApr AsyAa	Open Tussock Grassland of *Cenchrus ciliaris and *Cenchrus setiger with Low Open Woodland of Acacia aptaneura and Acacia pruinocarpa over High Open Shrubland of Acacia synchronicia and Acacia aptaneura on red sandy clay loam on gilgai plains.

Characteristic	Details		
	**Cenchrus* Tussock Grassland	MA CcCs EvAciAthe	Tussock Grassland *Cenchrus ciliaris and *Cenchrus setiger with Low Woodland of Eucalyptus victrix, Acacia citrinoviridis and Atalaya hemiglauca on brown sandy loam on major drainage lines and adjacent flood plains.
	Eucalyptus Low Open Forest	MA EcrEvEx ApypAtpGor o TtEuaCyp	Low Open Forest of Eucalyptus camaldulensis subsp. refulgens, Eucalyptus victrix and Eucalyptus xerothemica over High Shrubland of Acacia pyrifolia var. pyrifolia, Acacia tumida var. pilbarensis and Gossypium robinsonii over Open Tussock Grassland of Themeda triandra, Eulalia aurea and Cymbopogon procerus on red brown clay loam on major drainage lines.
	Triodia Hummock Grassland	FS Ts CdHc AancAiGrwh	Hummock Grassland of Triodia vanleeuwenii with Low Open Woodland of Corymbia deserticola subsp. deserticola, Eucalyptus leucophloia subsp. leucophloia and Corymbia hamersleyana and Low Open Shrubland of Acacia hilliana and Acacia adoxa var. adoxa on low hillslopes and crests
		HC TwTbrTp EllCh AmaGrwhAb	Hummock Grassland of Triodia wiseana, Triodia brizoides and Triodia pungens with Low Open Woodland of Eucalyptus leucophloia subsp. leucophloia and Corymbia hamersleyana over High Open Shrubland of Acacia maitlandii, Grevilllea wickhamii subsp. hispidula and Acacia bivenosa on red brown sandy loam on hill crests and upper hill slopes
		HS TsTwTp EllCh AhiAaa	Hummock Grassland of Triodia sp. Shovelanna Hill (S. van Leeuwen 3835), Triodia wiseana and Triodia pungens with Low Open Woodland of Eucalyptus leucophloia subsp. leucophloia and Corymbia hamersleyana over Low Open Shrubland of Acacia hilliana and Acacia adoxa var. adoxa on red brown sandy loam on hill slopes
		SP TbTp HlAancAi Ch	Hummock Grassland of Triodia basedowii and Triodia pungens with High Open Shrubland of Hakea lorea subsp. lorea, Acacia ancistrocarpa and Acacia inaequilatera and Scattered Low Trees of Corymbia hamersleyana on red brown loamy sand on stony plains
Vegetation condition	The vegetation surveys (BHP, 2024) and aerial imagery indicate the vegetation within the proposed clearing area ranges from excellent to completely degraded (Trudgen, 1991) condition. The full Trudgen (1991) condition rating scale is provided in Appendix D. Vegetation mapping is available in Appendix E.		
Climate and landform	The application area is located in an arid zone with an annual average rainfall (Newman Aero) of 327.5 millimetres (BoM, 2025).		
Soil description	The soils mapped in the application area are described as friable non-cracking clay, red shallow loam, red deep sand, red loamy earth, red sandy earth, and stony soils (DPIRD, 2025).		
Land degradation risk	The application area falls within the Boolgeeda, Newman, River, and Urandy land systems (DPIRD, 2025). These land systems are described as below (van Vreeswyk et al., 2004): **Boolgeeda land system:** Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands and mulga shrublands. Vegetation is generally not prone to degradation and the system is not susceptible to erosion. **Newman land system:** Rugged jaspilite plateaux, ridges and mountains supporting hard spinifex grasslands. The system contains iron ore deposits which are currently being mined and deposits which are likely to be mined in the future. **River land system:** Active flood plains and major rivers supporting grassy eucalypt woodlands, tussock grasslands and soft spinifex grasslands. The system is largely stabilised by buffel and spinifex and accelerated erosion is uncommon. However, susceptibility to erosion is high or very high if vegetative cover is removed. **Urandy land system:** Stony plains, alluvial plains and drainage lines supporting shrubby soft spinifex grasslands. Most of the system is not susceptible to erosion or vegetation degradation.		
Waterbodies	The desktop assessment and aerial imagery indicated that several minor, and one major non-perennial watercourses transect the area proposed to be cleared (GIS Database).		
Hydrogeography	The application area is located within the Pilbara Groundwater Area, which is legislated by the RIWI Act 1914. The mapped groundwater salinity is 500-1,000 milligrams per litre total dissolved solids which is described as marginal quality (GIS Database).		
Flora	There are various records of a Threatened flora species (*Synostemon hamersleyensis*) in the application area. There is one Priority species (*Eremophila magnifica* subsp. *magnifica*) recorded adjacent to the application area (BHP, 2024; GIS Database).		
Ecological communities	Four records of the Priority 3 Ecological Community 'Vegetation of sand dunes of the Hamersley Range/Fortescue Valley' have been clipped from the application area with a 100 meter buffer, except where there is existing disturbance to enable this disturbance to be rehabilitated (GIS Database).		
Fauna	There were five conservation fauna species recorded in the application area and two other recorded within 100 metres of the application area. One Threatened fauna species was identified as possible to occur in the application area (BHP, 2024).		
Fauna habitat	Biologic (2019) identified the following eight fauna habitats within the application area: **Sand Plain:** This habitat is characterised by relatively deep sandy soils supporting dense spinifex grasslands and sparse shrubs. This habitat often occurs as terraces along Major Drainage Lines. **Stony Plain:** Erosional surfaces of gently undulating plains, ridges and associated footslopes. Mainly support hard spinifex (and occasionally soft spinifex). The substrate consists of gravel and pebbles, with		

