Department of Mines, Petroleum and Exploration

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcomes

1.1. Permit application details

Permit number:	11460/1
Permit type:	Purpose permit
Applicant name:	South32 Worsley Alumina Pty Ltd
Application received:	12 February 2026
Application area:	1 hectare
Purpose of clearing:	Exploration activities
Method of clearing:	Pruning, walking over vegetation, and driving an off-road vehicle or equipment over vegetation
Tenure:	*Alumina Refinery (Worsley) Agreement Act 1973,* Mining Lease M258SA (AM 70/258)
Location (LGA area):	Shire of Boddington
Colloquial name:	Valentino's Agreement Area Exploration

1.2. Description of clearing activities

South32 Worsley Alumina Pty Ltd proposes to clear up to 1 hectare of native vegetation within a boundary of approximately 10 hectares, for the purpose of exploration activities. The project is located approximately 24 kilometres south of Boddington, within the Shire of Boddington.

1.3. Decision on application and key considerations

Decision:	Grant
Decision date:	25 August 2026
Decision area:	1 hectare of native vegetation

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed, and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Mines, Petroleum and Exploration (DMPE) advertised the application for a public comment for a period of 21 days, and one submission was 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 including the results of a flora and vegetation survey (Appendix E), 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 method of clearing to be used that will reduce impacts.

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds and dieback into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- the potential loss of black cockatoos foraging habitat; and
- the potential death of native fauna.

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 is unlikely to lead to appreciable land degradation or have long-term adverse impacts on 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 and dieback;
- engage a fauna spotter to inspect the area immediately prior to, and for the duration of, clearing activities;

- only allow clearing outside of black cockatoo and chuditch breeding seasons; and
- avoid clearing of trees with a Diameter at Breast Height of 150 millimetre or greater.

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

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act)
- *Rights in Water and Irrigation Act 1914* (RIWI Act)
- *Worsley Special Lease Agreement*

The key guidance documents which inform this assessment are:

- A guide to the assessment of applications to clear native vegetation (DER, 2014)
- Procedure: Native vegetation clearing permits (DWER, 2021)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The Exploration Environmental Management Plan (EEMP) was submitted by the applicant, demonstrating that the proposed exploration activities involve a geological drilling methodology that is inherently a low impact activity. This EEMP also details the following avoidance and mitigation measures (South32, 2024):

- Exploration drilling activities which require overland traversing of vegetated areas must be limited to rubber tyred small drill rigs that do not require drill lines to be cleared and do not impact the soil profile when travelling;
- drill holes will be plugged and backfilled to prevent creation of voids;
- training for the management of Dieback related diseases (and other relevant training) will be provided to all staff undertaking exploration activities;
- all exploration activities that have soil movement potential will be strictly managed to limit the spread of dieback related disease;
- all exploration vehicles will be approved for Forest Access as per DBCA requirements (Disease Risk Area Permit);
- compliance with DBCA/Worsley Working Arrangements, including limiting regional exploration within forest areas to seasonally appropriate times;
- drilling activities are suspended during times of extreme fire danger;
- black cockatoo habitat trees are protected as drill rigs are only permitted to push through vegetation less than 150 millimetres in diameter; and
- dust emissions and any noise and vibration emissions are managed by the management plans indicated in the EEMP.

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 (Appendix C) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise, weed and dieback hygiene, and fauna management conditions.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 22 May 2026 by the Department of Mines, Petroleum and Exploration inviting submissions from the public. One submission was received in relation to this application.

The permit area is within the South West Native Title Settlement area (DPLH, 2026). This settlement resolves Native Title rights and interests over an area of approximately 200,000 square kilometres within the southwest of Western Australia. 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, 2026). 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.

There is an existing Ministerial Statement (MS1237) adjacent to the application area. The drill holes planned to be cleared under this clearing permit fall outside the Development Envelope of MS1237. No further consideration of this Ministerial Statement is needed under this clearing permit.

South32 Worsley Alumina Pty Ltd conduct exploration activities as indicated in the Exploration Environmental Management Plan (EEMP) (South32, 2024). This EEMP lists increase in dust loads on vegetation, and indirect impacts on fauna from noise and vibration, as unlikely to not relevant (South32, 2024).

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
A public submission was received by DMPE containing various queries relating to the survey reports and spatial data submitted to the Department with the clearing permit application. The submission also raised queries regarding conservation significant fauna of the region and the potential impacts of the proposed clearing on these species.	The proponent and the assessing officer responded to these queries and the assessment of this clearing permit application was conducted taking this submission into account. Impacts like noise, lights, vibration, and dust fall outside of the scope of this assessment and have been discussed in section 3.3.

