



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 4267/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: **Dumpna Pty Ltd**

1.3. Property details

Property: Mining Lease 45/1174
Local Government Area: Town of Port Hedland
Colloquial name: Turner River Sand Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
6		Mechanical Removal	Sand mining and associated activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 19 May 2011

2. Site Information

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
Beard vegetation associations have been mapped at a scale of 1:250,000 for the whole of Western Australia. The Beard vegetation association 619: Medium woodland; river gum (<i>Eucalyptus camaldulensis</i>) covers the application area (GIS Database; Shepherd, 2009).	The application area is located in the Pilbara region, approximately 32 kilometres south west of Port Hedland (GIS Database).	Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).	The vegetation condition was derived from a flora and vegetation survey conducted by an independent botanist (Astron, 2011).
In July 2010, Dumpna Pty Ltd (Dumpna) contracted an independent botanist to undertake a flora and vegetation survey of the application area (Astron, 2011). The flora and vegetation survey was used as a basis for the desktop fauna assessment conducted by Animal Plant Mineral (APM) in March 2011.	Dumpna is proposing to clear up to 6 hectares of native vegetation within an area of approximately 20 hectares.	To	
The flora and vegetation survey identified the following two land formations: River Bed and Sand Plain within the application area (Astron, 2011):	The proposed clearing is for the purpose of sand and shingle mining from the Turner River bed and a hardstand area for supporting infrastructure.	Very Good: Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).	
- Sand Plain : consisted of thickets and scrub over hummock grassland (Astron, 2011). The dominant species recorded were: <i>Acacia tumida</i> var. <i>pilbarensis</i> , and <i>Triodia lanigera</i> ; and			
- River Bed : contained a <i>Melaleuca argentea</i> thicket/scrub with occasional <i>Melaleuca linophylla</i> over a low shrubland (Astron, 2011).			

3. Assessment of application against clearing principles

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

Comments **Proposal may be at variance to this Principle**
The application area occurs within the Roebourne (PIL4) sub-region of the Interim Biogeographic Regionalisation of Australia (IBRA) (GIS Database). This sub-region is characterised by quaternary alluvial and older colluvial coastal and sub-coastal plains with a grass savannah of mixed bunch and hummock grasses, and dwarf shrub steppe of *Acacia stellaticeps* or *A. pyrifolia* and *A. inaequilatera*. Uplands are dominated by *Triodia* hummock grasslands. Ephemeral drainage lines support *Eucalyptus victrix* or *Corymbia hamersleyana* woodlands (CALM, 2002).

A flora and vegetation survey of the application area was conducted in July 2010 (Astron, 2011). The timing of the survey was considered not favourable as the area had experienced dry conditions, and the full suite of vascular flora species would not have been recorded (Astron, 2011). The survey recorded a total of 46 taxa from 21 families, representing 39 genera (Astron, 2011). Of these, no Declared Rare Flora Species, Priority Flora or Threatened Ecological Communities were recorded within the application area (Astron, 2011; GIS Database).

The following four Priority Flora species were recorded on Department of Environment and Conservation (DEC) databases within 50 kilometres of the application area:

- *Abutilon pritzelianum* (Priority 1);
- *Bulbostylis burbridgeae* (Priority 4);
- *Gomphrena cucullata* (Priority 2); and
- *Gymnanthera cunninghamii* (Priority 3) (Astron, 2011).

Astron (2011) advised that some of these Priority Flora species have the potential to occur within the application area, however due to the dry conditions they may not have been present during the flora and vegetation survey. Given these species have distributions in other parts of the state (Western Australian Herbarium, 1998) it is unlikely that the conservation status of these species would be impacted by the proposed clearing.

Two weed species with DEC priority ratings were found during the flora and vegetation survey within an elevated sandy plain habitat abutting the river channel bank. These were *Cenchrus ciliaris* (Buffel Grass) (rating High) and *Eragrostis barrelieri* (Pitted Lovegrass) (rating Moderate) (Astron, 2011). It is likely that more weed species would occur if the survey was conducted after rainfall (Astron, 2011). Dumpna (2011) advised that weed hygiene measures will be practised during clearing to minimise the potential for weed spread. Potential impacts from the spread of weeds as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A fauna desktop assessment was carried out of the application area, based on the flora and vegetation survey of the application area (APM, 2011). As part of the fauna desktop assessment, database searches were carried out within the vicinity of the application area. This included the following database searches:

- a search of APM's in-house database containing records from previous other fauna surveys, which was used to develop an appreciation of the vertebrate fauna assemblages in this region of the Pilbara; and
- an *Environment Protection, Biodiversity and Conservation Act 1999* (EPBC Act) Protected Matters database search (APM, 2011).