Characteristic	Details
	vegetation dominated by *Triodia* and scattered Mulga, eucalypt and *Acacia* trees, with patches of various small to medium shrub species. **Hillcrest/ Hillslope:** These fauna habitats tend to be more open and structurally simple than other fauna habitat types due to their position in landscape. A common feature of this habitat type is a rocky substrate, often with exposed bedrock, and skeletal red soils. This habitat was characterised by steep slopes with a high proportion of coarse fragments dominated by ironstone. These can contain cracks and crevices. Instances of Gorge/Gully is contained within this habitat. This habitat is usually dominated by open *Eucalyptus* woodlands, *Acacia* and *Grevillea* scrublands and *Triodia* low hummock grasslands. **Gorge/ Gully:** Characterised by rugged, steep-sided valleys incised into the surrounding landscape. Gorges are deeply incised with vertical cliff faces, while gullies are more open (but not as open as Minor Drainage Lines). Caves and rock pools are most often encountered in this habitat type. Vegetation can be dense and complex in areas of soil deposition or sparse and simple where erosion has occurred. **Drainage Area/ Floodplain:** Characterised by *Eucalyptus xerothermica* and *Corymbia hamersleyana* woodland over broad-leafed *Acacia* shrubland on sandy loam soils. These can have high vegetation density, complexity and diversity, and because they tend to occur on accretional or depositional areas they often have deeper and richer soils than other fauna habitats. Grasses tend to be dominated by tussock grasses. **Minor Drainage Line:** Located within the minor gullies and depressions, generally through the Hillcrest/Hillslope habitat type. Consists primarily of *Eucalyptus xerothermica* and *Corymbia hamersleyana* woodland over broad-leafed *Acacia* shrubland. The substrate can be sandy in places but generally consists of a skeletal loam gravel or stone. Usually lacks a tall dense upper storey, but with a dense mid storey, including sparse *Eucalyptus* sp., and *Acacia* sp. over tussock grasses and *Triodia* sp. hummock grasses. **Major Drainage Line:** Major Drainage Lines comprise mature River Red Gums/ Coolabahs over dry river pools. Open, sandy or gravelly riverbeds characterise this habitat type. In non-grazed areas, the vegetation adjacent to the main channel or channels is denser, taller and more diverse than adjacent terrain. These large eucalypt species typically contain a number of significant hollows used by birds and mammals for roosting and nesting. May hold temporary waterbodies (days to weeks) following significant rainfall. **Mulga Woodland:** Comprises stands of mulga (*Acacia aneura*) over clay or stony substrates. Differs from other plains by having a monoculture of mulga compared to a diversity of other *Acacia* species. Fauna habitat mapping is available in Appendix E.

