



Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	10567/1
Permit type:	Purpose Permit
Applicant name:	Holcim (Australia) Pty Ltd
Application received:	21 March 2024
Application area:	12.62 hectares
Purpose of clearing:	Mineral production and camp facilities
Method of clearing:	Mechanical Removal
Tenure:	Mining Lease 45/666
Location (LGA area/s):	Town of Port Hedland
Colloquial name:	Turner River Quarry Project

1.2. Description of clearing activities

Holcim (Australia) Pty Ltd proposes to clear up to 12.62 hectares of native vegetation within a boundary of approximately 12.62 hectares, for the purpose of mineral production and camp facilities. The project is located approximately 30 kilometres southwest of Port Hedland, within the Town of Port Hedland.

The application is to allow for the extraction of aggregates and an accommodation camp (Holcim, 2024).

This permit replaces previous Area Permit CPS 6914/2 which was originally granted by the Department of Mines and Petroleum on 10 March 2016 and expired on 30 April 2023. No clearing was undertaken under CPS 6914/2 (Holcim, 2023) CPS 6914/2 replaced previous Area Permit CPS 5614/1 which was granted by the Department of Mines and Petroleum on 20 June 2013 and expired on 31 July 2015. No clearing was undertaken under CPS 5614/1 (Holcim, 2016).

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	13 September 2024
Decision area:	12.62 hectares of native vegetation

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E and 51O of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on 21 March 2024. 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 A), relevant datasets (Appendix E), supporting information provided by the applicant, including the results of a flora and vegetation survey, the clearing principles set out in Schedule 5 of the EP Act (Appendix B), 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 allow for the extraction of aggregates and an accommodation camp.

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;

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be 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;

2. Legislative context

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

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

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Mining Act 1978* (WA)

Relevant agreements (treatys) 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, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant has stated that only the areas which are required for extraction or the construction of the campsite will be cleared and that all areas will be rehabilitated at closure of the project (Holcim, 2024). Given that the area proposed to be cleared is already highly degraded, 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 (see Appendix A) 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 (see Appendix B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimize, and hygiene management conditions.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 20 August 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.

There is one native title claim over the area under application (DPLH, 2024). This claim has been registered with the National Native Title Tribunal on behalf of the claimant groups. 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 no registered Aboriginal Sites of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