The EPBC Act search identified that 34 conservation significant species could potentially occur within the application area (APM, 2011). Of these, based on habitat assessment, twelve migratory bird species, the Northern Quoll (*Dasyurus hallucatus*) (EPBC Act, Threatened), the Pilbara Olive Python (*Liasis olivaceus barroni*) (EPBC Act, Vulnerable), Woma Python (*Aspidites ramsayi*) (DEC, Schedule 4), Grey Falcon (*Falco hypoleucos*) (DEC, Priority 4), Australian Bustard (*Ardeotis australis*) (DEC, Priority 4) and the Bush Stone Curlew (*Burhinus grallarius*) (DEC, Priority 4) could possibly inhabit the application area.

APM (2011) made a comparison with two other fauna surveys conducted just south of Port Hedland and from the Hope Downs rail corridor survey to the north and north east of the application area (APM, 2011). APM (2011) determined that the fauna assemblages recorded on these fauna surveys are likely to be similar to that expected within the application area. From the fauna species recorded on these surveys, it was inferred that three amphibians, 30 reptiles, 36 birds and 17 mammal species have the potential to occur within the application area (APM, 2011). The assessor also conducted a DEC NatureMap database search within a 20 kilometre radius of the application area. This search generated similar results to the two fauna surveys, with three amphibians, 136 birds, 9 mammals and 35 reptiles. The exception was the number of bird species potentially occurring within the area was significantly higher.

The application area is likely to support more species when the river is flowing, given that fauna will be attracted to the water resource. APM (2011) highlighted that the number of arid adapted frog species recorded during the fauna surveys is likely to be higher as these species are ground burrowing and only come to the surface after rain and are often missed. Dumpna (2011) advised that they intend to mine the sand within the application area during the dry season, which means the area may be utilised by mobile fauna during the wet season. However given the proposed activity in the area, it is likely that fauna will utilise areas outside of the application area. The proposed clearing is not expected to impact upon the biological diversity as the application area contains flora and fauna habitat that is widespread in the region (Shepherd, 2009).

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology APM (2011)
Astron (2011)
CALM (2002)
Dumpna (2011)
Shepherd (2009)
Western Australian Herbarium (1998)
GIS Database:
- Declared Rare and Priority Flora List

- IBRA WA (Regions–Subregions)
- Threatened Ecological Sites Buffered

(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 indigenous to Western Australia.

Comments Proposal may be at variance to this Principle

Based on the desktop fauna assessment carried out of the application area, APM (2011) determined that the following three broad fauna habitat types exist within the application area:

- *Triodia epactia* hummock grassland;
- *Melaleuca argentea* low open woodland over mixed shrubland over open hummock grasses on river bank; and
- Regenerating open low mixed shrubs of *Acacia trachycarpa*, *Cajanus pubescens*, *Petalostylis labicheoides*, *Acacia morrisonii* with scattered *Melaleuca argentea* trees (APM, 2011).

The dense, well developed and infrequently burnt spinifex clumps within the *Triodia epactia* hummock grassland are the key fauna resource in this habitat (APM, 2011). Mature and well developed spinifex clumps provide a secure refuge and high humidity micro-environment for a high diversity of fauna (APM, 2011). Species such as the Jewelled Gecko (*Strophurus elderi*) and the Military Dragon (*Ctenophorus isolepis*) specifically occupy these Spinifex clumps. This niche micro-environment can also include a range of pygopod lizards (Legless Lizards), the Desert Death Adder (*Acanthophis pyrrhus*), dunnarts, ningauis and numerous rodents.

The *Melaleuca argentea* low open woodland over mixed shrubland over open hummock grasses on river bank provides a good variety of strata for passerine bird species and some arboreal geckos and dragons (APM, 2011). This dense vegetation and the accumulation of litter and detritus from flood wrack provides valuable habitat for fossorial skink species (APM, 2011). The Department of Environment and Conservation database search and APM site comparisons also showed that The Rainbow Bee-eater (*Merops ornatus*), Spectacled Hare-wallaby (*Lagorchestes conspicillatus leichardti*) and Australian Bustard (*Ardeotis australis*) may also occur in this area (APM, 2011).