B.2. Flora 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. Only conservation significant flora species recorded within 50 kilometres of the application area were considered. Species highlighted blue were recorded in the application area, species highlighted green are likely or possible to occur in the application area, and species highlighted red are unlikely to occur in the application area (Onshore Environmental, 2016).

Species 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)	Are surveys adequate to identify? [Y, N, N/A]
Acacia bromilowiana	P4	Y	Y	Y	> 21 km	N
Acacia effusa	P3	Y	Y	Y	> 40km	N
Acacia subtiliformis	P3	Y	Y	N	> 9 km	N
Amaranthus centralis	P3	Y	Y	N	> 14 km	N
Aristida jerichoensis var. subspinulifera	P3	Y	Y	Y	> 32 km	N
Aristida lazaridis	P3	Y	Y	Y	> 14 km	N
Atriplex flabelliformis	P3	N	N	N	> 14 km	N
Calotis squamigera	P1	Y	Y	Y	> 1 km	N
Cladium procerum	P2	N	Y	N	> 20km	N
Dampiera metallorum	P3	Y	Y	Y	> 28 km	N
Dicladanthera glabra	P2	Y	Y	Y	> 29 km	N
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	P3	N	N	Y	> 30 km	N
Dysphania congestiflora	P3	N	N	N	> 20 km	N
Eleocharis papillosa	P3	N	N	N	> 29 km	N

Species 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)	Are surveys adequate to identify? [Y, N, N/A]
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	P3	N	N	N	> 29 km	N
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	P3	N	Y	Y	> 37 km	N
Eremophila magnifica subsp. magnifica	P4	Y	Y	Y	< 1 km	Y
Eremophila naaykensii	P3	Y	Y	Y	> 15 km	N
Eremophila pusilliflora	P2	N	Y	N	> 49 km	N
Eremophila spongiocarpa	P3	N	N	N	> 8 km	N
Eremophila youngii subsp. lepidota	P4	N	Y	N	> 20 km	N
Euphorbia australis var. glabra	P3	N	Y	N	> 13 km	N
Euphorbia inappendiculata var. inappendiculata	P3	N	Y	N	> 12 km	N
Euphorbia inappendiculata var. queenslandica	P3	N	Y	N	> 39 km	N
Fimbristylis sieberiana	P3	N	Y	N	> 17 km	N
Glycine falcata	P3	N	N	N	> 30 km	N
Gompholobium sp. Roy Hill (G. Buller ATF08 AQ14)	P1	N	Y	N	> 38 km	N
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	P3	Y	Y	N	> 22 km	N
Grevillea saxicola	P3	Y	Y	Y	> 34 km	N
Gymnanthera cunninghamii	P3	Y	Y	Y	> 10 km	N
Helichrysum oligochaetum	P1	N	Y	N	> 40 km	N
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708)	P2	Y	Y	Y	> 34 km	N
Indigofera gilesii	P3	Y	Y	Y	> 33 km	N
Iotasperma sessilifolium	P3	N	N	N	> 41 km	N
Ipomoea racemigera	P3	Y	Y	Y	> 20 km	N
Isotropis parviflora	P3	Y	Y	Y	> 3 km	N
Kohautia australiensis	P2	Y	Y	N	> 28 km	N
Lepidium catapycnon	P4	Y	Y	Y	> 7 km	N
Lindernia sp. Pilbara (M.N. Lyons & L. Lewis FV 1069)	P1	N	Y	N	> 31 km	N
Myriocephalus scalpellus	P1	N	Y	N	> 32 km	N
Oxalis sp. Pilbara (M.E. Trudgen 12725)	P3	Y	Y	Y	> 46 km	N
Ptilotus mollis	P4	Y	Y	Y	> 47 km	N
Rhynchosia bungarensis	P4	Y	Y	Y	> 10 km	N
Rorippa sp. Fortescue Valley (M.N. Lyons & R.A. Coppen FV 0760)	P1	Y	Y	N	> 32 km	N
Rostellularia adscendens var. latifolia	P3	Y	Y	Y	> 15 km	N
Samolus sp. Fortescue Marsh (A. Markey & R. Coppen FM 9702)	P1	N	Y	N	> 27 km	N
Sida sp. Barlee Range (S. van Leeuwen 1642)	P4	Y	Y	Y	> 7 km	N
Stackhousia clementii	P3	N	N	N	> 28 km	N
Streptoglossa sp. Cracking clays (S. van Leeuwen et al. PBS 7353)	P3	Y	Y	Y	> 13 km	N
Stylidium weeliwolli	P3	Y	Y	N	> 1 km	N
Synostemon hamersleyensis	T	Y	Y	Y	0 km	Y
Tecticornia globulifera	P1	N	N	N	> 22 km	N

