Central Queensland Coal Project

Appendix 19 – Vegetation Map Amendment

Supplementary Environmental Impact Statement

Central QueenslandCoal

11 October 2018

Michael Robinson – Principal Environmental Assessment Officer

Department of the Environment and Science

Level 8

George St

Brisbane Qld 4001

Dear Michael

Regional Ecosystem Assessment Request

The purpose of this letter is to provide the appropriate data required for an amendment to the DNRME/ Queensland Herbarium vegetation mapping associated with lands required for the Central Queensland Coal Project – portions of Lot 10 on MC493 and Lot 11 on MC23.

This package of assessment information comprises the following:

1. Proposed amendment area comprising portions of Lot10/MC493 and Lot 11/MC23.
2. Proposed revised regional ecosystem mapping GIS database with RE and individual polygon ID numbers assigned.
3. Excel database providing structural and floristic details of 30 biocondition sites surveyed during the assessment process (as per the Guide to Determining Terrestrial Habitat Quality – Version 1.2, 2017).
4. Excel database providing structural and floristic details of three secondary survey sites and 22 quaternary survey sites established during the assessment process (in accordance with methodology prescribed in Neldner et al., 2017).
5. Associated spatial files for all survey locations in KMZ and ESRI Shapefile format.
6. Site photography for representative survey sites.

Should you require additional information I can be contacted on 0418 872 181 or by email nharris@cqcoal.com.au

Nui Harris

Managing Director

Central Queensland Coal Pty Ltd and Fairway Coal Pty Ltd

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A 1.1 Sheet A – Assessment area summary

Insert "y" or "n" in each of the boxes

Remnant/non-remnant	Y	Based on height	Y	Based on cover	Y	Based on species	Y
Regional ecosystem	Y	Based on land zone	Y	Based on species	Y	Based on other	Y

- Desktop assessment only — N
- Field traverse and desktop assessment — Y

Request details

Assessor/agency/location/email David Stanton, 3D Environmental		**Client:**	**Nui Harris – Central Qld Coal**
		Postal	**GPO Box 1538 Brisbane Q 4001**
Ph:0447822119 Email:			
davidstanton@3denvironmental.com.au			
Date:	**11 October 2018**	**'Phone no.**	**38322044**
Lot/Plan:	**Lot 10 on MC493***	**Owner:**	**Central Qld Coal/Fairway Coal**
	Lot 11 on MC23 (portions)*	**Postal**	**As above**
		'Phone no.	**38322044**
		Email	**www.waratahcoal.com**

Mapsheet Name.* (1:100 000)	**Marlborough**
Mapsheet No.	**N/A**
Local Govt. Area	**Livingstone Shire Council**

Aerial photography*

Mapsheet Name/Number	Film No.	Date	Run	Frame	Scale	Colour
Marlborough	**QAP5220**	**1994**	**4**	**051-053**	**1:40,000**	**N**
			5	**066-068**	**1:40,000**	**N**

Satellite images (indicate the series of images used, for example: ***1988, 1991, 2003***)

Bing Imagery (2016) and Google Earth (2012) utilised to establish current vegetation / clearing boundaries.

*The map amendments for review are restricted to a ML dominating Lot 10MC493 and two small portions of Lot11MC23 to be set aside of environmental offsets. It should be noted the assessment is not seeking to reduce the amount of remnant vegetation within the assessment area - the assessment increases the overall amount of remnant vegetation in the assessment area and increases the extent of Of Concern remnant vegetation within the assessment area. As such, the aerial photographic review imagery is not presented here.

Notes : summary of changes

The map amendments for review are restricted to a ML dominating Lot 10MC493 and two small portions of Lot11MC23 to be set aside for the purpose of environmental offsets. It should be noted the assessment is not seeking to reduce the amount of remnant vegetation in the assessment area - the assessment increases the overall amount of remnant vegetation in the assessment area and increases the extent of Of Concern remnant vegetation within the assessment area.

The major changes proposed reflect a refinement of current certified regional ecosystem mapping (i.e Vegetation management regional ecosystem map – Version 10.1; DNRM, August 2018). A summary of proposed changes to RE mapping, referenced to survey site, is provided in **Table 1** below where changes to RE code are indicated. Survey sites associated with the survey and proposed mapping are depicted in **Figure 1**. Changes to the proposed RE mapping are depicted in **Figure 2**. Major changes are associated with:

1. Preparation of a revised, spatially accurate representation of vegetation remnant / non-remnant boundaries at 1:50 000 scale.
2. Refinement of heterogeneous polygons represented in certified RE Mapping through field survey and aerial photographic interpretation so that individual RE polygons have been delineated.
3. A refinement of the mapping of relict (Pleistocene) alluvial terraces and their associated regional ecosystems, typically RE11.4.2 with patches of RE11.4.9.
4. Refined mapping of Quaternary floodplain vegetation associated with the major drainage systems of Tooloombah and Deep Creeks. This included the mapping of a fringe of RE11.3.35 consistently associated with a secondary flood plain terrace, the mapping of small areas of wetland vegetation (RE11.3.27), and the mapping of a small area of notophyll vine thicket (RE11.3.11).
5. Delineation of a circular wetland feature classified as RE11.3.12 which is not recognised in certified RE mapping.
6. Additional spatial refinements to mapping of REs where a specific need for refinement is identified.

Some specific points critical to the classification of REs in the amendment area are detailed in the following information.

RE11.4.2 / 11.4.9 and Relict Alluvial Plains: RE11.4.2 is consistently mapped in the certified RE mapping (Version 10.1) as being associated with a relict (probably Pleistocene age) alluvial plain. This plain is extensive and continuous over a broad regional area extending from footslopes to the coastal margins. While Land Zone 4 is typically associated with heavy clay soils with shrink-swell capacity (vertosols), no areas currently mapped as RE11.4.2 in the amendment area are associated with this soil morphology. Within the amendment area, RE11.4.2 occupies a broad continuous planar land surface ¬formed on deep loamy clay soils (typically dermosols and/ or kandosols), often with a fine ironstone gravel lag exposed on the surface. The margins of the relict plain are generally strongly eroded exposing a soil profile with a depth typically > 3 to 5m with no evidence of basement

rock exposure in associated gully incisions. The extent of this landform feature and associated RE11.4.2 has been extended southward along the western margins of Deep Creek where this relict alluvial terrace is well developed and clearly identified in both field assessment and review of stereo imagery. The mapping of RE11.4.2 in this locality replaces RE11.11.15a, which it is associated with footslopes formed on basement rock.

Based on landform and soil morphology, this broad planar landform may be better classified as Land Zone 5, although due to the extent of similar landforms represented as Land Zone 4 in the certified RE mapping, there is little impetus to request change the land zone classification.

Similarly, in all occurrences currently mapped as RE11.4.2, ironbark (*Eucalyptus crebra*) is the dominant species mixed with decreasing portions of poplar box (*Eucalyptus populnea*), poplar gum (*Eucalyptus platyphylla*) and Dallachy's bloodwood (*Corymbia dallachiana*). While ironbark is not excluded as a constituent of RE11.4.2 in the Regional Ecosystem Description Database (REDD), its consistent dominance across large areas is noted as a variation of a more typical floristic expression of RE11.4.2 where poplar box is the dominant species.

While there are vertosols with well-developed gilgai microtopography associated with relict alluvial features in the amendment area, these soils have invariably been cleared for pastoral purposes with only scattered remnants of the original brigalow dominant vegetation (RE11.4.9) persisting in the landscape.