The regenerating open low mixed shrubs of *Acacia trachycarpa*, *Cajanus pubescens*, *Petalostylis labicheoides*, and *Acacia morrisonii* with scattered *Melaleuca argentea* trees may provide habitat for migratory wetland bird species, such as the Egrets and Sandpipers which would occupy the periphery of fresh water pools that remain as the flooded rivers dry up.

Although the vegetation within the application area potentially supports a rich and diverse array of fauna species, the vegetation is well represented on a regional scale and is unlikely to represent significant habitat to the fauna species in a regional context (Shepherd, 2009). However, APM (2011) highlighted that the potential presence of the Northern Quoll (*Environment Protection, Biodiversity and Conservation Act 1999*, Threatened) in the vicinity of the application area warrants habitat protection and concluded that no disturbance should occur where standing or fallen vegetation has a trunk diameter exceeding 100 millimetres.

To minimise fauna impacts, Dumpna (2011) advised that the sand mining will be conducted by excavating pockets of sand where there is little or no vegetation. Furthermore, excavation areas will be ramped to allow fauna egress, and a buffer set at a distance (at least 2 metres) from the drip line of any significant riparian vegetation (Dumpna, 2011). A fauna management condition is recommended to ensure that impacts to potentially significant fauna habitat is minimised.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology APM (2011)
Dumpna (2011)
Shepherd (2009)

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

Comments Proposal is not likely to be at variance to this Principle

The database searches of the application area showed that no Declared Rare Flora (DRF) as listed under the *Wildlife Conservation Act, 1950*, were recorded within 50 kilometres of the application area, or Threatened Flora species as listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999 (EPBC Act)* were recorded within one kilometre of the application area (GIS Database; Astron, 2011).

In addition, no DRF listed pursuant to the *Wildlife Conservation Act, 1950*, or as Threatened species under the *EPBC Act* were recorded during the survey (Astron, 2011). It is therefore unlikely that the area to be cleared includes, or is necessary for the continued existence of, rare flora.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Astron (2011)

GIS Database:
 - Declared Rare and Priority Flora List

(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.

Comments **Proposal is not likely to be at variance to this Principle**
 There are no known Threatened Ecological Communities (TEC's) which occur within the application area and the closest known TEC is located approximately 179 kilometres south of the application area (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
 - Threatened Ecological Sites Buffered

(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.

Comments **Proposal is not at variance to this Principle**
 The application area falls within the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 100% of the pre-European vegetation still exists in this bioregion.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Pilbara	17,804,193	17,785,000	~99.89	Least Concern	~6.32
Beard vegetation association - State					
619	119,158	119,088	~99.94	Least Concern	~0.2
Beard vegetation association - Bioregion					
619	118,705	118,705	~100	Least Concern	~0.2

* Shepherd (2009)

** Department of Natural Resources and Environment (2002)

Beard vegetation association 619, retains approximately 100% of its pre-European extent which is more than the 30% threshold level recommended in the National Objectives Targets for Biodiversity Conservation below which, species loss appears to accelerate exponentially at an ecosystem level (EPA, 2000).

Given that the vegetation is well represented locally and regionally the vegetation within the proposed area is not likely to be significant as a remnant in a highly cleared landscape.

Based on the above, the proposed clearing is not at variance to this Principle.

Methodology Department of Natural Resources and Environment (2002)
 EPA (2000)
 Shepherd (2009)
 GIS Database:
 - IBRA WA (Regions–Subregions)

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

Comments **Proposal may be at variance to this Principle**
 The application area occurs within the Turner River Water Reserve (GIS Database). Dumpna is proposing to clear up to 6 hectares of native vegetation for the purpose of sand extraction from within the application area. The Turner River is ephemeral, and it is proposed that sand will be mined in pockets when the river is dry (Dumpna, 2011).

The vegetation within the bed and banks of the ephemeral river consists of "Thicket over low Shrubland" and "Scrub over low Shrubland" (Astron, 2011). Dominant species recorded in the river bed included: *Melaleuca argentea*, *Crotalaria cunninghamii*, *Melaleuca linophylla*, *Acacia trachycarpa*, *Cajanus cinereus*, *Triodia epactia* *Eucalyptus camaldulensis* subsp. *obtus*, *Acacia trachycarpa* and *Cyperus vaginatus* (Astron, 2011).