Species 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)	Are surveys adequate to identify? [Y, N, N/A]
Tecticornia medusa	P3	N	N	N	> 23 km	N
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	P1	N	N	N	> 20 km	N
Teucrium pilbaranum	P2	N	Y	N	> 43 km	N
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	P3	N	Y	Y	> 7 km	N
Triodia basitricha	P3	Y	Y	Y	> 42 km	N
Triodia sp. Mt Ella (M.E. Trudgen 12739)	P3	Y	Y	Y	> 32 km	N
Triodia veniciae	P1	N	Y	N	> 40 km	N
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	P3	Y	Y	N	> 29 km	N

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

(BHP, 2024; Onshore Environmental, 2016; Western Australian Herbarium, 1998-; GIS Database)

B.3. 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 fauna required further consideration. Species highlighted blue were recorded in the application area, species highlighted green are likely to occur in the application area, and species highlighted red are unlikely to occur in the application area (Biologic, 2019; GIS Database).

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Anilios ganei (Gane's blind snake)	P1	Y	0 km	40	Y
Apus pacificus (fork-tailed swift)	MI	Y	0 km	410	Y
Calidris acuminata (sharp-tailed sandpiper)	MI	N	> 48 km	2,078	N
Charadrius veredus (oriental plover)	MI	N	> 47 km	522	N
Dasycercus blythi (brush-tailed mulgara)	P4	Y	4 km	1,069	Y
Dasyurus hallucatus (northern quoll)	EN	Y	< 1 km	7,925	Y
Falco hypoleucos (grey falcon)	VU	Y	> 13 km	190	Y
Falco peregrinus (peregrine falcon)	OS	Y	0 km	1,756	Y
Gelochelidon nilotica (gull-billed tern)	MI	N	> 18 km	1,170	N
Hydroprogne caspia (Caspian tern)	MI	N	> 34 km	4,973	N
Leggadina lakedownensis (northern short-tailed mouse)	P4	Y	> 43 km	759	Y
Leiopotherapon aheneus (Fortescue grunter)	P4	N	> 49 km	53	N
Lerista macropisthopus remota (unpatterned robust slider)	P2	Y	> 49 km	55	N
Liasis olivaceus subsp. *barroni* (Pilbara olive python)	VU	Y	0 km	233	Y
Macroderma gigas (ghost bat)	VU	Y	< 1 km	823	Y
Macronectes giganteus (southern giant petrel)	MI	N	> 17 km	55	N
Macrotis lagotis (greater bilby)	VU	Y	> 18 km	4,233	Y
Motacilla cinerea (grey wagtail)	MI	N	> 34 km	7	N
Ninox connivens connivens (barking owl)	P3	N	> 22 km	39	Y
Pandion crisatus (eastern osprey)	MI	N	3 km	4,403	N
Pezoporus occidentalis (night parrot)	CR	Y	> 28 km	18	Y
Plegadis falcinellus (glossy ibis)	MI	N	> 27 km	1,695	N