Table 1. Summary of proposed RE mapping changes

Site No	Mapped RE (DNRM)	Proposed RE	Polygon ID	Notes
Biocondition Sites				
Biocondition 1	11.4.2	11.4.2		
Biocondition 2	11.3.25	11.3.25		
Biocondition 3	11..3.25	11.3.25		
Biocondition 4	11.4.2	11.4.2		
Biocondition 5	11.4.2	11.4.2		
Biocondition 6	11.3.25	11.3.25		
Biocondition 7	11.3.25	11.3.11	61	Small patch of notophyll vine thicket that has been delineated from a broader area of riparian open forest.
Biocondition 8	11.3.25	11.3.25		
Biocondition 9	11.3.25	11.3.25		
Biocondition 10	11.4.9	11.3.35	60	Area of currently mapped RE11.4.9 in Version 10.1 data is not present at this location. Vegetation in the vicinity has been re-mapped, representing with a mix of RE11.3.35, 11.3.27 and 11.4.2 as confirmed during field assessment.
Biocondition 11	11.4.9	11.3.27	56	As for Biocondition 10.
Biocondition 12	Non-remnant	Non-remnant (11.4.9 –	50	Small patch of brigalow (RE11.4.9) is mapped in this locality. The patch is approximately 0.6ha and is considered too small to be represented as

Site No	Mapped RE (DNRM)	Proposed RE	Polygon ID	Notes
		Patch Size Limited)		remnant vegetation as per methodology defined in Neldner et al (2017)
Biocondition 13	11.3.25	11.3.25		
Biocondition 14	11.5.8a/11.7.2	11.3.12	47	Circular swamp depression with heavy alluvial clay soils has been differentiated from broader area of remnant vegetation.
Biocondition 15	11.11.15a	11.11.15a		
Biocondition 16	11.11.15a	11.4.2	36	This site is located on a relict alluvial terrace adjacent to Deep Creek. The terrace is situated above current flood levels. Gully incisions indicate an alluvial (silty loam) soil profile down to depths below 3m with no indications of basement rock exposed in gullies or the main creek channel. Vegetation and geomorphology is consistent with other patches of RE11.4.2 mapped by DNRM to the north (see Biocondition 1, 4, 5 etc). It is noted that RE11.4.2 is mapped by DNRM on the eastern side of Deep Creek and this polygon represents an extension of this vegetation association to the west.
Biocondition 17	11.11.15a	11.4.2	35	As Biocondition 16
Biocondition 18	11.11.15a	11.4.2	35	As Biocondition 16
Biocondition 19	11.11.15a	11.4.2	29	As Biocondition 16
Biocondition 20	11.3.25	11.3.25		
Biocondition 21	11.11.15a	11.4.2	29	As Biocondition 16
Biocondition 22	11.11.15a	11.4.2	21	As Biocondition 16
Biocondition 23	11.11.15a	11.4.2	21	As Biocondition 16
Biocondition 24	11.3.25	11.3.25		
Biocondition 25	11.3.25	11.3.25		
Biocondition 26	11.11.15a	11.4.2	21	As Biocondition 16
Biocondition 27	Non-remnant	11.4.2	8	
Biocondition 28	11.3.25	11.3.25		
Biocondition 29	11.3.25	11.3.25		
Biocondition 30	Non-remnant	11.4.2	26	Intact remnant vegetation identified at this locality which is consistent both in vegetation structure, composition and landform position with other vegetation mapped as RE11.4.2 surveyed in the amendment area.
Secondary Sites				
Secondary 1	11.4.2	11.4.2		Vegetation at this location occupies a relict alluvial terrace that sits above the current flood levels of

Site No	Mapped RE (DNRM)	Proposed RE	Polygon ID	Notes
				Deep Creek. A secondary river terrace that sits topographically below this feature is characterised by RE11.3.35.
Secondary 2	11.4.2	11.4.2		As per Secondary 1
Secondary 3	11.4.2	11.3.35	60	Occupies a secondary river terrace that demonstrates evidence of recent flood activity and overbank flow.
Quaternary Sites				
Q1	11.11.15a	11.3.35	37	A fringe of *Eucalptus platyphylla* dominant woodland occupies a secondary flood terrace of Deep Creek. This secondary terrace is subject to periodic overbank flow as indicated by numerous associated flood overflow channels. This RE is consistently associated with this geomorphic position along the entire creek frontage.
Q2	11.11.15a	11.11.15a		
Q3	11.11.15a	11.3.35	34	As Q1
Q4	11.11.15a	11.4.2	34	Minor ephemeral watercourse below limits of mapping resolution.
Q5	11.11.15a	11.11.15a		
Q6	11.11.15a	11.4.9	24	Patch of brigalow/ vine thicket associated with a small area of heavy clay/ vertosol. The feature sits on a relict clay plain immediately east of the break between the footslope formed on basement rock and the relict plain.
Q7	11.11.15a	11.11.15a		
Q8	Non-remnant	Non-remnant		
Q9	11.11.15a	11.11.15a		
Q10	Non-remnant	Non-remnant		
Q11	11.3.25	11.3.35	6	As per Q1
Q12	11.11.15a	11.11.15a		
Q13	11.11.15a	11.11.15a		
Q14	11.11.15a	11.11.15a		
Q15	11.11.15a	11.11.15a		
Q16	11.11.15a	11.3.25	31	Narrow ephemeral drainage line with poorly developed riparian fringing vegetation.
Q17	11.11.15a	11.11.15a		
Q18	11.4.2	11.3.35	60	Site is located on a secondary river terrace subject to episodic flooding. Topographically higher relict

Site No	Mapped RE (DNRM)	Proposed RE	Polygon ID	Notes
				terrace with associated RE11.4.2 is situated to the west of this locality.
Q19	11.4.2	11.3.35	60	As per Q18
Q20	11.4.2	11.3.27	51	Well-developed overflow flood channel with associated riparian vegetation. Hugs the base of relict alluvial terrace.
Q21	11.4.2	11.3.35	60	As per Q18
Q22	Non-remnant	11.3.4	9	Minor area of remnant woodland vegetation associated with ephemeral watercourse.
Q23	11.4.9	11.4.2	54	
Q24	11.4.9	11.4.2	52	

A 1.2 Sheet B – Assessment method summary

Date and Description of treatment

***Aerial Photographic Review*:** Available hard copy aerial photography was utilised for stereoscopic assessment, being 1:40,000-scale photography (QAP5220, Marlborough 1994. Run 4, 051-053 and Run 5, 066 -068, 1:40,000). Stereoscopic review was completed in reference to certified RE Mapping (Version 10.1) with recent satellite imagery derived from Bing Imagery (2016) and Google Earth (2012) utilised to establish current vegetation / clearing boundaries. The stereoscopic assessment allowed landform boundaries, particularly topographic boundaries between footslopes formed on basement rock and planar alluvial landforms to be demarcated with confidence. To be consistent with the state-wide RE Mapping framework, aerial photograph interpretation aimed to delineate polygons down to a minimum size of 1 ha, equating to a mapping scale of 1:50 000 (Neldner et al. 2017). Mapped polygons < 1 ha in size have been classified as non-remnant vegetation where they are isolated from surrounding remnant vegetation by clearing.

Field Survey: The field survey team consisted of two ecologists to assess the amendment site over a 9 day period split between 17th to 20th July and 6th to 10th August 2018. Survey sites were chosen from aerial photograph analysis to ensure that the field survey targeted a representative range of habitats from within the map amendment with additional sites added opportunistically throughout the field survey to provide more complete data coverage and allow verification of RE mapping units and accurately locate land zone boundaries. Field survey method followed Queensland Herbarium standards as identified in Neldner et al. (2017) with quaternary, and secondary level sites used to verify RE mapping. Additional information was collected to satisfy the *Guide to Determining Terrestrial Habitat Quality – Version 1.2* (2017) to facilitate biocondition scoring.

