



Clearing Permit Decision Report

1. Application details

1.1. Permit application details

Permit application No.: 6142/1
Permit type: Purpose Permit

1.2. Proponent details

Proponent's name: Pilbara Manganese Pty Ltd

1.3. Property details

Property: Mining Lease 45/430
Mining Lease 45/431
Mining Lease 45/638
Mining Lease 45/639

Local Government Area: Shire of East Pilbara

Colloquial name: Topvar Project

1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
71.6		Mechanical Removal	Mineral Production and Associated Activities

1.5. Decision on application

Decision on Permit Application: Grant
Decision Date: 30 July 2014

2. Background

2.1. Existing environment and information

2.1.1. Description of the native vegetation under application

Vegetation Description	Clearing Description	Vegetation Condition	Comment
<p>Beard vegetation associations have been mapped for the whole of Western Australia and are useful to look at vegetation in a regional context. One Beard vegetation association has been mapped within the application area (GIS Database):</p> <p>173: Hummock grasslands, shrub steppe; kanji over soft spinifex and <i>Triodia wiseana</i> on basalt.</p> <p>A total of 18 flora and vegetation surveys have been conducted across the Woodie Woodie tenements between 1994 and 2010. Flora and vegetation surveys over the tenements of the application area were conducted by botanists from Mattiske Consulting (2007a, 2007b) and MBS Environmental (2010a). A total of 17 plant communities have been identified within the Woodie Woodie tenements to date and nine of these occur within the application area (MBS Environmental, 2010b, Pilbara Manganese Pty Ltd, 2014).</p> <p>1: Woodland of <i>Eucalyptus camaldulensis</i> var. <i>obtusa</i> over <i>Acacia trachycarpa</i>, <i>Acacia inaequilatera</i> and <i>Ficus brachypoda</i> over *<i>Cenchrus ciliaris</i> along major watercourses.</p> <p>3: Scrub or Thicket of <i>Carissa lanceolata</i>, <i>Petalostylis labicheoides</i>, <i>Acacia bivenosa</i> and <i>Acacia ancistrocarpa</i> over <i>Triodia pungens</i>, <i>Triodia basedowii</i>, *<i>Cenchrus ciliaris</i> and <i>Chrysopogon fallax</i> along minor watercourses.</p> <p>4: Tall Shrubland of <i>Acacia arida</i>, <i>Acacia bivenosa</i>, <i>Acacia synchronicia</i> over patches of <i>Triodia basedowii</i> and <i>Triodia pungens</i> with <i>Grevillea wickhamii</i> subsp. <i>hispidula</i> and emergent <i>Corymbia hamersleyana</i> on flats and lower slopes.</p>	<p>Topvar Project.</p> <p>Pilbara Manganese Pty Ltd (Pilbara Manganese) proposes to clear up to 71.6 hectares of native vegetation, within an application area of approximately 206.5 hectares, for the purpose of mineral production and associated activities. The application area is part of the Woodie Woodie operations located approximately 120 kilometres west of Nullagine in the Shire of East Pilbara.</p>	<p>Degraded:</p> <p>Structure severely disturbed; regeneration to good condition requires intensive management (Keighery, 1994);</p> <p>To:</p> <p>Very Good:</p> <p>Vegetation structure altered; obvious signs of disturbance (Keighery, 1994).</p>	<p>The vegetation condition was assessed by botanists from Mattiske Consulting and MBS Environmental with the results compiled by Pilbara Manganese (2014). The condition was assessed using a scale based on Trudgen (1988) and has been converted to the corresponding Keighery (1994) condition.</p>

5: Scrub or Low Shrubland of *Acacia ancistrocarpa*, *Acacia arida*, *Acacia acradenia*, *Petalostylis labicheoides*, *Gossypium australe*, *Acacia synchronicia* and *Acacia inaequilatera* over *Triodia longiceps* and *Triodia wiseana* with patches of **Cenchrus ciliaris* on flats, often associated with major watercourses.

6: Open Low Shrubland of *Acacia arida* and *Acacia hilliana* over *Triodia wiseana* and *Dampiera candidans* on slopes and hilltops.