The proposed project may affect vegetation on the bank of the River Bed land formation to a minimal extent as access is required in and out of the river bed (Dumpna, 2011). This disturbance is not expected to have any significant environmental impacts in a regional context as the vegetation types represented within the application area are common locally and regionally (Shepherd, 2009). However, given there are mature riparian trees which have withstood flood events, it is recommended that these be avoided. Dumpna stated that they propose to work around and avoid disturbing established trees that occur in the river bed (Dumpna, 2011). Additionally it has been recommended that a condition be implemented on the clearing permit to ensure that impacts to potentially significant fauna habitat is minimised.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Astron (2011)
Dumpna (2011)
Shepherd (2009)
GIS Database:
- Public Drinking Water Source Areas

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

Comments Proposal may be at variance to this Principle

The application to clear for sand and shingle extraction is located within the River and Mallina land systems of the Pilbara region (GIS Database; Van Vreeswyk *et al.*, 2004). Both systems are relatively poorly represented in the region, occupying approximately 2.3% and 1.4% of the Pilbara region respectively (Van Vreeswyk *et al.*, 2004).

The majority of the application area falls within the River land system, which is characterised by broad sandy plains and major rivers supporting grassy Eucalypt woodlands, tussock grasslands and soft spinifex grasslands and susceptibility to erosion is high or very high if vegetative cover is removed (Van Vreeswyk *et al.*, 2004).

The Mallina land system is characterised by sandy surfaced alluvial plains supporting soft spinifex (and occasionally hard spinifex) grasslands (Van Vreeswyk *et al.*, 2004). Alluvial plains are moderately to highly susceptible to erosion if vegetative cover is seriously depleted (Van Vreeswyk *et al.*, 2004).

Dumpna (2011) stated that mining of 5.65 hectares will occur in areas that have little or no vegetation. Clearing required is predominantly regrowth vegetation occurring in the river bed sand. Dumpna advised that the provision of ramps in and out of the river bed is proposed to protect the banks from erosion, and where possible vegetation within the river bed will be avoided. In addition an area of hardstand for associated infrastructure is required to be cleared and this will comprise approximately 0.35 hectares.

The excavation will disturb the ground but flooding will refill and rehabilitate these areas with sand deposits and replenish the seed source. Additionally, rehabilitation of the cleared areas under conditions imposed by the *Mining Act 1978* will minimise the risk of soil erosion in the long term.

Given that the land systems associated with the areas to be cleared have a moderate to high susceptibility to erosion when vegetation is removed there may be an increased risk of wind and water erosion associated with mining during heavy rainfall events.

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Dumpna (2011)
Van Vreeswyk *et al.* (2004)
GIS Database:
- Rangeland Land System Mapping

(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.

Comments Proposal is not likely to be at variance to this Principle

The application area is not located within any conservation areas or Department of Environment and Conservation (DEC) managed lands (GIS Database). The closest conservation area is the South West Creek Register of National Estate site which is situated approximately 28 kilometres north of the application area (GIS Database).

At this distance, it is not likely that the vegetation within the application area would act as a buffer or be important as an ecological linkage to this conservation area.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology GIS Database:
- DEC Tenure
- Register of National Estate

(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.

Comments Proposal may be at variance to this Principle

The area under application is located within the Turner River Water Reserve, which was gazetted under the *Country Areas Water Supply Act 1947* (Department of Water, 2011; GIS Database). This area is currently designated 'Policy use not assigned' under the Water Source Protection Classification however the Department of Water (2011) have advised that it is likely to be classified a 'Priority 1 Source Protection Area'.

In order to protect the Turner River from degradation the following measures have been recommended by the Department of Water (2011):

- All clearing activities should adhere to established codes of practice and best management practices should be followed;
- Disturbance to riparian vegetation should be managed to maintain foreshore stability and protect riparian habitats;
- There should be no significant alteration of the natural hydrological regime and geomorphology of the river and its catchment; and
- Any interference with the bed and banks of the water course in the application area will require a permit from the Department of Water.

The area under application is located within the Pilbara Groundwater Area as proclaimed under the *Rights in Water and Irrigation Act 1914* (GIS Database). The Department of Water (2011) advised that any groundwater abstraction in the application area will require licensing by the Department. The Department of Water (2011) highlights that the proposed clearing for sand extraction is unlikely to have a significant impact on the quality or quantity of groundwater, provided activities are carried out in accordance with Department of Water (2011) advice.

Dumpna (2011) advised that excavation will not take place below a three metre zone above the water table or below the clay riverbed layer. Contamination of the groundwater will be prevented via best practice hydrocarbon management techniques as described within the clearing application supporting documentation (Dumpna, 2011). The Department of Water (2011) also recommend that Dumpna utilise the *Policy and Guidelines for Construction of Silica and Sand Mining in Public Drinking Water Source Areas* to ensure that best practice measures are implemented to protect water resources

Based on the above, the proposed clearing may be at variance to this Principle.