In total 55 vegetation survey sites were captured within the map amendment area including 30 biocondition assessment sites, 3 secondary sites and 22 quaternary assessment sites (as per **Figure 1**). Reference sites were captured in 'best on offer' vegetation for the purpose of establishing structural data against which associated RE benchmarks could be assessed. All site datasheets are attached (**Attachment A** and **B**). The revised RE mapping for the assessment area is depicted in **Figure 2** and has been supplied as shapefile data. Survey point locations have also been supplied as shapefile data. Additional site data including survey site information as a database (excel form) and site photographs can be supplied on request.

Datasheets listed as Biocondition or secondary sites contain the relevant detailed structural, floristic and landform information necessary to make an RE determination as per **Sheet D** within the RE assessment kit. These formed the bulk of the site specific assessments and were completed for:

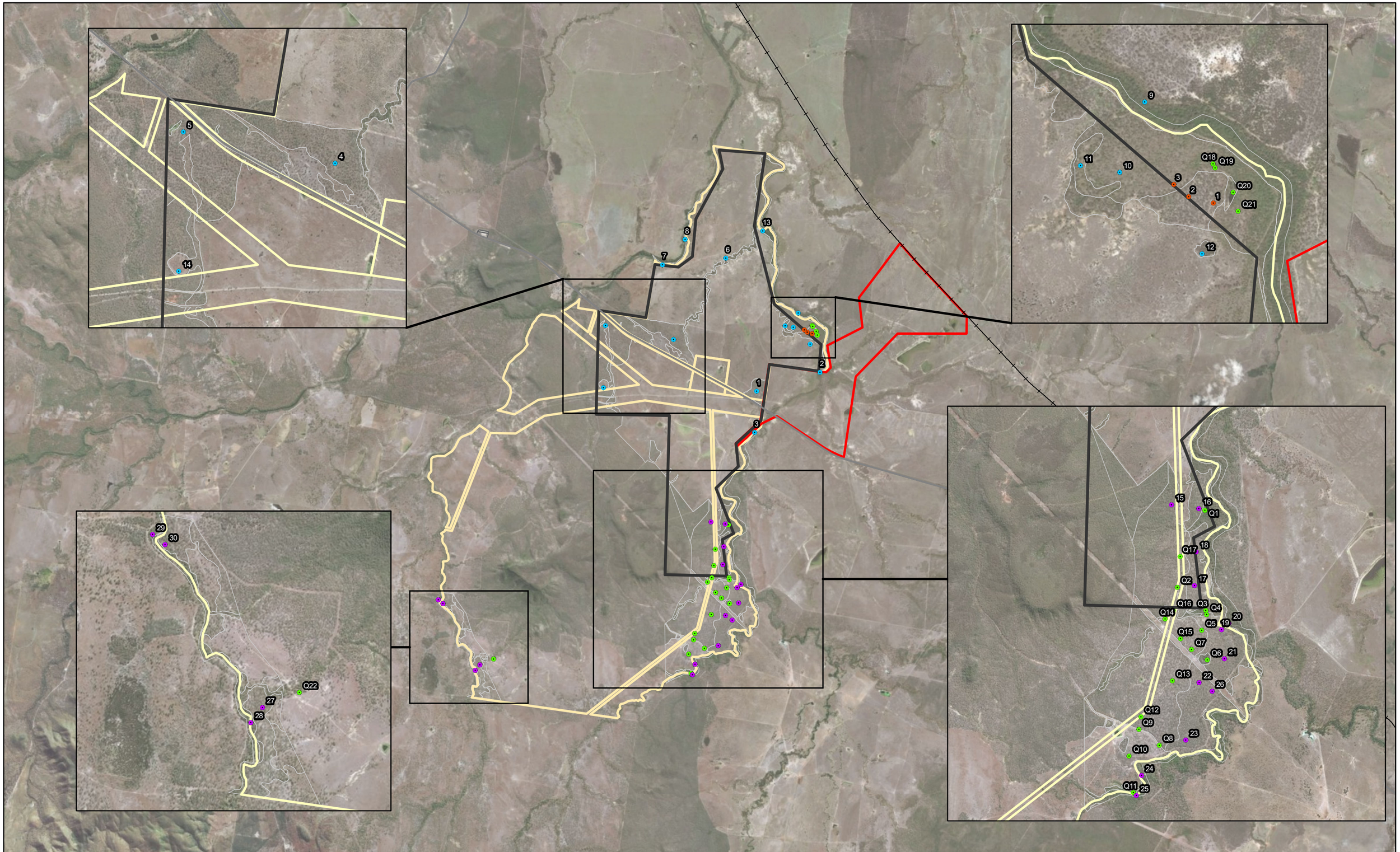
- 11.4.2 (Biocondition Sites 1, 4, 5, 16, 17, 18, 19, 21, 22, 23, 26, 27, 30; Secondary Site 1, 2)
- 11.3.25 (Biocondition Sites 2, 3, 6, 8, 9, 13, 20, 24, 25, 28, 29
- 11.3.12 (Biocondition Site 14)
- 11.3.27 (Biocondition Site 11)
- 11.3.35 (Biocondition Site 10; Secondary Site 3)
- 11.3.11 (Biocondition Site 7)
- 11.4.9 (Biocondition Site 12)
- 11.10.7 (Biocondition Site 15)

Additional Quaternary site data was collected to further delineate REs described by the Biocondition/Secondary site data and REs dominating the southern portions of the assessment area that were generally not subject to RE changes (with particular reference to RE 11.11.15a):

- 11.4.2 (Quaternary Sites 4, 23, 24)
- 11.3.25 (Quaternary Site 16)
- 11.3.4 (Quaternary Site 22)
- 11.3.27 (Quaternary Site 20)
- 11.3.35 (Quaternary Sites 1,3, 11, 18, 19, 21)
- 11.4.9 (Quaternary Site 6)
- 11.11.15a (Quaternary Sites 2, 5, 7, 9, 12, 13, 14, 15, 17
- Non-remnant (Quaternary Sites 8, 10)

Mapping Protocols: The following protocols were followed for the mapping of REs:

1. REs are mapped as individual polygons in revised mapping layers rather than heterogenous polygons.
2. Delineation of REs was completed at 1:50,000 scale with a minimum polygon size of 1 ha except where the Brigalow TEC was recognised as occurring or potentially occurring with constituent polygons mapped to TEC threshold patch size of 0.5 ha based on EPBC Act guidelines.
3. RE Polygons were assigned VM status where appropriate although were classified as non-remnant where surrounded entirely by non-remnant vegetation (i.e cleared paddocks and regrowth) with a patch size < 1 ha in size.