7: Hummock Grassland of *Triodia longiceps* with scattered *Acacia bivenosa*, *Acacia synchronicia* and *Acacia ptychophylla* on flats and lower slopes.

8: Hummock Grassland of *Triodia longiceps* and *Triodia wiseana* with occasional *Grevillea wickhamii* subsp. *hispidula* on flats and lower slopes.

10: Hummock Grassland of *Triodia basedowii*, *Triodia pungens* and *Triodia wiseana* with *Acacia bivenosa*, *Acacia pyrifolia* var. *morrisonii*, *Acacia synchronicia*, *Hakea lorea* subsp. *lorea* and emergent *Corymbia hamersleyana* and *Corymbia aspera* on undulating plains and slopes.

11: Closed Bunch Grassland of **Cenchrus ciliaris* and *Triodia longiceps* with scattered *Acacia bivenosa* and *Acacia trachycarpa* shrubs on red sandy flats.

*indicates introduced species

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 is not likely to be at variance to this Principle

The application area occurs within the Chichester subregion of the Pilbara Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). This subregion is characterised by plains supporting a shrub steppe of *Acacia inaequilatera* over *Triodia wiseana* hummock grasslands, while *Eucalyptus leucophloia* tree steppes occur on ranges (CALM, 2002).

A total of 18 flora and vegetation surveys have been conducted across Pilbara Manganese's Woodie Woodie tenements between 1994 and 2010 (Pilbara Manganese, 2014). The Woodie Woodie tenements include the application area along with surrounding tenements. A total of 335 vascular plant taxa, from 136 genera and 48 families, have been recorded in the Woodie Woodie tenements (MBS Environmental, 2010b). The most prevalent families are Fabaceae, Poaceae, Malvaceae, Amaranthaceae and Chenopodiaceae (MBS Environmental, 2010b).

No Threatened or Priority Flora have been recorded within the application area during the flora and vegetation surveys or have previously been recorded within the application area (Pilbara Manganese, 2014; GIS Database). Four Priority Flora species have been recorded in surrounding Woodie Woodie tenements: *Aristida jerichoensis* var. *subspinulifera* (P1), *Lepidium amelum* (P1), *Euphorbia clementii* (P2) and *Goodenia* sp. East Pilbara (P3) (Pilbara Manganese, 2014). No Priority Flora have been recorded in the application area (Pilbara Manganese, 2014). Given that the Priority Flora are not located within the application area, the proposed clearing is unlikely to impact significant habitat for these species.

Ten introduced flora species were recorded within the Woodie Woodie tenements. Weed presence was generally low with Kapok Bush (*Aerva javanica*) impacting some areas (MBS Environmental, 2010b). Care must be taken to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

Western Wildlife has undertaken two detailed spring and autumn fauna surveys over the Woodie Woodie tenements between October 2006 and April 2009 (Pilbara Manganese, 2014). Five fauna habitat types were identified within the application area and these are common and widely represented in the region (Pilbara Manganese, 2014). A total of five amphibian, 60 reptile, 95 bird and 23 mammal species have been observed in the Woodie Woodie area (Pilbara Manganese, 2014).

The landforms, vegetation and habitats of the application area are common and widely represented in the region (Pilbara Manganese, 2014). Furthermore, the application area is in close proximity to existing mining areas. The application area is unlikely to have greater biodiversity than other undisturbed areas in the locality.

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

Methodology CALM (2002)
MBS Environmental (2010b)
Pilbara Manganese (2014)
GIS Database:
- IBRA WA (Regions - Subregions)
- Threatened and Priority Flora
- 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 is not likely to be at variance to this Principle**

Western Wildlife has undertaken two detailed spring and autumn fauna surveys over the Woodie Woodie tenements between October 2006 and April 2009 (Pilbara Manganese, 2014). These were Level 2 surveys in accordance with *EPA Guidance Statement 56* (2004) and included trapping for reptiles, amphibians and small mammals; spotlighting and head-torching; bat surveys; bird surveys; and recording of opportunistic sightings (Pilbara Manganese, 2014). Western Wildlife undertook two Level 1 fauna surveys that cover the application area in May 2006 and May 2010 (Pilbara Manganese, 2014).