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

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

End

Appendix A. Site characteristics

A.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 adjacent to the Turner River Quarry, owned by Holcim, and the Turner River (GIS Database). The proposed clearing area is part of a large area of vegetation typical of the Roebourne subregion (CALM, 2002; GIS Database).
Ecological linkage	The proposed clearing does not represent a significant remnant of native vegetation in an area that has been extensively cleared, and is unlikely to provide an ecological linkage to surrounding areas (GIS Database).
Conservation areas	There are no conservation areas within the application area (GIS Database). The closest mapped conservation area is the Mungaroona Range Nature Reserve which is located approximately 85 kilometres southwest of the application area (GIS Database).
Vegetation description	<p>The vegetation of the application area is broadly mapped as the following Beard vegetation association:</p> <p>589: Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe, soft spinifex (GIS Database).</p> <p>A flora and vegetation survey was conducted over the application area by AECOM Australia Pty Ltd during May, 2024. The following vegetation associations were recorded within the application area (AECOM, 2024):</p> <p>Triodia Hummock Grassland (ChAtTsp): 6.73 ha (58% of the survey area) Characterised by scattered <i>Corymbia hamersleyana</i> and <i>Acacia tumida</i> var. <i>pilbarensis</i> with emergent <i>Senna notabilis</i> and <i>Triodia</i> sp. hummock grassland understorey.</p> <p>Cleared: 4.88 ha (42% of the survey area) Cleared areas within the survey area were comprised of tracks, roads and infrastructure and were devoid of native vegetation.</p>
Vegetation condition	<p>The vegetation survey (AECOM, 2024) and aerial imagery indicate the vegetation within the proposed clearing area is in Poor – Complete Degraded (Trudgen, 1991) condition, described as</p> <ul style="list-style-type: none"> 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. 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. <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p>
Climate and landform	The application area is located within an arid zone, with an average annual rainfall (Port Hedland Airport Station) of approximately 316.8 millimetres (BoM, 2024). The topography in the area is relatively flat, gently sloping north east towards the Turner River (GIS Database).
Soil description	<p>The soil is mapped as 281Rt within the Ruth land system (DPIRD, 2024).</p> <p>The chief soils in the area are stony soils (80 percent of the land system), with some red shallow loam and red/brown cracking clays (DPIRD, 2024).</p>
Land degradation risk	<p>The application area falls within the Ruth land system (GIS Database).</p> <p>The Ruth land system is described as hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands (Van Vreeswyk et al., 2004). This system is prone to fairly regular burning but is not susceptible to erosion (Van Vreeswyk et al., 2004).</p>
Waterbodies	The desktop assessment and aerial imagery indicated that no wetlands or watercourses transect the area proposed to be cleared (GIS Database). Within 100 metres east of the application area is the Turner River, which is a major, non-perennial watercourse (GIS Database).
Hydrogeography	The application area is located within the Pilbara Groundwater Area which is legislated by the <i>RIWI Act 1914</i> (GIS Database). The mapped groundwater salinity of the application area is 1,000 – 3,000 milligrams per litre total dissolved solids, which is described as brackish (GIS Database).
Flora	No Threatened or Priority flora were recorded within the application area during the reconnaissance survey (AECOM, 2024). A desktop assessment of available databases did not identify any Threatened flora within the local area (50 kilometre radius), however, it did identify 14 different Priority flora species recorded within 50 kilometres of the application area (GIS Database).
Ecological communities	There are no mapped Priority or Threatened Ecological Communities located within the application area (GIS Database). The only mapped Priority Ecological Community (PEC) within

Characteristic	Details
	the local area (50 kilometres) is the Gregory Land System (P3), which is located approximately 29 kilometres southwest of the application area (GIS Database).
Fauna	No conservation significant fauna were recorded within the application area during the survey (AECOM, 2024). A desktop assessment of available databases identified 68 conservation significant fauna within the local area (50 kilometre radius) (GIS Database).
Fauna habitat	<p>Three fauna habitats were defined across the application area during the survey conducted by AECOM (2024) (photographs attached in Appendix D), they are as follows:</p> <p>Spinifex Plains: 0.76 ha (7% of survey area) Spinifex Plains represent <i>Triodia</i> sp. dominated plains over red, sandy soils with moderate fine and coarse leaf litter present.</p> <p>Modified Spinifex: 5.97 ha (51% of survey area) The Modified Spinifex fauna habitat is representative of spinifex plains that have been modified and/or degraded by site works, including vegetation clearing, machinery use in the area and recent burning or vegetation regrowth.</p> <p>Cleared: 4.88 ha (42% of survey area) Cleared is representative of tracks, roads and highly modified or degraded vegetation with no biological benefit.</p>

A.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent Remaining %	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA Managed Lands
IBRA Bioregion - Pilbara	17,808,657	17,731,764	99.57	1,891,714	10.12
Beard vegetation associations - State					
589	807,698	802,713	99.38	15,304	1.89
Beard vegetation associations - Bioregion					
589	728,768	724,695	99.44	15,304	2.10