Appendix B. Site characteristics

B.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared forms part of various patches of native vegetation in the intensive land use zone of Western Australia. It is surrounded by disturbed farmland and near the current Worsley Bauxite Alumina Project (GIS Database). Dominant land uses of the Northern Jarrah Forest subregion mainly include forestry (native forests), conservation, grazing (improved pastures), cultivation (dry land agriculture), forestry (plantations), and mining (CALM, 2002).
Ecological linkage	According to available databases, the application area does not contain any known or mapped ecological linkages (GIS Database).
Conservation areas	The nearest conservation area is an un-named Timber Reserve located approximately 1.2 kilometres north of the application area (GIS Database).
Vegetation description	The vegetation of the application area is broadly mapped as the following vegetation complexes of the south west forest region of Western Australia: **Yalanbee (Y5):** Mixture of open forest of *Eucalyptus marginata* subsp. *thalassica-Corymbia calophylla* and woodland of *Eucalyptus wandoo* on lateritic uplands in semiarid to perarid zones; **Michibin:** Open woodland of *Eucalyptus wandoo* over *Acacia acuminata* with some *Eucalyptus loxophleba* on valley slopes, with low woodland of *Allocasuarina huegeliana* on or near shallow granite outcrops in arid and perarid zones; and **Coolakin:** Woodland of *Eucalyptus wandoo* with mixtures of *Eucalyptus patens*, *Eucalyptus marginata* subsp. *thalassica* and *Corymbia calophylla* on the valley slopes in arid and perarid zones. (Government of Western Australia, 2019a; GIS Database).
Vegetation condition	Aerial imagery and a site visit to the application area found the vegetation to be in Good, and Very Good condition (Keighery, 1994). The full Keighery (1994) condition rating scale is provided in Appendix D. Representative photos are available in Appendix E.
Climate and landform	The climate of the Northern Jarrah Forest subregion is described as warm Mediterranean, with the nearest weather station recording an average rainfall of approximately 717.2 millimetres per year (BoM, 2026; CALM, 2002). The application area is mapped at elevations of 250-300 metres Australian height datum (GIS Database).
Soil description	The soil in the application area is mapped as sandy gravel, loamy gravel, grey deep sandy duplex, loamy duplex, shallow sand, and bare rock (DPIRD, 2026).
Land degradation risk	The application area is located inside the Marradong Upland System and Quindanning System (DPIRD, 2026). Information about the land degradation risk can be found in section B.5.
Waterbodies	The desktop assessment and aerial imagery indicated that no watercourses transect the area proposed to be cleared. The nearest Wetland of National Importance is Benger Swamp located approximately 60 kilometres west of the application area (GIS Database).
Hydrogeography	The nearest Public Drinking Water Source Area is the Harris River Dam Catchment Area located approximately 17 kilometres southwest of the application area (GIS Database).

Characteristic	Details
	The application area is not located within any Ground Water Area proclaimed under the *Rights in Water and Irrigation Act 1914.* It is located within the Murray River System Surface Water Area proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS Database). The groundwater salinity is mapped as 3,000 to 7,000 milligrams per litre total dissolved solids which is described as saline (BoM, 2019; GIS Database).
Flora	There are no records of conservation significant flora species the application area (Biologic Environmental, 2025; GIS Database). Eight conservation significant flora species have been recorded within 10 kilometres from the application area (see section B.3) (GIS Database).
Ecological communities	The application area is not located within any known or mapped conservation significant ecological communities (Biologic Environmental, 2025; GIS Database). The closest record is Priority 1 Mount Saddleback heath communities Ecological Communities located approximately 2 kilometres from the application area (GIS Database).
Fauna	There are no records of conservation significant fauna recorded within the application area (Biologic Environmental, 2025; GIS Database). There are 12 conservation significant fauna species that have been recorded within the local surrounds (10 kilometres) (GIS Database).