A total of nine fauna habitats were identified within the Woodie Woodie project area and five of these are present within the application area:

- Eucalyptus and Melaleuca fringed creeklines;
- Scrub/Triodia hummock grassland on low rocky hills and mesas;
- Triodia hummock grassland dominated plains;
- Tall shrubland of Acacia; and
- Spinifex on lower slopes and flats (Pilbara Manganese, 2014).

The land systems, vegetation and habitats of the project area are common and widely represented in the region (Pilbara Manganese, 2014). The application area does not contain any unusual habitats such as caves or permanent pools (Pilbara Manganese, 2014; GIS Database).

Western Wildlife identified 13 fauna species listed under the *Wildlife Conservation Act 1950* (WC Act) or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) as potentially occurring within the Woodie Woodie tenements. Of these 13, most have been assessed as having very low likelihood of occurring within the application area due to lack of suitable habitat (Pilbara Manganese, 2014). Five Schedule 1 or Migratory species have been recorded within the Woodie Woodie tenements:

- Rainbow Bee-eater (*Merops ornatus*) (Migratory under EPBC Act; Schedule 3);
- Wood Sandpiper (*Tringa glareola*) (Migratory under EPBC Act; Schedule 3);
- Common Sandpiper (*Tringa hypoleucos*) (Migratory under EPBC Act; Schedule 3);
- Great Egret (*Ardea alba*); (Migratory under EPBC Act); and
- Pilbara Orange Leaf-nosed Bat (*Rhinonicteris aurantius*) (Vulnerable under EPBC Act; Schedule 1) (Pilbara Manganese, 2014).

The Rainbow Bee-eater is a common migratory species that has been commonly recorded in the Woodie Woodie area by Western Wildlife (Western Wildlife, 2010). This avifauna species is highly mobile and a common species and the development of the application area is unlikely to significantly impact the species (Western Wildlife, 2010). The Wood Sandpiper, Common Sandpiper and Great Egret are all wide ranging migratory species and suitable wetland habitats are not present in the application area (Western Wildlife, 2010; Pilbara Manganese, 2014). Calls of the Pilbara Orange Leaf-nosed Bat were recorded in the April 2009 fauna survey indicating that the species does forage within the Woodie Woodie tenements (Pilbara Manganese, 2014). The Pilbara Orange Leaf-nosed Bat requires warm and humid roost sites and few roost sites have been recorded in the Pilbara. The small gorges and caves present in the Woodie Woodie tenements are not suitable as roost sites for this bat species (Pilbara Manganese, 2014).

Five Department of Parks and Wildlife (DPaW) Priority Fauna species have a moderate to high likelihood of occurring within the Woodie Woodie tenements (Pilbara Manganese, 2014):

- Long-tailed Dunnart (*Sminthopsis longicaudata*) (Priority 3);
- Australian Bustard (*Ardeotis australis*) (Priority 4);
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4);
- Grey Falcon (*Falco hypoleucos*) (Priority 4);
- Western Star Finch (*Neochmia ruficauda* subsp. *clarescens*) (Priority 4);

The Australian Bustard inhabits a wide range of habitats which the birds can easily move between. Consequently, the proposed clearing is unlikely to significantly impact on the species (Pilbara Manganese, 2014).

No mounds of the Western Pebble-mound Mouse have been found within the application area. Inactive mounds have been found throughout the Woodie Woodie tenements, indicating that suitable habitat is widely

available, however no active mounds have been found (Pilbara Manganese, 2014).

The Western Star Finch has been observed along creeklines and in emergent vegetation around sediment ponds within the Woodie Woodie tenements (Pilbara Manganese, 2014). While some vegetation along watercourses will be cleared, there is expected to be minimal impact as this species is very mobile (Pilbara Manganese, 2014).

The Long-tailed Dunnart and Grey Falcon have not been recorded during the Woodie Woodie fauna surveys and the proposed clearing is unlikely to significantly impact on these species (Pilbara Manganese, 2014).

The habitats within the application area are common on both a local and regional scale and are therefore not likely to comprise of significant habitat for fauna.

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

Methodology Pilbara Manganese (2014)
Western Wildlife (2010)
GIS Database:
- Pearana 80cm Orthomosaic - Landgate 2007

(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

According to available databases there are no known records of Threatened Flora within the application area (GIS Database).