Species name	Conservation status	Suitable habitat features? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Pseudomys chapmani (Western pebble-mound mouse)	P4	Y	0 km	1,213	Y
Rhinonicteris aurantia (Pilbara) (Pilbara leaf-nosed bat)	VU	Y	> 13 km	2,469	Y
Rostratula australis (Australia painted snipe)	EN	N	> 32 km	108	N
Tringa glareola (wood sandpiper)	MI	N	> 28 km	1,262	N
Tringa nebularia (common greenshank)	MI	N	> 22 km	5,476	N
Tringa stagnatilis (marsh sandpiper)	MI	N	> 47 km	974	N
Underwoodisaurus seorsus (Pilbara barking gecko)	P2	Y	> 27 km	24	N

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

(BHP, 2024; Biologic, 2019; GIS Database)

B.4. 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)	Are surveys adequate to identify? [Y, N, N/A]
Vegetation of sand dunes of the Hamersley Range/ Fortescue Valley	P3	N	Y	N	< 1 km	Y

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

(BHP, 2024; GIS Database)

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 vegetation suitable to sustain conservation significant flora (BHP, 2024; Onshore Environmental, 2016). *Eremophila magnifica* subsp. *magnifica* was recorded as an estimated 50 to 100 plants from the summit of a rocky gorge and cliff line at one location within the application area. This location has been clipped from the application area using a 10 metre buffer (BHP, 2024). The proposed clearing has avoided areas with a 100 metre buffer where the 'Vegetation of sand dunes of the Hamersley Range/ Fortescue Valley' Priority 3 Ecological Community is mapped (BHP, 2024; GIS Database).	At variance	Yes *Refer to Section 3.2.1, 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 foraging, dispersal, denning, and nesting habitat for various conservation significant fauna species (Biologic, 2019). Various conservation significant fauna species were recorded in the application area (see Appendix B.3).	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:	At variance	Yes *Refer to Section 3.2.1, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Threatened flora species *Synostemon hamersleyensis* has been recorded in the application area (BHP, 2024). The area proposed to be cleared is likely to contain suitable habitat for flora species listed under the *Biodiversity Conservation Act 2016*.		
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 form part of any known or mapped Threatened Ecological Communities (TECs) (GIS Database). None of the vegetation associations or landforms identified within the boundary of the application area are associated with a TEC (BHP, 2024).	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 application area falls within the Pilbara Bioregion of the Interim Biogeographic Regionalisation for Australia (GIS Database). Over 99 per cent of the pre-European vegetation still exists in the Pilbara Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 29, 82, 111 (GIS Database). These vegetation associations have not been extensively cleared as over 99 per cent of the pre-European extent of these vegetation associations remain uncleared at both the state and bioregional level (Government of Western Australia, 2019).	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 (GIS Database), the proposed clearing is not likely to have an impact on the environmental values of known or mapped 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 various minor watercourses and one major watercourse (Weeli Wolli Creek) are recorded in the application area (BHP, 2024; GIS Database), the proposed clearing is likely to impact vegetation growing in, or in association with, an environment associated with a watercourse or wetland.	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: Most of the land systems mapped in the application area are not susceptible to erosion (van Vreeswyk, 2004). However, the northeastern corner falls within the River land system which is highly susceptible to erosion if vegetation is removed (van Vreeswyk, 2004). Noting the extent of the application area, the proposed clearing is not likely to cause appreciable land degradation, except in the areas where vegetation is removed in the River land system. The proposed clearing is restricted by conditions on the clearing permit to not clear within Major Drainage Lines habitat and limit the clearing in Minor Drainage Lines and Drainage Area/Floodplain habitats. Therefore, the proposed clearing is unlikely to cause appreciable land degradation.	May 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 permanent water courses, wetlands, or Public Drinking Water Source Areas are recorded in the application area (GIS Database), the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
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: Given no permanent water courses or wetlands are recorded in the application area (GIS Database), the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.	Not likely to be at variance	No

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.