Legend

- ML 80187
- ML 700022
- Main Road
- Mamelon Property
- North Coast Rail Line
- Ground-truthed vegetation mapping

Survey Sites

- Field secondary sites
- Field quaternary sites
- Field biocondition sites (trip 2) Bio 15 - 30
- Field biocondition sites (trip 1) Bio 1 - 14

N

0 1 2 km

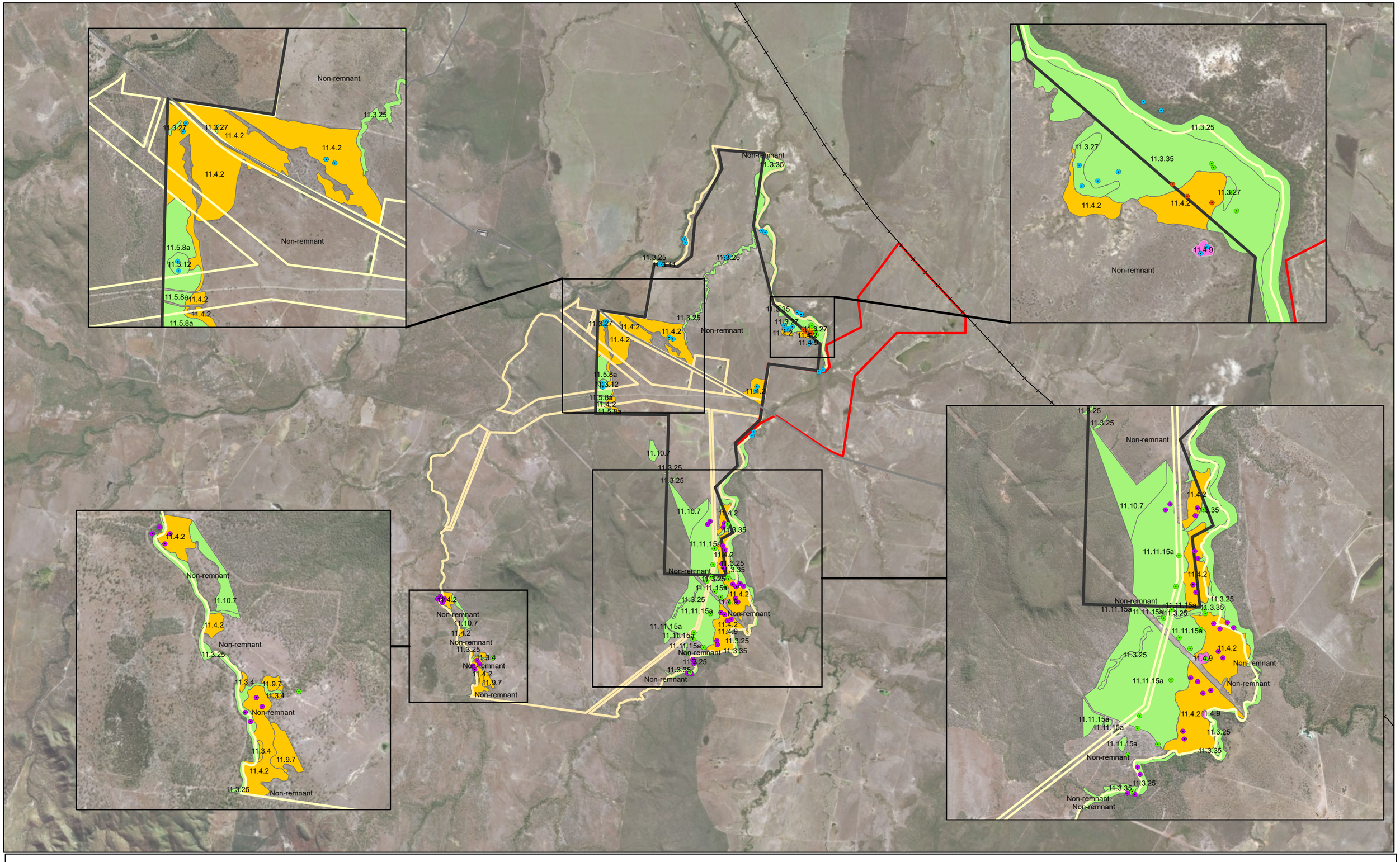
Scale @ A4 1:80,000
Date: 26/10/18
Drawn: J Parnwell

Figure 1
Revised Regional Ecosystem assessment for Central Queensland Coal Project area - survey points

DATA SOURCE
QLD Spatial Catalogue (QSpatial), 2017

CDM Smith

PARNWELLJA \\brbsvr1\PRO\Project\1000111 - Styx SEIS Post submission work\7Work\3GIS\DATA\MXD\WWBW\Figure X R2 Dave's Veg Mapping Points Only.mxd 26/10/2018



N

0 1 2 km

Scale @ A4 1:80,000
Date: 26/10/18
Drawn: J Parnwell

Legend

- ML 80187
- ML 700022
- Main Road
- Mamelon Property
- North Coast Rail Line

Regional Ecosystems

- Endangered
- Of concern
- Least concern

Survey Sites

- Field secondary sites
- Field quaternary sites
- Field biocondition sites (trip 2) Bio 15 - 30
- Field biocondition sites (trip 1) Bio 1 - 14

Figure 2
Revised Regional Ecosystem mapping for Central Queensland Coal Project area

DATA SOURCE
QLD Spatial Catalogue (QSpatial), 2017

CDM Smith

Central Queensland Coal Project

Attachment A

Vegetation Data – Biocondition Sites

Biocondition Site 1
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRME): 11.4.2
Location Start: -22.70957° E149.67046°
Location End: -22.70871° E149.67063°

Landform / Soil: Broad flat, weakly incised plain formed on silty loam with minor surface gravel

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 / 22
T2 Median Height / Cover (m/%): 13 / 19
S1 Median Height / Cover (m/%): 3 / <5

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Eucalyptus populnea	0 - 5		5		19
Eucalyptus crebra	32 - 41		9		19
Eucalyptus crebra		41 - 46		5	13
Eucalyptus crebra	52 - 55		3		19
Eucalyptus crebra		58 - 62		4	9
Eucalyptus molluccana	67 - 72		5		15
Eucalyptus crebra		74 - 79		5	9
Eucalyptus molluccana		93 - 98		5	9
Totals			**22**	**19**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	90	10	22.5	15	15
Leaf	7.5	40	40	50	47.5
Themeda triandra	2.5	30	25	20	20
Aristida calycina		10			
Cyoerus gracillis		5	10	5	
Eriachne glabrata		5			
Glycine tabacina			2.5		
Heteropogon contortus				10	15
Cyperus polystachyos					2.5
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 39cm DBH**
Eucalyptus populnea	1
Eucalyptus molluccana	4
Eucalyptus crebra	1
Total	**6**

Additional Species:

Trees:

Shrubs: Grevillea striata, Myoporum acuminatum, Maytenus cunninghamii,

Forbs: Eremophila debilus, Pterocaulon sphacelatum, Laxmannia gracilus, Enchylaena tomentosa

Exotic species: Urochloa mosambicensis*, Sida spinosa*

Summary		
Canopy Cover T1 / T2 %	21	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m	19	
No of Canopy Species Recr	100	3 out of 3 canopy trees recruiting
Large Tree Count	6	
Tree Species Richness	3	
Shrub Species Richness	3	
Grass Species Richness	4	
Forb Species Richness	7	
Native Grass Cover (%)	13.75	
Leaf Litter Cover (%)	18.5	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	19	

Biocondition Site 2
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRME): 11.3.25
Location Start: -22.70534° E149.68475°
Location End: -22.70495° E149.68562°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 25 / 69
T2 Median Height / Cover (m/%): 14 / 12
S1 Median Height / Cover (m/%): 3 / <5

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Melaleuca leucadendra	0 - 12		12		27
Melaleuca leucadendra		13 - 18		5	19
Casuarina cunninghamiana		22 - 26		4	16
Melaleuca leucadendra	28 - 35		7		23
Melaleuca leucadendra	40 - 52		12		21
Melaleuca leucadendra	48 - 86		38		28
Melaleuca leucadendra		97 - 100		3	13
Totals			**69**	**12**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	10	57.5	20	25	60
Leaf	12.5	20	20	5	30
Imperata cylindrica	70		30		
Sida cordifolia*	2.5		5		
Ageratum conyzoides*	2.5				
Praxelis clematidea*	2.5	5			
Panicum larcomianum		10	15		
Urena lobata*		1.5			
Emilia sonchifolia*		1			
Paspalideum distans		5			
Lomandra longifolia				10	
Cyperus polystachyos			10		
Chrysopogon fallax				60	
Leersia hexandra(?)					10
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**
Melaleuca leucadendra	22
Melaleuca trichostachya	2