A total of 18 flora and vegetation surveys have been conducted across Pilbara Manganese's Woodie Woodie tenements between 1994 and 2010 (MBS Environmental, 2010b). Flora and vegetation surveys over the tenements of the application area were conducted by botanists from Mattiske Consulting (2007a, 2007b) and MBS Environmental (2010a). No Threatened Flora have been recorded within the Woodie Woodie tenements (MBS Environmental, 2010b).

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

Methodology Mattiske Consulting (2007a)
Mattiske Consulting (2007b)
MBS Environmental (2010a)
MBS Environmental (2010b)
GIS Database:
- Threatened and Priority 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.

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

A search of available databases revealed there are no known Threatened Ecological Communities (TECs) within the application area (GIS Database). The nearest recorded TEC is located approximately 220 kilometres south-west of the application area (GIS Database).

No TECs were identified during the flora and vegetation surveys conducted by Mattiske Consulting and MBS Environmental botanists over the application area (MBS Environmental, 2010b).

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

Methodology MBS Environmental (2010b)
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 clearing application area falls within the Pilbara Interim Biogeographic Regionalisation for Australia (IBRA) bioregion in which approximately 99.6% of the pre-European vegetation remains (Government of Western Australia, 2013; GIS Database).

The vegetation of the clearing application area has been broadly mapped as Beard vegetation association 173 'Hummock grasslands, shrub steppe; kanji over soft spinifex and *Triodia wiseana* on basalt' (Government of Western Australia, 2013; GIS Database). Approximately 99.7% of this Beard vegetation association remains at the state and bioregional level (Government of Western Australia, 2013).

The vegetation under application is not a remnant of vegetation in an area that has been extensively cleared.

	Pre-European Area (ha)*	Current Extent (ha)*	Remaining %*	Conservation Status**	% Pre - European Extent in All DPaW - Managed Land
IBRA Bioregion – Pilbara	17,808,657	17,733,583	~99.6	Least Concern	8.37
Beard Veg Assoc. – State					
173	1,753,104	1,748,261	~99.7	Least Concern	13.62
Beard Veg Assoc. – Bioregion					
173	1,752,521	1,747,678	~99.7	Least Concern	13.62

* Government of WA (2013)

** Department of Natural Resources and Environment (2002)

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

Methodology Department of Natural Resources and Environment (2002)
Government of Western Australia (2013)
GIS Database:
- IBRA WA (Regions - Subregions)
- Pre-European Vegetation

(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 is at variance to this Principle

There are no permanent watercourses or wetlands within the application area, however, there are several mapped ephemeral drainage lines (Pilbara Manganese, 2014; GIS Database) which intersect the application area.

Plant communities 1,3 and 5 have all been recorded along major/ minor ephemeral watercourses (Pilbara Manganese, 2014), however, all of these plant communities and the ephemeral drainage lines with which they are associated, are common throughout the Woodie Woodie tenements (Pilbara Manganese, 2014).

Based on the above, the proposed clearing is at variance to this Principle, however, the proposed clearing associated with watercourses is unlikely to have any significant environmental impact.

Methodology Pilbara Manganese (2014)
GIS Database:
- Hydrography, Linear

(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 area intersects the Coongimah Land System (GIS Database).

The Coongimah Land System is characterised by plateau surfaces, low hills with steep slopes and undulating uplands supporting hard spinifex grasslands (Van Vreeswyk et al., 2004). This land system is generally not prone to degradation and has a very low erosion risk (Van Vreeswyk et al., 2004).

The water table in the clearing permit application area is sufficiently deep so that clearing of vegetation will not cause a major rise in the water table to result in soil salinity (Pilbara Manganese, 2014). Although the land systems are stable, the amount of proposed clearing is large (71.6 hectares). Rehabilitation including revegetation of cleared areas will be carried out following completion of mining, minimising the long term impact of land degradation (Pilbara Manganese, 2014). However, in the short term there is a risk of wind and water erosion if any susceptible areas are left cleared for long periods of time. Potential impacts from erosion may be minimised by the implementation of a staged clearing condition.