B.2. Vegetation extent

	Pre-European area (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current extent in all DBCA Managed Land (proportion of pre-European extent) (%)
IBRA Bioregion - Jarrah Forest	4,506,660	2,399,838	~53	1,673,614	~37
IBRA Subregion - Northern Jarrah Forest	1,898,781	1,108,380	~58	769,587	~41
Local Government – Shire of Boddington	190,760	124,649	~65	84,004	~44
Beard vegetation associations - State					
Veg Assoc No .4	1,054,280	284,102	~27	67,765	~6
Vegetation Complexes - South West forest region of Western Australia - State					
Yalanbee (Y5)	126,610	83,829	~66	49,112	~39
Michibin	168,040	42,996	~26	8,512	~5
Coolakin	163,992	64,205	~39	33,002	~20
Beard vegetation associations - Bioregion					
Veg Assoc No. 4	1,022,713	277,087	~27	65,961	~6
Beard vegetation associations - Subregion					
Veg Assoc No. 4	614,201	197,904	~32	60,478	~10

Government of Western Australia (2019a, 2019b)

B.3. Flora analysis table

With consideration for the site characteristics set out above and relevant datasets (Appendix F.1), impacts to the following conservation significant flora required further consideration (WAH, 1998-).

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)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Caladenia dorrienii	T	N	Y	Y	< 7 km	15	N/A
Caladenia hopperiana	T	N	Y	N	< 3 km	3	N/A
Caladenia x triangularis	P4	N	Y	N	< 5 km	9	N/A
Goodenia katabudjar	P3	N	Y	Y	< 7 km	12	N/A
Lasiopetalum cardiophyllum	P4	N	Y	Y	< 9 km	34	N/A
Senecio leucoglossus	P4	N	Y	Y	< 10 km	48	N/A
Stylidium marradongense	P3	N	Y	Y	< 9 km	15	N/A
Tetratheca pilifera	P3	N	Y	N	< 8 km	36	N/A

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

(WAH, 1998-; GIS Database)

B.4. Fauna analysis table

The following conservation significant fauna species have been recorded within 10 kilometres of the application area (GIS Database). Historical records and aquatic species have not been considered as they are unlikely to occur in the application area.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Are surveys adequate to identify? [Y, N, N/A]
Baudin's cockatoo	EN	N	Y	< 3 km	N/A
Carnaby's cockatoo	EN	N	Y	< 3 km	N/A
Chuditch	VU	N	Y	< 4 km	N/A
Forest red-tailed black cockatoo	VU	N	Y	< 1 km	N/A
Peregrine falcon	OS	N	Y	< 3 km	N/A
Quenda	P4	N	Y	< 3 km	N/A
Red-tailed phascogale	CD	N	Y	< 4 km	N/A
South-western brush-tailed phascogale	CD	N	Y	< 3 km	N/A
Western brush wallaby	P4	N	Y	< 3 km	N/A
Western false pipistrelle	P4	N	Y	< 8 km	N/A

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

B.5. Land degradation risk table

Risk categories	Land Unit 1
Wind erosion	M1-M2: 20-48% of the map unit has a high to extreme hazard
Water erosion	M1: 10-16% of the map unit has a very high to extreme hazard
Salinity	L1-M1: 0-20% of the map unit has a moderate hazard or is presently saline
Subsurface Acidification	H2: 80-96% of the map unit has a high susceptibility
Flood risk	L1-L2: 0-10% of the map unit has a moderate to high hazard
Water logging	L1-M1: 0-12% of the map unit has a moderate to very high to risk
Phosphorus export risk	M1-M2: 25-32% of the map unit has a high to extreme hazard

(DPIRD, 2026)

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 proposed clearing area consists of small patches of open woodland among heavily grazed and disturbed farmland. No mechanical clearing will occur. Given there is a Class C Timber Reserve just north of the application area (GIS Database), the proposed area of clearing does not represent an area of higher diversity in the local area or region. The area proposed to be cleared is unlikely to contain flora, fauna, habitats, or assemblages of plants that comprise a high level of biodiversity.	Not likely to be at variance	No
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 foraging habitat for all three species of threatened black cockatoos, and suitable habitat for Chuditch (section B.4). The proposed clearing will not remove any large trees that could serve as foraging resources or as potential breeding trees for threatened fauna. The drill rig to be utilised can move between large trees to minimise impacts. The application area does not form part of any confirmed or unconfirmed roost or breeding sites (GIS Database). Conditions: To mitigate impacts to black cockatoo foraging habitat, a flora management condition, ensuring no trees with a diameter at breast height greater than 150 millimetres are cleared, will be implemented onto the condition. To minimise disturbance to black cockatoos and chuditch that may be present in the area, clearing and exploration activities will be undertaken outside of their breeding season. Additionally, a condition will be included requiring a fauna spotter to communicate with the operator to avoid fauna mortality of other resident or vagrant species.	Not likely to be at variance	No
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: The area proposed to be cleared is unlikely to contain habitat suitable for threatened flora species listed under the BC Act. Nearby records of threatened flora species (section B.3) are located inside the Timber Reserve to the north of the application area (GIS Database) where there is suitable habitat for their survival. The degraded condition of the surrounding farmland and the small area of available woodland indicate the application area is unlikely to be necessary for the continued existence of threatened flora.	Not likely to be at variance	No
Principle (d): *"Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community."* Assessment: The area proposed to be cleared does not contain species or vegetation structure that can indicate a threatened ecological community may be present (Biologic Environmental, 2025; GIS Database).	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (e): *"Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared."* Assessment: The full extent of native vegetation can be found in section B.2. The vegetation proposed to be cleared is not considered to be part of a significant ecological linkage in the local area. Given the proposed clearing amount is up to a maximum of 1 hectare, it is unlikely the proposed clearing would significantly impact remnant vegetation in the bioregion, subregion, local government area, or the State level.	Not likely to be at variance	No