Corymbia clarksoniana	5
Corymbia tessellaris	2
Eucalyptus camaldulensis	4
Total	**35**

Additional Species:

Trees: Lophostemon suaveolens

Shrubs: Flueggea virosa, Mallotus philippensis, Lysiphyllum caronii, Ficus opposita

Forbs: Eustrephis latifolia, Ludwigia octovalvis, Cyperus gracillis, Eremophila debilus, Cyanthilium cinereum

Exotic species: Urochloa mosambicensis*, Sida spinosa*, Macroptileum atropurpureum*, Xanthium occidentale*, Megathyrsus maximus var. trichoglume*, Lantana camara*, Asclepias curassavica

Summary		
Canopy Cover T1 / T2 %	69	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	25	
No of Canopy Species Recruiting (	60	3 out of 5 canopy trees recruiting
Large Tree Count Eucs	11	
Large Tree Count - Non-eucs	24	
Tree Species Richness	6	
Shrub Species Richness	5	
Grass Species Richness	5	
Forb Species Richness	5	
Native Grass Cover (%)	20	
Leaf Litter Cover (%)	8.75	
Non-native plant cover (%)		10 (on account of Lantana shrub cover on margins of plot)
Coarse Woody Debris (m)	64	

Biocondition Site 3
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -.22.71827° / 149.67016°
Location End: -22.71905° / 149.66979°
Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 22 / 53
T2 Median Height / Cover (m/%): 17 / 14
S1 Median Height / Cover (m/%): 3 / <5

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Casuarina cunninghamiana		0 - 6		6	12
Melaleuca fluviatilis		7 - 14.	7		17
Casuarina cunninghamiana		14 - 21.		7	13
Melaleuca leucadendra		21 - 31	10		22
Eucalyptus tereticornis		31 - 40	9		32
Corymbia tessellaris		48 - 55	7		20
Melaleuca leucadendra		54 - 60	6		21
Lophostemon suaveolens		60 - 65	5		18
Melaleuca leucadendra		65 - 74	9		21
Lophostemon grandiflorus**		5			5
Melaleuca leucadendra			84 - 88	4	17
Melaleuca leucadendra			91 - 97	6	15
Lophostemon suaveolens**		2			7
Totals			**53**	**17**	

**** = S1 cover value**

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	10	15	50	7.5	7.5
Leaf	50	65	10	70	55
Lomandra longifolia	25		40	10	15
Panicum larcomianum	10				
Themeda triandra	2.5				
Sida cordifolia*		1			
Glycine tabacina	2.5				
Eustrephis latifolius		1.5			
Imperata cylindrica		15			15
Cyanthileum cinereum		2.5			
Praxelis clematidea				2.5	2.5
Chionachne cyathopoda				10	
Macroptileum atropurpureum*					2.5
Cyperus polystachyos					2.5
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs	
Melaleuca leucadendra	14	
Lophostemon grandiflorus	3	
Eucalyptus tereticornis	4	
Total	**21**	

Additional Species:

Trees:

Shrubs: Melaleuca viminalis, Planchonea careya, Melaleuca trichostachya, Lysiphyllum cunninghamii, Acacia polystachya??, Flueggea virosa, Ficus opposita
Forbs: Cissus sp.,

Exotic species: Cryptostegia grandiflora, Crotolaria sp., Lantana camara

Summary		
Canopy Cover T1 / T2 %	53	
Shrub cover (S1/S2) %	7	
Canopy Height - Median (m)	22	
No of Canopy Species Recruiting (	80	4 out of 5 canopy trees recruiting
Large Tree Count Eucs	7	
Large Tree Count - Non-eucs	14	
Tree Species Richness	6	
Shrub Species Richness	7	
Grass Species Richness	4	
Forb Species Richness	3	
Native Grass Cover (%)	3.25	
Leaf Litter Cover (%)	25	
Non-native plant cover (%)	5	
Coarse Woody Debris (m)	89	

Biocondition Site 4
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.4.2
Location Start: -22.69900° / 149.65137°
Location End: -S22.69866° / 149.65052°

Landform / Soil: Broad flat, weakly incised plain formed on silty loam with minor surface gravel

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 20 / 45
T2 Median Height / Cover (m/%): 11 / 15
S1 Median Height / Cover (m/%): 3 / <5

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Grevillea striata			6 - 9.			3	4
Eucalyptus crebra		15 - 19			4		9
Eucalyptus crebra	33 - 55			22			22
Eucalyptus crebra		56 - 59			3		11
Maytenus cunninghamii			62 - 63			1	4
Eucalyptus crebra	64 - 76			12			19
Eucalyptus crebra	76 - 84			8			17
Eucalyptus crebra		90 - 93			3		8
Corymbia clarksoniana	97 -100			3	5		22
Totals				**45**	**15**	**4**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	15	12.5	59	55	25	
Leaf	58	20	13	10	38	13.85
Heteropogon contortus	20	15	15			
Borthriochloa sp.??		50	10	30	25	
Aristida sp.					10	17.5
Glycine tabacina	2.5	2.5				
Grewia retusifolia	2.5				2.5	
Cyperus gracillis	1					
Brunoniella australis	1		1			
Cyperus sp.			2	2.5		
Stylosanthes humilis				2.5		
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 39cm DBH**
Eucalyptus platyphylla	1
Eucalyptus Crebra	15
Total	**16**

Additional Species:

Trees: Eucalyptus platyphylla

Shrubs: Atalaya hemiglauca, Alphitonia excelsa, Pogonolobus reticulatus, Melaleuca viridiflora, Melaleuca nervosa

Grass: Cymbopogon refractus, Enteropogon acicularis, Eriachne glabrata, Leptochloa decipiens, Eragrostis leptostachya, Themeda triandra

Forbs:

Exotic species:

Summary		
Canopy Cover T1 / T2 %	45	
Shrub cover (S1/S2) %	4	
Canopy Height - Median (m)	20	
No of Canopy Species Recru	60	2 out of 3 canopy trees recruiting
Large Tree Count	16	
Tree Species Richness	3	
Shrub Species Richness	6	
Grass Species Richness	7	
Forb Species Richness	6	
Native Grass Cover (%)	17.5	
Leaf Litter Cover (%)	13.85	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	47	

Biocondition Site 5
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.4.2
Location Start: -22.69631° / 149.63593°
Location End: -22.69549° / 149.63621°

Landform / Soil: Broad flat, weakly incised plain formed on silty loam with minor surface gravel

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 / 35
T2 Median Height / Cover (m/%): 11 / 10
S1 Median Height / Cover (m/%): 3 / <5

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus populnea	8.5 - 19			10.5			19
Eucalyptus populnea	35 - 41			6			17
Eucalyptus crebra	45 - 58			10			21
Eucalyptus populnea	63 - 74			9			21
Corymbia dallachiana		69 - 74			5		8
Eucalyptus crebra	77 - 86						22
Corymbia clarksoniana	88 - 97				5		15
Totals				**35.5**	**10**	**0**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	40	35	43	17.5	64	
Leaf	25	31.5	40	40	10	14.65
Eragrostis leptostachya	5	15				
Heteropogon contortus	10				10	
Bothriochloa sp.	15	2.5	2.5	40	10	
Eriachne glabrata	5	10				
Microleana stipoides		2.5				
Lachnogrostis filiformis			2.5			13
Stylosanthes humilis*		2.5				
Brunoniella australis		1		2.5		
Cyperus sp.			10		5	
Glycine tabacina			2.5		1	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 39cm DBH**
Eucalyptus platyphylla	4
Eucalyptus Crebra	5
Total	**9**