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

Methodology Pilbara Manganese (2014)
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 proposed clearing is not located within a conservation reserve (GIS Database). The nearest conservation area is the ex-Meentheena pastoral lease, a former leasehold proposed for conservation, which is located approximately 47 kilometres north-west 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:
- DPaW Tenure

(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 is not likely to be at variance to this Principle

There are no permanent watercourses or wetlands within the application area, however, the application area does intersect several minor non-perennial watercourses (GIS Database).

The groundwater and surface water of the Woodie Woodie region is well documented with 15 years of monitoring data from bores, discharge water and upstream and downstream surface water flow in creeks and rivers (Pilbara Manganese, 2014). The pH ranges between 7.2 and 8.6 and the water is generally fresh to brackish with approximately 350 - 850 milligrams/L total dissolved solids (TDS). The quality of groundwater is indicative of the basin receiving rapid recharge from infiltrating rainwater (Pilbara Manganese, 2014).

The depth of the water table is greater than 30 metres, therefore, the impact of vegetation removal on the groundwater levels will not be significant (Pilbara Manganese, 2014). The low density of vegetation and arid climate act to minimise the effect of vegetation removal on surface water runoff (Pilbara Manganese, 2014). Monitoring of water quality downstream of previous clearing on the Woodie Woodie mine site has not identified any long-term effects and it is anticipated the current proposed clearing will have similar impacts as those observed for previous projects (Pilbara Manganese, 2014).

The application area is not within a Public Drinking Water Source Area (PDWSA) (GIS Database). The nearest PDWSA is Nullagine Water Reserve which is located approximately 110 kilometres west of the application area (GIS Database).

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

Methodology Pilbara Manganese (2014)
GIS Database:
- Hydrography, Linear
- Public Drinking Water Source Areas (PDWSAs)

(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 application areas are located in an arid region where the average annual evaporation rate greatly exceeds the average annual rainfall (Pilbara Manganese, 2014; GIS Database). There are no permanent watercourses within the application areas, however, several ephemeral drainage lines dissect the proposed clearing areas (GIS Database). These drainage lines are expected to be dry for most of the year, and would likely only flow briefly immediately following significant rainfall.

Natural flood events do occur in the Pilbara region following cyclonic activity. However, the proposed clearing is not expected to increase the incidence or intensity of such events given the size of the area to be cleared (71.6 hectares) in relation to the Oakover River catchment area (2,001,756 hectares) (GIS Database).

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

Methodology Pilbara Manganese (2014)
GIS Database:
- Evaporation Isopleths
- Hydrographic Catchments - Catchments
- Hydrography, Linear
- Rainfall, Mean Annual

Planning instrument, Native Title, RIWI Act Licence, EP Act Licence, Works Approval, Previous EPA decision or other matter.

Comments

There is one Native Title Claim (WC99/8) 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 are no registered Aboriginal Sites 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 Parks and Wildlife 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 23 June 2014 by the Department of Mines and Petroleum inviting submissions from the public. One submission was received raising concerns about the cumulative impacts of clearing. This is addressed in Principle (e).

Methodology GIS Database:

- Aboriginal Sites of Significance
- Native Title Claims - Registered with the NNTT