Assessment against the clearing principles	Variance level	Is further consideration required?
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 adjacent or nearby conservation areas.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: Given no water courses or wetlands are recorded within the application area (GIS Database), the proposed clearing is unlikely to significantly impact on vegetation growing in or in association with watercourses or wetlands.	Not likely to be at variance	No
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: The mapped soils in the application area are moderately susceptible to wind and water erosion (see section B.5). Noting the small extent of the proposed clearing, the proposed clearing is not likely to cause appreciable land degradation.	Not likely to be at variance	No
Principle (i): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water."* Assessment: Given no water courses, wetlands, or Public Drinking Water Source Areas are recorded within 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
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 water courses or wetlands are recorded within the application area (GIS Database), the proposed clearing is unlikely to contribute to waterlogging.	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 Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

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

Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.

Condition	Description
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Appendix E. Photographs of the vegetation / DMPE site visit

Figure 1. Vegetation present in proposed clearing area.

Figure 2. Vegetation present in proposed clearing area.

Figure 3. Vegetation present in proposed clearing area.

Figure 4. Vegetation present in proposed clearing area.

Appendix F. Sources of information

F.1. GIS datasets

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

- Clearing Referral Proposal (DWER-116)
- Clearing Regulations - Environmentally Sensitive Areas (DWER-046)
- Clearing Regulations - Schedule One Areas (DWER-057)
- DBCA - Lands of Interest (DBCA-012)
- DBCA - Legislated Lands and Waters (DBCA-011)
- DBCA Fire History (DBCA-060)
- EPA Referred Significant Proposals (DWER-120)
- Groundwater Salinity Statewide (DWER-026)
- IBRA Vegetation Statistics

- Local Government Area (LGA) Boundaries (LGATE-233)
- Localities (LGATE-234)
- Medium Scale Topo Contour (Line) (LGATE-015)
- Native Title (ILUA) (LGATE-067)
- Native Vegetation Extent (DPIRD-005)
- Pre-European Vegetation (DPIRD-006)
- Public Drinking Water Source Areas (DWER-033)
- Reserves (LGATE-227)
- 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 - Systems (DPIRD-064)
- Surface Water Management Areas (DWER-041)
- Townsites (LGATE-248)
- Vegetation Complexes - South West forest region of Western Australia (DBCA-047)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Black Cockatoo Roosting Sites
- Forest Red Tailed Black Cockatoo Breeding Sites
- White-Tailed Black Cockatoo Breeding Sites
- Black Cockatoo BC Feeding SCP
- Black Cockatoo Feeding JF
- Black Cockatoo Feeding Areas Buffered
- Black Cockatoo Baudin's Distribution
- Black Cockatoo Forest Red Tail Distribution
- Black Cockatoo Carnaby's Distribution
- 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

Biologic Environmental (2025) Saddleback Pre-Clearance Targeted Survey Memo. Prepared for South32 Pty Ltd.

Bureau of Meteorology (BoM) (2019) Bureau of Meteorology Website – Groundwater Information – Average Salinity. Bureau of Meteorology. https://www.bom.gov.au/water/groundwater/insight/metadata.shtml (Accessed 27 May 2026).

Bureau of Meteorology (BoM) (2026) Bureau of Meteorology Website – Climate Data Online, Marradong (Number 9575). Bureau of Meteorology. https://reg.bom.gov.au/climate/data/ (Accessed 26 May 2026).