Additional Species:

Trees: Eucalyptus platyphylla

Shrubs: Capparis mitchellii

Grass: Aristida calycina, Cymbopogon refractus, Enteropogon acicularis, Eriachne glabrata, Leptochloa decipiens, Eragrostis leptostachya, Enteropogon acicularis

Forbs:

Exotic species: Urochloa mosambicensis*, Sporobolus sp.*

Summary		
Canopy Cover T1 / T2 %	35	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	60	3 out of 5 canopy trees recruiting
Large Tree Count	9	
Tree Species Richness	5	
Shrub Species Richness	7	
Grass Species Richness	7	
Forb Species Richness	6	
Native Grass Cover (%)	13	
Leaf Litter Cover (%)	14.65	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	39	

Biocondition Site 6
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.68167° / 149.66291°
Location End: -22.68135° / 149.66376°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 23 / 41
T2 Median Height / Cover (m/%): 11 / 25
S1 Median Height / Cover (m/%): 5 / <10

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Eucalyptus tereticornis	0 - 18		18		23
Alphitonia excelsa**		13 - 19.			8
Corymbia tessellaris	22 - 31		9		25
Eucalyptus tereticornis		37 - 41	4		23
Corymbia tessellaris		44 - 54	10		25
Eucalyptus tereticornis			62 - 70	8	16
Acacia harpophylla			72 - 80	8	11
Eucalyptus tereticornis			89 - 100	9	15
Totals			**41**	**25**	

**** = S1 cover value**

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	25	25	3.5	90	85
Leaf	30	65	90		15
Paspalideum distans	25	10	2.5		
Urochloa mutica*	20			10	
Sida cordifolia*			1.5		
Stylosanthes humilis*			2.5		
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**
Acacia harpophylla	3
Corymbia tessellaris	2
Eucalyptus tereticornis	6
Total	**11**

Additional Species:

Trees: Flindersia australia, Acacia harpophylla

Shrubs: Mallotus philippensis, Diospyros humilis, Capparis mitchelli, Bridelia leichardtii,

Notelaea microcarpa, Geijera parviflora, Cupaniopsis anacardioides, Trophis scandens

Forbs: Eustrephis latifolius, Jasminum simplicifolium

Grass: Arundinella nepalensis

Exotic species: Cryptostegia grandiflora, Bidens bipinnata, Lantana camara

Summary		
Canopy Cover T1 / T2 %	41	
Shrub cover (S1/S2) %	6	
Canopy Height - Median (m)	23	
No of Canopy Species Recrui	100	2 out of 2 canopy trees recruiting
Large Tree Count Eucs	8	
Large Tree Count - Non-eucs	3	
Tree Species Richness	3	
Shrub Species Richness	7	
Grass Species Richness	1	
Forb Species Richness	2	
Native Grass Cover (%)	3.75	
Leaf Litter Cover (%)	20	
Non-native plant cover (%)	5	
Coarse Woody Debris (m)	137	

Biocondition Site 7
Regional Ecosystem: 11.3.11
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.68332° / 149.64861°
Location End: S22.68319° / 149.64814°

Landform / Soil: Broad flat, weakly incised plain formed on silty loam with minor surface gravel

Structural Formation: Vine Thicket

Emergent Median Height / Cover: 34
T1 Median Height / Cover (m/%): 13 / 80
S1 Median Height / Cover (m/%): 6/ 20

Tree Cover	T1 Interval (m)	S1	Emergent I	T1 intercept (m)	S1	Emergent Ir	Height
Bursaria incana		0 - 2			2		8
Polyscias elegans	0 - 5			5			15
Notelaea microcarpa		5 - 6.			1		6
Notelaea microcarpa		6 - 10.			4		6
Bursaria incana	11 - 16.			5			14
Psydrax oleifolius	16 - 19.			3			12
Bursaria incana	19 - 25			6			10
Cryptocarya macdonaldii	23 - 30			7			15
Cleistanthus cunninghamii	30 - 33			3			12
Exocarpos latifolius		29 - 32			3		7
Pouteria cotinifolia	37 - 40			3			10
Capparis mitchellii		40 - 45			5		7
Ellatostachys xylocarpa	46 - 49			3			14
Pouteria cotinifolia	47 - 51			4			13
Notelaea microcarpa	49 - 52			3			11
Diospyros humilis	50 - 53			3			11
Elaeodedendron australe	53 - 57			4			15
Bridelia leichardtii	57 - 63			6			15
Croton insularis	66 - 70			4			11
Bridelia leichardtii		75 - 80			5		6
Eucalyptus tereticornis			72 - 80			8	34
Ficus obliqua	81 - 87			6			17
Apananthe philippensis	83 - 88			5			18
Mischocarpus anodontus	88 - 90			2			16
Pleiogynium timorense	91 - 93			2			13
Apananthe philippensis	93 - 98			5			15
Brachychiton rupestris			98 - 100			2	27
Totals			**79**	**20**		**10**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	20	20	15	15	90

Leaf	80	70	70	70	10
Megathyrsus maximus var. trichoglume		10	15		
Rivina humilis				5	
Arundinella nepalensis				10	
Total	**100**	**100**	**100**	**100**	**##**

Large Trees	**Threshold Size: Non eucalypt trees 20cm DBH (arbitrary-no benchmark);**
	Eucalyptus sp: 50
Eucalyptus tereticornis	1
Rainforest	36
Total	**37**

Additional Species:

Trees: Gossia acmenoides, Mallotus philippensis

Shrubs: Melodinus australis, Trophis scandens, Murraya paniculata, Austrosteneesia blackii, Carrisa ovata, Pavetta australis, Streblus brunonianus

Grass:

Forbs:

Exotic species: Lantana camara

Summary		
Canopy Cover T1 / T2 %	79	
Shrub cover (S1/S2) %	20	
Canopy Height - Median (m)	13	
No of Canopy Species Recruiti	60	2 out of 18 canopy trees recruiting
Large Tree Count	37	
Tree Species Richness	29	
Shrub Species Richness	12	
Grass Species Richness	1	
Forb Species Richness		
Native Grass Cover (%)	0.1	
Leaf Litter Cover (%)	40	
Non-native plant cover (%)	5	
Coarse Woody Debris (m)	13	

Biocondition Site 8
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.67790° / 149.65363°
Location End: -22.67870° / 149.65384°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 22 / 19
T2 Median Height / Cover (m/%): 11 / 7
S1 Median Height / Cover (m/%): 6/ 33

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Melaleuca fluviatilis		0 - 3			3		12
Casuarina cunninghamiana		15 - 19			4		11
Melaleuca trichostachya			17 - 19			2	6
Mallotus philippensis			21 - 24			3	5
Corymbia tessellaris	32 - 44			12			26
Melaleuca viminalis			48 - 51				28
Leucaena leucocephala*			63 - 68			5	6
Melaleuca leucadendra			73 - 76			3	6
Melaleuca viminalis			76 - 82			6	6
Leucaena leucocephala*			82 - 87			5	6
Melaleuca viminalis			89 - 93			4	6
Melaleuca viminalis			85 - 90			5	6
Eucalyptus tereticornis	93 - 100			7			22
Totals				**19**	**7**	33	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	83	81	65	48	28	
Leaf	7		8	30	22	6.7
Panicum maximum var. trichogl	10	15	15	20	50	
Sida cordifolia*		2				
Leucaena leucocephala*		2				
Lomandra longifolia			10			
Bidens pilosa*			2			
Lantana camara*				2		
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**