Methodology Department of Water (2011)
Dumpna (2011)
GIS Database:
- Hydrography, Lakes
- Geodata, Lakes
- Public Drinking Water Source Areas
- *RIWI Act*, Groundwater Areas

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

Comments Proposal is not likely to be at variance to this Principle

The area under application is located within and adjacent to the ephemeral Turner River (GIS Database). The Turner River is a relatively large watercourse that flows during flood events into the Indian Ocean approximately 29 kilometres downstream (Dumpna, 2011).

Local flooding occurs during the summer months (November to April) in the Pilbara region as a result of cyclonic activity and sporadic thunderstorms and it is likely that the Turner River may experience seasonal flooding during high rainfall periods. However it is not likely that the proposed clearing will increase the incidence or intensity of this flooding.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

Methodology Dumpna (2011)
GIS Database:
- River

Planning instrument, Native Title, Previous EPA decision or other matter.

Comments

There is one Native Title Claim (WC99/3) over the area under application (GIS Database). This claim has been registered with the National Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore the granting of a clearing

permit is not a future act under the *Native Title Act 1993*.

There is one registered Aboriginal Site of Significance within the application area (GIS Database). 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.

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

The clearing permit application was advertised on 21 March 2011 by the Department of Mines and Petroleum inviting submissions from the public. No submissions were received to the proposed clearing, however the Department of Water provided comments on the application (Department of Water, 2011).

Methodology Department of Water (2011)
GIS Database
- Aboriginal Sites of Significance
- Native Title Claims

4. References

- APM (2011) Animal Plant Mineral, Level 1 Desktop Fauna Assessment. Prepared for Dumpna Pty Ltd – March 2011.
- Astron (2011) Astron Environmental Services, M45/1174, Turner River, Town of Port Hedland Level 1 Vegetation and Flora Survey. Prepared for Dumpna Pty Ltd – March 2011.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. Pilbara 1 (PIL4 - Roebourne subregion) Department of Conservation and Land Management, Western Australia.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Department of Water (2011) Advice provided to the Department of Mines and Petroleum for Clearing Permit Application CPS 4267/1 on 29 March 2011.
- Dumpna (2011) Dumpna Pty Ltd, Application for a Clearing Permit (Purpose Permit) for the Turner River Sand Project, Pilbara, Western Australia M45/1174, March 2011. Supporting Documentation.
- EPA (2000) Environmental protection of native vegetation in Western Australia. Clearing of native vegetation, with particular reference to the agricultural area. Position Statement No. 2. December 2000. Environmental Protection Authority, Western Australia.
- Keighery (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Shepherd (2009) Adapted from: Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. (2001), Native Vegetation in Western Australia. Technical Report 249. Department of Agriculture Western Australia, South Perth.
- Van Vreeswyk, A.M.E., Payne, A.L., Hennig, P., and Leighton, K.A. (2004) An Inventory and Condition Survey of the Pilbara Region, Western Australia, Department of Agriculture, Western Australia.
- Western Australian Herbarium (1998) Florabase - The Western Australian Flora. Department of Environment and Conservation. <http://florabase.calm.wa.gov.au/> (Accessed 4 May 2011).

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
CALM	Department of Conservation and Land Management (now DEC), Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia
DEH	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
DEP	Department of Environment Protection (now DEC), Western Australia
DIA	Department of Indigenous Affairs
DLI	Department of Land Information, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DoE	Department of Environment (now DEC), Western Australia

DoIR	Department of Industry and Resources (now DMP), Western Australia
DOLA	Department of Land Administration, Western Australia
DoW	Department of Water
EP Act	<i>Environmental Protection Act 1986</i> , 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
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of the Environment Protection Act 1986, Western Australia
TEC	Threatened Ecological Community

Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P3** **Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4** **Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R** **Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X** **Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-

- Schedule 1** **Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2** **Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3** **Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4** **Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

{CALM (2005). *Priority Codes for Fauna*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2** **Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3** **Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.

- P4** **Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5** **Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

Categories of threatened species (*Environment Protection and Biodiversity Conservation Act 1999*)

- EX** **Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W)** **Extinct in the wild:** A native species which:
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR** **Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN** **Endangered:** A native species which:
(a) is not critically endangered; and
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.
- VU** **Vulnerable:** A native species which:
(a) is not critically endangered or endangered; and
(b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
- CD** **Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.