Government of Western Australia (2019)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information (AECOM, 2024; Western Australian Herbarium, 1998-), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Abutilon</i> sp. <i>Pritzelianum</i> (S.van Leeuwen 5095)	P3	N	4.591765	4.591765	Y
<i>Bulbostylis burbridgeae</i>	P4	N	22.215547	22.215547	Y
<i>Eragrostis crateriformis</i>	P3	N	6.331992	6.331992	Y
<i>Euphorbia clementii</i>	P3	N	21.977205	21.977205	Y
<i>Euploca mutica</i>	P3	N	7.449614	7.449614	Y
<i>Gomphrena cucullata</i>	P3	N	47.562014	47.562014	Y
<i>Gomphrena leptophylla</i>	P3	N	29.455529	29.455529	Y
<i>Gomphrena pusilla</i>	P2	N	32.283484	32.283484	Y
<i>Gymnanthera cunninghamii</i>	P3	N	8.029225	8.029225	Y
<i>Ptilotus mollis</i>	P4	N	6.777873	6.777873	Y

Species name	Conservation status	Suitable habitat? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
<i>Rothia indica subsp. australis</i>	P3	N	9.281909	9.281909	Y
<i>Stylidium weeliwoffi</i>	P3	N	37.526789	37.526789	Y
<i>Tephrosia rosea</i> var. <i>Port Hedland</i> (A.S. George 1114)	P1	N	26.951314	26.951314	Y
<i>Triodia chichesterensis</i>	P3	N	8.749952	8.749952	Y

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

A.4. Fauna analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), and biological survey information (Holcim, 2013; AECOM, 2024), impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat?	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
<i>Apus pacificus</i> (fork-tailed swift)	MI	N	16.839479	Y
<i>Falco peregrinus</i> (peregrine falcon)	OS	N	18.053212	Y
<i>Glareola maldivarum</i> (oriental pratincole)	MI	N	11.333452	Y
<i>Hirundo rustica</i> (barn swallow)	MI	N	25.006746	Y
<i>Dasycercus blythi</i> (brush tailed mulgara)	P4	N	8.962135	Y
<i>Dasyurus hallucatus</i> (northern quoll)	EN	N	13.790971	Y
<i>Macrotis lagotis</i> (greater bilby)	VU	N	5.010641	Y
<i>Pseudomys chapmani</i> (western pebble-mound mouse)	P4	N	16.351577	Y
<i>Liasis olivaceus barroni</i> (Pilbara olive python)	VU	N	10.884136	Y

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
<p><u>Principle (a):</u> "Native vegetation should not be cleared if it comprises a high level of biodiversity."</p> <p><u>Assessment:</u></p> <p>No Threatened or Priority flora were recorded within the application area during the reconnaissance survey (AECOM, 2024). A desktop assessment of available databases did not identify any Threatened flora within the local area (50 kilometre radius), however, it did identify 14 different Priority flora species recorded within 50 kilometres of the application area (GIS Database). Due to the very degraded vegetation condition and recent fire within the application area, none of these species are considered likely to occur within the area (AECOM, 2024; Western Australian Herbarium, 1998-).</p> <p>No Threatened or Priority Ecological Communities were recorded within the application area (AECOM, 2024, GIS Database). The only mapped Priority Ecological Community (PEC) within the local area (50 kilometres) is the Gregory Land System (P3), which is located approximately 29 kilometres southwest of the application area and is unlikely to be impacted by the proposed clearing (GIS Database).</p>	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
<p>Three introduced flora species were recorded, with one species, <i>Opuntia elatior</i> considered as a Declared Pest under the <i>Biosecurity and Agriculture Management Act 2007</i> (AECOM, 2024). Impacts from introduced species can be managed via a weed management condition.</p>		
<p><u>Principle (b):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>No conservation significant fauna were recorded within the application area during the survey (AECOM, 2024). A desktop assessment of available databases identified 68 conservation significant fauna within the local area (50 kilometre radius), however of these only 9 were considered possible to occur within the application area due to distribution and habitat requirements (AECOM, 2024; Holcim, 2013; GIS Database).</p> <p>Some species may infrequently and temporarily use the area for dispersal along the nearby Turner River or for foraging (Holcim, 2013). However, due to the level of degradation and clearing already present within the application area, it is highly unlikely that the area proposed to be cleared has any environmental values required to form significant foraging or breeding habitat for conservation significant fauna species (Holcim, 2013; AECOM, 2024).</p>	Not likely to be at variance	No
<p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>There are no known records of Threatened flora within the application area or within the local area (50 kilometre radius) (AECOM, 2024; GIS Database). The vegetation condition within the application area is unlikely to support Threatened flora species or be necessary for the continued existence of any species of Threatened flora (AECOM, 2024).</p>	Not likely to be at variance	No
<p><u>Principle (d):</u> <i>“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.”</i></p> <p><u>Assessment:</u></p> <p>There are no known Threatened Ecological Communities (TECs) within or in close proximity to the area proposed to be cleared (GIS Database). The vegetation types mapped within the application area are not representative of any TECs (AECOM, 2024).</p>	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
<p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area falls within the Pilbara bioregion of the Interim of Biogeographic Regionalisation of Australia (GIS Database). Over 99 percent 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 association 589 (GIS Database). This vegetation association has not been extensively cleared, with over 99 percent of pre-European vegetation extent remains at the state and bioregional level (GIS Database).</p>	Not likely to be at variance	No
<p><u>Principle (h):</u> <i>“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></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area (85 kilometres), the proposed clearing is not likely to have an impact on the environmental values of nearby conservation areas.</p>	Not likely to be at variance	No
Environmental value: land and water resources		