Casuarina cunninghamiana	13
Melaleuca leucadendra	4
Lophostemon grandiflorus	3
Acacia harpophylla	1
Corymbia tessellaris	2
Eucalyptus camaldulensis	5
Total	**28**

Additional Species:

Trees: Lophostemon grandiflorus, Acacia harpophylla

Shrubs: Flueggea virosa, Diospyros geminata, , Ficus opposita

Forbs: Eustrephis latifolia, Ludwigia octovalvis, Cyperus gracillis

Exotic species: Cynodon dactylon*, Cryptostegia grandiflora*, Urena lobata*, Xanthium occidentale, Leonotis nepetifolia*

Summary		
Canopy Cover T1 / T2 %	19	
Shrub cover (S1/S2) %	33	
Canopy Height - Median (m)	22	
No of Canopy Species Recruiting	100	5 out of 5 canopy trees recruiting
Large Tree Count Eucs	7	
Large Tree Count - Non-eucs	21	
Tree Species Richness	6	
Shrub Species Richness	3	
Grass Species Richness	0	
Forb Species Richness	0	
Native Grass Cover (%)	0	
Leaf Litter Cover (%)	6.7	
Non-native plant cover (%)	10 (on account of rubber vine cover on margins of plot)	
Coarse Woody Debris (m)	89	

Biocondition Site 9
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.69297° / 149.67957°
Location End: -22.69334° / 149.68040°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 35 / 38
T2 Median Height / Cover (m/%): 18 / 53
S1 Median Height / Cover (m/%): 6 / 22

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Casuarina cunninghamiana		0 - 7			8		8
Melaleuca viminalis		7 - 10.			3		9
Casuarina cunninghamiana		16 - 24			8		18
Sannantha sp.			24 - 27.			3	5
Melaleuca trichostachya			35 - 41			6	6
Casuarina cunninghamiana		41 - 53			12		18
Melaleuca viminalis			47 - 52			5	6
Melaleuca viminalis			58 - 63			5	6
Casuarina cunninghamiana		59 - 64			5		17
Melaleuca leucadendra		69 - 78			9		18
Eucalyptus tereticornis	62 - 89			27			36
Casuarina cunninghamiana		88 - 96			8		20
Corymbia tessellaris	89 - 100			11			35
Melalecua leucadendra			96 - 99			3	7
Totals				**38**	**53**	**22**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	50	25	90	12.5	15	
Leaf	20	10	5	60	5	10
Chrysopogon fallax	20				10	
Imperata cylindrica		40				
Cyperus polystachys	10		5	25		
Lomandra longifolia		25			40	
Xanthium occidentale					10	
Urena lobata				2.5		
Chionachne cyathopoda					20	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**

Melaleuca leucadendra	22
Melaleuca trichostachya	2
Corymbia clarksoniana	5
Corymbia tessellaris	2
Eucalyptus camaldulensis	4
Total	**35**

Additional Species:

Trees: Lophostemon suaveolens

Shrubs: Mallotus philippensis, Ficus opposita

Grass: Arundinella nepalensis

Forbs: Eustrephis latifolia, Ludwigia octovalvis, Cyperus gracillis

Exotic species: Macroptileum atropurpureum*, Lantana camara*, Asclepias curassavica, Crotolaria sp*., Asclepias curassavica

Summary		
Canopy Cover T1 / T2 %	38	
Shrub cover (S1/S2) %	22	
Canopy Height - Median (m)	35	
No of Canopy Species Recruitin	100	2 out of 2 canopy trees recruiting
Large Tree Count Eucs	7	
Large Tree Count - Non-eucs	8	
Tree Species Richness	6	
Shrub Species Richness	4	
Grass Species Richness	4	
Forb Species Richness	3	
Native Grass Cover (%)	7	
Leaf Litter Cover (%)	10	
Non-native plant cover (%)		5 (on account of Lantana shrub cover on margins of plot)
Coarse Woody Debris (m)	102	

Biocondition Site 10
Regional Ecosystem: 11.3.35
Mapped Regional Ecosystem (DNRM): 11.4.9
Location Start: -22.69601° / 149.67847°
Location End: -22.69641° / 149.67752°

Landform / Soil: Upper alluvial terrace of Deep Creek. Dissected loamy alluvial plain

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 16 /54
T2 Median Height / Cover (m/%): 11 / 13
S1 Median Height / Cover (m/%): 6/ <5

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Corymbia clarksoniana		0 - 7			7		12
Corymbia clarksoniana	13 - 19			6			14
Eucalyptus platyphylla	26 - 34			8			18
Corymbia clarksoniana	34 - 41			7			14
Eucalyptus platyphylla	45 - 56			11			15
Corymbia clarksoniana			57 - 58			1	6
Eucalyptus platyphylla	68 - 90			22			15
Corymbia tessellaris		70 - 76			6		8
Corymbia clarksoniana		42 - 45			3		8
Corymbia clarksoniana		47 - 50			3		8
Totals				**54**	**13**	**1**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	5	5	5	0	5	21
Leaf	25	50	70	15	50	
Aristida sp.	25		10			
Heteropogon contortus					5	
Aristida calycina	15	10			5	
Arundinella nepalensis	5			70	10	
Bothriochloa sp.		10				165
Praxelis clematidea	10	10		2.5	5	
Sida cordifolia*		10	2.5	5	5	
Lantana camara	5					
Cyperus gracillis	10	5	10	5	5	
Crotolaria sp.*				2.5		
Scleria laevis			2.5		10	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 44cm DBH**
Eucalyptus platyphylla	4

Eucalyptus Crebra	5
Total	**9**

Additional Species:

Trees: Cassia brewsteri**,** Eucalyptus tereticornis**.,** Lophostemon suaveolens

Shrubs: Grewia retusifolia, Alphitonia excelsa, Alphitonia excelsa, Acacia salicinia, Breynia oblongifolia

Grass: Cymbopogon refractus, Eriachne glabrata, Leptochloa decipiens

Forbs: Eustrephis latifolius

Exotic species: Crotolaria sp*.,

Summary		
Canopy Cover T1 / T2 %	54	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	16	
No of Canopy Species Recru	80	4 out of 5 canopy trees recruiting
Large Tree Count	7	
Tree Species Richness	5	
Shrub Species Richness	7	
Grass Species Richness	7	
Forb Species Richness	2	
Native Grass Cover (%)	16.9	
Leaf Litter Cover (%)	21	
Non-native plant cover (%)	<5	
Coarse Woody Debris (m)	75	

Biocondition Site 11
Regional Ecosystem: 11.3.27
Mapped Regional Ecosystem (DNRM): 11.4.9
Location Start: -22.69574° / 149.67665°
Location End: -22.69663° / 149.67679°

Landform / Soil: Drainage depression between T2 alluvial terrace and older Pleistocene age loamy plain

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 28 /38
T2 Median Height / Cover (m/%): 10 /37
S1 Median Height / Cover (m/%): NA

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Eucalyptus tereticornis	0 - 7		7		32
Lophostemon suaveolens		8 - 11.		3	10
Lophostemon suaveolens		15 - 28		13	9
Lophostemon suaveolens		38 - 47		9	10
Lophostemon suaveolens		56 - 68		12	10
Eucalyptus tereticornis	61 - 84		23		29
Eucalyptus tereticornis	92 - 100		8		26
Totals			**38**	**37**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	15	85			
Leaf	80	15	25	57.5	19
Cyperus polystachyos				40	80
Paspalideum distans				2.5	
Cyperus sp.	2.5		75		
Arundinella nepalensis					1
Urochloa mutica	2.5				
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH**
Eucalyptus tereticornis	6
Total	**6**