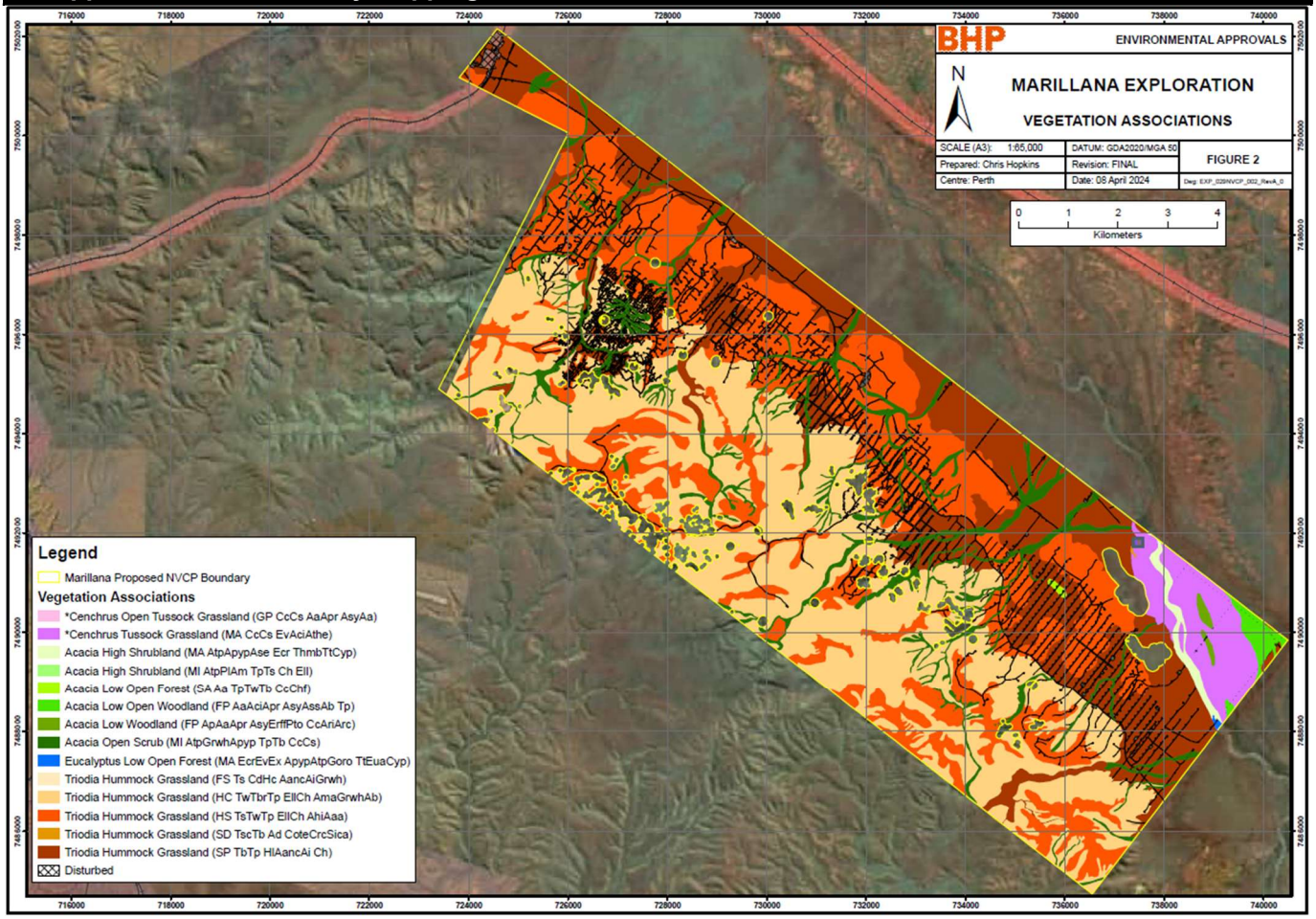

Figure 1. Vegetation associations mapped in the application area (BHP, 2024).