Assessment against the clearing principles	Variance level	Is further consideration required?
<p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>There are no permanent watercourses or wetlands within the application area (GIS Database). Minor non-perennial drainage lines are common in the surrounding area, and flow into the Turner River, a major non-perennial river located approximately 100 metres east of the application area (GIS Database).</p> <p>Local watercourses are dry for most of the year, only flowing briefly following significant rainfall events. Holcim (2013) report that the application area is at an elevation approximately five metres above the level of the riverbed of the Turner River and is not subject to inundation from the river. The vegetation within the application area is not considered to be riparian in nature or to be growing in association with any watercourse (Holcim, 2013; AECOM, 2024).</p>	Not at variance	No
<p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>The mapped land system within the application area is the Ruth land system, which is described as hills and ridges of volcanic and other rocks supporting hard spinifex (occasionally soft spinifex) grasslands (GIS Database). This system is prone to regular burning, but is not susceptible to erosion (Van Vreeswyk et al., 2004).</p>	Not likely to be at variance	No
<p><u>Principle (i):</u> <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.”</i></p> <p><u>Assessment:</u></p> <p>There are no permanent watercourses, wetlands or Public Drinking Water Source Areas recorded within the application area (GIS Database). There are multiple drainage lines flowing in the area around the application, towards the Turner River, 100 metres east of the application area (GIS Database). These drainage lines are dry for most of the year, only flowing or holding surface water briefly following significant rainfall events (Holcim, 2013). While the proposed clearing may contribute to increased sediment loads and runoff into surface water flows into the Turner River, the impact to surface water and groundwater quality is likely to be minimal. This is due to the degraded vegetation not significantly contributing to preventing erosion and the minimal clearing size comparatively to the size of the Turner River.</p>	Not likely to be at variance	No
<p><u>Principle (j):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</i></p> <p><u>Assessment:</u></p> <p>There are no permanent watercourses or wetlands within the application area (GIS Database). The Turner River located approximately 100 metres east of the application area is a broad, shallow non-perennial river that is dry for most of the year, only flowing after significant rainfall events (Holcim 2013; GIS Database). Temporary localised flooding may occur during heavy rainfall events, especially during the cyclone season, however the application area is approximately five metres above the level of the riverbed and is not subject to inundation from the river, even during peak flood events (Holcim 2013; GIS Database). Given the size of the area to be cleared (12.62 hectares) compared to the size of the Turner River catchment area (approximately 480,186 hectares), and the degraded condition of the vegetation present, the proposed clearing is unlikely to increase the incidence or intensity of natural flooding events (GIS Database).</p>	Not likely to be at variance	No

Appendix C. Vegetation condition rating scale

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

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from 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 D. Biological survey photographs



Figure 1. Spinifex Plains fauna habitat, 7% of survey area (AECOM, 2024).