4. References

- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographical Subregions. 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.
- Government of Western Australia (2013) 2013 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). WA Department of Environment and Conservation, Perth.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
- Mattiske Consulting (2007a) Flora and Vegetation Survey of Tenement M45/430 (including Big Mac, Ghost, Hunter, Sardine, Topvar and Whodowe Prospects), Woodie Woodie. Unpublished Report Prepared by Mattiske Consulting Pty Ltd for Consolidated Minerals Limited, October 2007.
- Mattiske Consulting (2007b) Flora and Vegetation Survey of the East Tenement, Woodie Woodie. Unpublished Report Prepared by Mattiske Consulting Pty Ltd for Consolidated Minerals Limited, October 2007.
- MBS Environmental (2010a) Flora and Vegetation Survey of Comet/Minnow, Hunter, Austin South, Dories, Brumby, Malta, Elle, Elegant, Old Camp, Plug and Canyon Prospects, Woodie Woodie. Prepared by Martinick Bosch Sell Pty Ltd for Consolidated Minerals, July 2010.
- MBS Environmental (2010b) Site Wide Flora and Vegetation Report Woodie Woodie Manganese Operations. Prepared by Pilbara manganese Pty Ltd for Pilbara Manganese Pty Ltd, September 2010.
- Pilbara Manganese Pty Ltd (2014) Woodie Woodie Operations Clearing Permit (Purpose Permit) Application, Topvar Project Area: Native Vegetation Management Plan and Assessment of Clearing Principles. Prepared by Pilbara Manganese Pty Ltd, Consolidated Minerals, May 2014.
- Van Vreeswyk A.M.E., Payne A.L., Leighton K.A. and Hennig P. (2004) Technical Bulletin - An Inventory and Condition Survey of the Pilbara Region, Western Australia, No. 92. Department of Agriculture, Perth, Western Australia.
- Western Wildlife (2010) Woodie Woodie Prospect Areas: Homestead, Parrot, Lucy Mack North, Canyon and Sardine. Level 1 Fauna Survey May 2010. Prepared by Western Wildlife for MBS Environmental, June 2010.

5. Glossary

Acronyms:

BoM	Bureau of Meteorology, Australian Government
DAA	Department of Aboriginal Affairs, Western Australia
DAFWA	Department of Agriculture and Food, Western Australia
DEC	Department of Environment and Conservation, Western Australia (now DPaW and DER)
DER	Department of Environment Regulation, Western Australia
DMP	Department of Mines and Petroleum, Western Australia
DRF	Declared Rare Flora
DotE	Department of the Environment, Australian Government
DoW	Department of Water, Western Australia
DPaW	Department of Parks and Wildlife, Western Australia

DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (now DotE)
EPA	Environmental Protection Authority, Western Australia
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
PEC	Priority Ecological Community, Western Australia
RIWI Act	<i>Rights in Water and Irrigation Act 1914</i> , Western Australia
s.17	Section 17 of the <i>Environment Protection Act 1986</i> , Western Australia
TEC	Threatened Ecological Community

Definitions:

{DPaW (2013) Conservation Codes for Western Australian Flora and Fauna. Department of Parks and Wildlife, Western Australia}

- T Threatened species:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 1 of the Wildlife Conservation (Specially Protected Fauna) Notice for Threatened Fauna or the Wildlife Conservation (Rare Flora) Notice for Threatened Flora (which may also be referred to as Declared Rare Flora).
Threatened Fauna and Flora are further recognised by the Department according to their level of threat using IUCN Red List criteria. For example Carnaby's Cockatoo *Calyptorhynchus latirostris* is specially protected under the *Wildlife Conservation Act 1950* as a threatened species with a ranking of Endangered.
- Rankings:
CR: Critically Endangered - considered to be facing an extremely high risk of extinction in the wild.
EN: Endangered - considered to be facing a very high risk of extinction in the wild.
VU: Vulnerable - considered to be facing a high risk of extinction in the wild.
- X Presumed Extinct species:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice for Presumed Extinct Fauna and Wildlife Conservation (Rare Flora) Notice for Presumed Extinct Flora (which may also be referred to as Declared Rare Flora).
- IA Migratory birds protected under an international agreement:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice.
Birds that are subject to an agreement between governments of Australia and Japan, China and the Republic of Korea relating to the protection of migratory birds and birds in danger of extinction.
- S Other specially protected fauna:**
Specially protected under the *Wildlife Conservation Act 1950*, listed under Schedule 4 of the Wildlife Conservation (Specially Protected Fauna) Notice.
- P1 Priority One - Poorly-known species:**
Species that are known from one or a few collections or sight records (generally less than five), all on land not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, rail reserves and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
- P2 Priority Two - Poorly-known species:**
Species that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, unallocated Crown land, water reserves, etc. Species may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
- P3 Priority Three - Poorly-known species:**
Species that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities 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 localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
- P4 Priority Four - Rare, Near Threatened and other species in need of monitoring:**
- 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.
 - Near Threatened. Species that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable.
 - Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

P5

Priority Five - Conservation Dependent species:

Species that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

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 indigenous to Western Australia.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare 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 clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