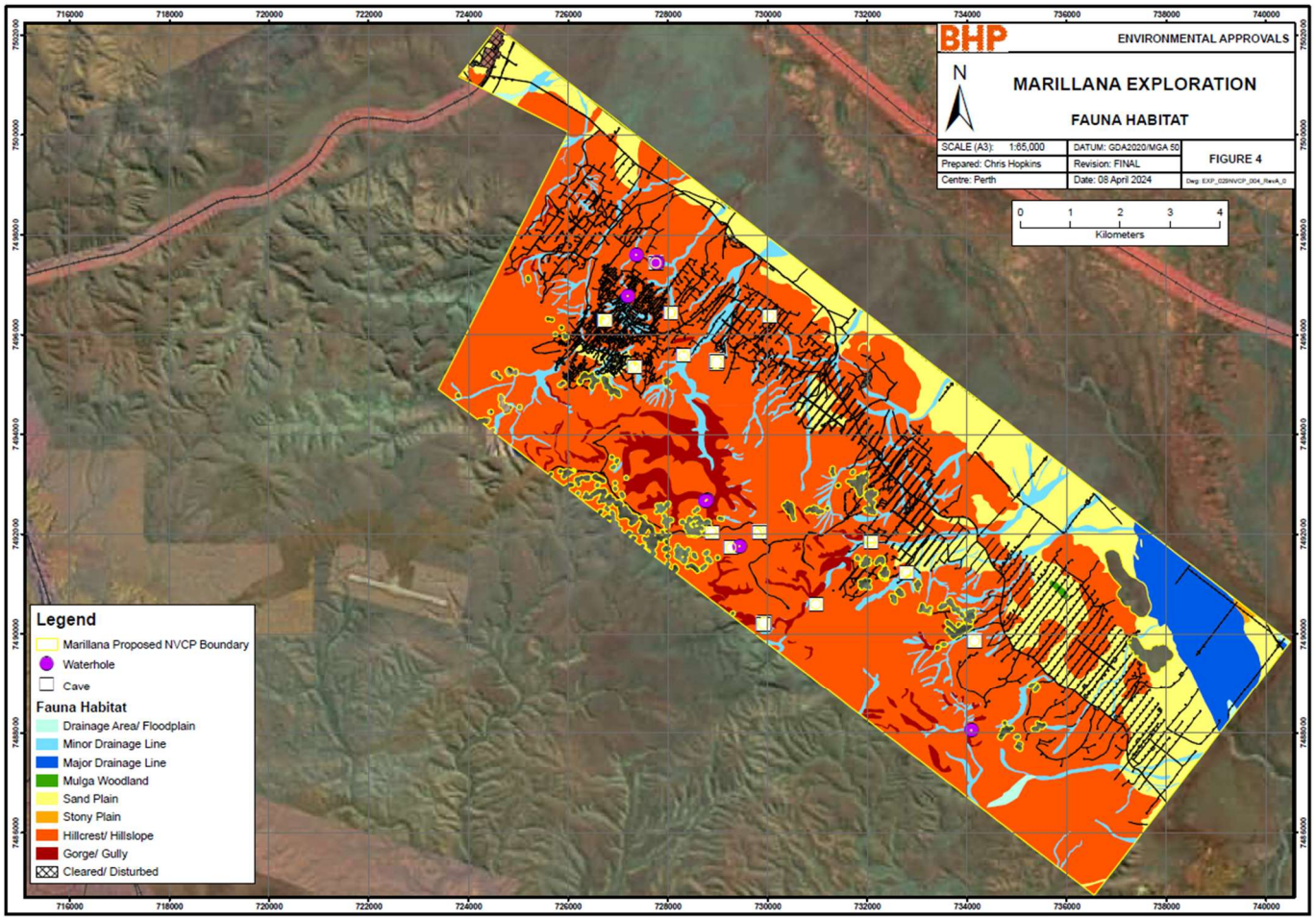

Figure 2. Fauna habitats mapped in the application area (BHP, 2024).

Appendix F. Sources of information

F.1. GIS databases

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

- Clearing Instruments Activities (Areas Approved to Clear) (DWER-076)
- 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 Referred Significant Proposals (DWER-120)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics
- IBSA Survey Details (DWER-118)
- Local Government Area (LGA) Boundaries (LGATE-233)
- Localities (LGATE-234)
- Native Title (Determination) (LGATE-066)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping - Best Available (DPIRD-027)
- Townsites (LGATE-248)
- WA Now Aerial Imagery

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)

F.2. References

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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
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS)
DMP	Department of Mines and Petroleum, Western Australia (now DEMIRS)
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* (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*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.