Figure 2. Modified Spinifex fauna habitat, 51% of survey area (AECOM, 2024).

Appendix E. Sources of information

E.1. GIS databases

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

- Aboriginal Heritage Places (DPLH-001)
- Contours (DPIRD-073)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Native Title (ILUA) (LGATE-067)
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)

- WA Now Aerial Imagery

Restricted GIS Databases used:

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

E.2. References

- AECOM Australia Pty Ltd (AECOM) (2024) Turner River Rock Quarry Flora & Vegetation and Basic Fauna Surveys. Report prepared for Holcim Australia Pty Ltd, received 12 August 2024.
- Bureau of Meteorology (BoM) (2024) Bureau of Meteorology Website – Climate Data Online, Port Hedland Airport Station. Bureau of Meteorology. <https://reg.bom.gov.au/climate/data/> (Accessed 10 May 2024).
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Department of Environment Regulation (DER) (2014) *A guide to the assessment of applications to clear native vegetation*. Perth. Available from: https://www.der.wa.gov.au/images/documents/your-environment/native-vegetation/Guidelines/Guide2_assessment_native_veg.pdf
- Department of Planning, Lands and Heritage (DPLH) (2024) Aboriginal Heritage Inquiry System. Department of Planning, Lands and Heritage. <https://espatial.dplh.wa.gov.au/AHIS/index.html?viewer=AHIS> (Accessed 09 May 2024).
- Department of Primary Industries and Regional Development (DPIRD) (2024) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. URL: <https://dpiird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f> (Accessed 10 Month 2024).
- Department of Water and Environmental Regulation (DWER) (2021) Procedure: Native vegetation clearing permits. Joondalup. Available from: https://dwer.wa.gov.au/sites/default/files/Procedure_Native_vegetation_clearing_permits_v1.pdf
- Environmental Protection Authority (EPA) (2016) Technical Guidance - Flora and Vegetation Surveys for Environmental Impact Assessment. Available from: 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) (2020) Technical Guidance – Terrestrial Fauna Surveys. Available from: 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
- 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>
- Holcim (Australia) Pty Ltd (Holcim) (2013) Holcim Turner River Quarry. Application for clearing permit within Mining Lease M45/666, received, May 2013.
- Holcim (Australia) Pty Ltd (Holcim) (2016) Clearing permit application form, CPS 6914/1, received 25 January 2016.
- Holcim (Australia) Pty Ltd (Holcim) (2023) Clearing permit amendment application form, CPS 6914/3, received 6 April 2023.
- Holcim (Australia) Pty Ltd (Holcim) (2024) Clearing permit application form, CPS 10567/1, received 21 March 2024.
- 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.
- 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 (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. <https://florabase.dpaw.wa.gov.au/> (Accessed 02 September 2024).

4. Glossary

Acronyms:

BC Act	<i>Biodiversity Conservation Act 2016</i> , Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
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	<i>Environmental Protection Act 1986</i> , Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

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

T **Threatened species:**

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

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

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

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

CR **Critically endangered species**

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

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

EN **Endangered species**

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

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

VU **Vulnerable species**

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

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

Extinct Species:

EX **Extinct species**

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

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

EW **Extinct in the wild species**

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

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

Specially protected species:

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

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

MI Migratory species

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

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

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

CD Species of special conservation interest (conservation dependent fauna)

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

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

OS Other specially protected species

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

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

P Priority species:

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

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

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

P1 Priority One - Poorly-known species

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

- P2 Priority Two - Poorly-known species**
Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.
- P3 Priority Three - Poorly-known species**
Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring**
(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.
(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.
(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

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