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

Department of Environment Regulation (DER) (2014) A guide to the assessment of applications to clear native vegetation. Perth. 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) (2026) Aboriginal Cultural Heritage Inquiry System. Department of Planning, Lands and Heritage. https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS (Accessed 27 May 2026).

Department of Primary Industries and Regional Development (DPIRD) (2026) NRInfo Digital Mapping. Department of Primary Industries and Regional Development. Government of Western Australia. https://dpird.maps.arcgis.com/apps/webappviewer/index.html?id=662e8cbf2def492381fc915aaf3c6a0f (Accessed 27 May 2026).

Department of Water and Environmental Regulation (DWER) (2021) Procedure: Native vegetation clearing permits. Joondalup. https://www.wa.gov.au/system/files/2024-11/procedure-native-vegetation-clearing-permits.pdf

Government of Western Australia. (2019a). 2018 South West Vegetation Complex Statistics. Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions, Perth, https://catalogue.data.wa.gov.au/dataset/dbca

Government of Western Australia (2019b) 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.

South32 Worsley Alumina Pty Ltd (South32) (2024) Exploration Environmental Management Plan. Prepared for Department of Mines, Petroleum and Exploration, by South32 Worsley Alumina Pty Ltd, September 2024.

Western Australian Herbarium (WAH) (1998-) FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions, Western Australia. https://florabase.dbca.wa.gov.au/ (Accessed 27 May 2026).

Glossary

Acronyms:

BC Act	*Biodiversity Conservation Act 2016,* Western Australia
BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia (now DPLH)
DAFWA	Department of Agriculture and Food, Western Australia (now DPIRD)
DCCEEW	Department of Climate Change, Energy, the Environment and Water, Australian Government
DBCA	Department of Biodiversity, Conservation and Attractions, Western Australia
DEMIRS	Department of Energy, Mines, Industry Regulation and Safety (now DMPE)
DER	Department of Environment Regulation, Western Australia (now DWER)
DMIRS	Department of Mines, Industry Regulation and Safety, Western Australia (now DMPE)
DMP	Department of Mines and Petroleum, Western Australia (now DMPE)
DMPE	Department of Mines, Petroleum and Exploration
DoEE	Department of the Environment and Energy (now DCCEEW)
DoW	Department of Water, Western Australia (now DWER)
DPaW	Department of Parks and Wildlife, Western Australia (now DBCA)
DPIRD	Department of Primary Industries and Regional Development, Western Australia
DPLH	Department of Planning, Lands and Heritage, Western Australia
DRF	Declared Rare Flora (now known as Threatened Flora)
DWER	Department of Water and Environmental Regulation, Western Australia
EP Act	*Environmental Protection Act 1986*, Western Australia
EPA	Environmental Protection Authority, Western Australia
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth Act)
GIS	Geographical Information System
ha	Hectare (10,000 square metres)
IBRA	Interim Biogeographic Regionalisation for Australia
IUCN	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
PEC	Priority Ecological Community, Western Australia
RIWI Act	*Rights in Water and Irrigation Act 1914*, Western Australia
TEC	Threatened Ecological Community

Definitions:

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

Threatened species

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

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

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

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

CR **Critically endangered species**

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

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines.

EN **Endangered species**

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

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines.

VU **Vulnerable species**

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

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines.

Extinct species

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

EX **Extinct species**

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

EW **Extinct in the wild species**

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

Currently there are no threatened fauna or threatened flora species listed as extinct in the wild.

Specially protected species

SP **Specially protected species**

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

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

MI **Migratory species**

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

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

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

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

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

OS **Other specially protected species**

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

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

Priority species

P **Priority species**

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

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

Species that may possibly be threatened species that do not meet the criteria for listing under the BC Act because of insufficient survey or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of prioritisation for survey and evaluation of conservation status so that consideration can be given to potential listing as threatened.

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

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

P1 **Priority One - Poorly-known species – known from few locations, none on conservation lands**

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, for example, agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under immediate threat from known threatening processes. These species are in urgent need of further survey.

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

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, for example, national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation.

Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements for threatened listing and appear to be under threat from known threatening processes. These species are in urgent need of further survey.

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

Species that are known from several locations and the species does not appear to be under imminent threat or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat.

Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. These species need further survey.

P4 **Priority Four - Rare, Near Threatened and other species in need of monitoring**

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

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as a conservation dependent specially protected species.

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

(d) Other species in need of monitoring.

Principles for clearing native vegetation:

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

(j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.