Additional Species:

Trees:

Shrubs: Alphitonia excelsa, Acacia salicinia

Forbs: Persicaria attenuata, Ludwigia octovalvis, Spartothamnella juncacea

Exotic species: Ageratum conyzoides*, Hymenachne amplexicaulis

Summary		
Canopy Cover T1 / T2 %	38	
Shrub cover (S1/S2) %	0	
Canopy Height - Median (m)	28	
No of Canopy Species Recruit	100	2 out of 2 canopy trees recruiting
Large Tree Count	6	
Tree Species Richness	2	
Shrub Species Richness	2	
Grass Species Richness	2	
Forb Species Richness	0	
Native Grass Cover (%)	<1	
Leaf Litter Cover (%)	19.65	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	16	

Note: Leaf litter is likely to Hymenachne amplexicaulis*

Biocondition Site 12
Regional Ecosystem: Non-remnant (RE 11.4.9 below threshold patch size of 1ha)
Mapped Regional Ecosystem (DNRM): Non-remnant
Location Start: -22.69945° / 149.68234°
Location End: -22.69916° / 149.68263°

Landform / Soil: Vertosol with gilgai on plain above flood level

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /38
T2 Median Height / Cover (m/%): 10 /20
S1 Median Height / Cover (m/%): 6 / 38

Note: Due to resticted patch size, biocondition plot was reduced to 50m x 10m plot with tree and debri counts extrapolated.

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Acacia harpophylla		0 - 6			10		10
Acacia harpophylla			6 - 8.			2	5
Acacia harpophylla	8 - 15.			7			23
Acacia harpophylla	17 - 24			7			19
Senna sp.			24 - 27			3	2
Pittosporum spinescens			27 - 30			3	2.5
Acacia harpophylla		28 - 35					8
Geijera parviflora			28 - 32				4
Geijera salicifolia			35 - 39			4	3
Acacia harpophylla	45 - 50			5			17
Geijera parviflora			41 - 45			4	4
Acacia harpophylla			45 - 48			3	4
Totals				**19**	**10**	**19**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	17.5	15	12	5	63	
Leaf	20	85	78	86.5	5	27.45
Carissa ovata	50		10			
Paspalideum caespitosum	2.5			5	30	
Ancistrachne uncinullata	10					4.75
Unid. Weed*				2.5		
Brunoniella australis				1		
Sarcostemma sarcostemmoides					2.5	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 28cm DBH**
Eucalyptus platyphylla	4

Eucalyptus Crebra	5
Total	**9**

Additional Species:

Trees:

Shrubs: Carissa ovata, Capparis mitchellii, Denhamia oleaster, Psydrax odorata, Santalum lanceolatum, Alectryon diversifolius

Grass: Arundinella nepalensis

Forbs: Tylophora sp., Enchylaena tomentosa, Spartothamnella juncacea

Exotic species: Abutilon grandiflorum*

Summary		
Canopy Cover T1 / T2 %	38	
Shrub cover (S1/S2) %	38	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	1 out of 1 canopy trees recruiting
Large Tree Count	38	(extrapolated over 0.25 ha plot)
Tree Species Richness	1	
Shrub Species Richness	11	
Grass Species Richness	3	
Forb Species Richness	4	
Native Grass Cover (%)	4.75	
Leaf Litter Cover (%)	27.45	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	225	

Biocondition Site 13
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.67579° / 149.67115°
Location End: -22.67618° / 149.67192°

Landform / Soil: Loamy upper bench above Incised drainage line. Alluvial silts

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 28 /49
T2 Median Height / Cover (m/%): 10 /43
S1 Median Height / Cover (m/%): 6 / 13

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Corymbia tessellaris	0 -3			3			28
Eucalyptus tereticornis	3- 8.			5			29
Eucalyptus tereticornis		8 - 13.			5		18
Mallotus philippensis			5 - 11.			6	7
Eucalyptus tereticornis	13 - 29			16			34
Mallotus philippensis		16 - 26			10		10
Polyscias elegans		28 - 35			7		10
Corymbia tessellaris	33 - 41			8			22
Mallotus philippensis		42 - 51			9		9
Alstonia constricta			51 - 53			2	7
Mallotus philippensis			54 - 59			5	7
Eucalyptus tereticornis	59 - 65			6			30
Alectryon tomentosa		66 - 69			3		10
Polyscias elegans		67 - 73			6		16
Eucalyptus tereticornis	71 - 82			11			29
Mallotus philippensis			82 - 88			6	7
Eucalyptus tereticornis	97 - 100				3		18
Totals				**49**	**43**	**13**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	0	0	5	5	0	
Leaf	92.5	100	85	90	87.5	45.5
Drypetes deplanchei	2.5					
Rivina humilis*	5		10	5	5	
Passiflora suberosa*					5	
Poaceae sp.					2.5	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**
Rainforest Trees	8
Corymbia tessellaris	1

Eucalyptus camaldulensis	15
Total	**24**

Additional Species:

Trees: Melia azaderach

Shrubs: Cryptocarya macdonaldii, Apananthe philippensis, Geijera salicifolia, Drypetes deplanchei, Ficus opposita , Pavetta australe, Alectryon diversifolius, Cupaniopsis anacardioides, Diospyros humilis, Capparis arborea

Grass:

Forbs:

Exotic species: Lantata camara*, Panicum maximum var. trichoglume*

Summary		
Canopy Cover T1 / T2 %	49	
Shrub cover (S1/S2) %	13	
Canopy Height - Median (m)	28	
No of Canopy Species Recruiting (%)	100	5 out of 5canopy trees recruiting
Large Tree Count Eucs	16	
Large Tree Count - Non-eucs	8	
Tree Species Richness	5	
Shrub Species Richness	11	
Grass Species Richness	1	
Forb Species Richness	0	
Native Grass Cover (%)	<1	
Leaf Litter Cover (%)	45.5	
Non-native plant cover (%)	5	(on account of Lantana shrub cover on margins of plot)
Coarse Woody Debris (m)	118	

Biocondition Site 14
Regional Ecosystem: 11.3.12
Mapped Regional Ecosystem (DNRM): 11.5.8a
Location Start: -22.70944° / 149.63572°
Location End: -22.70855 / 149.63560°

Landform / Soil: Broad drainage depression in loamy plain

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 10 /35
T2 Median Height / Cover (m/%): NA
S1 Median Height / Cover (m/%): 6 / 13

Tree Cover	T1 Interval (m)	T2 interval	T1 intercept (m)	T2 Intercept	height (m)
Melaleuca viridiflora		0 - 3		3	6
Melaleuca viridiflora		6 - 11.		5	7
Melaleuca viridiflora	13 - 15		2		8
Melaleuca viridiflora	27 - 30		3		9
Melaleuca viridiflora	32 - 38		6		9
Melaleuca viridiflora	51 - 57		6		11
Melaleuca viridiflora	61 - 70		9		8
Melaleuca viridiflora	84 - 89		9		5
Melaleuca viridiflora		90 - 92			4
Totals			**35**	**8**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	10	60	40	30	60
Leaf					
Poaceae sp.	90				
Eleocharis sp.		40	40	70	30
Hymenachne amplexicaulis			20		10
Total	**100**	**100**	**100**	**100**	**100**

Note: Ground cover has been recorded as living even though it is dessicated / dead

Large Trees	**Threshold Size: 20cm DBH - Note No Benchmark Data for this RE**
Melaleuca viridiflora	44
Total	**44**

Additional Species:

Trees: Corymbia dallachiana

Shrubs:

Forbs: Persicaria attenuata, Ludwigia octovalvis, Dendrobium tattonianum

Exotic species: Ageratum conyzoides*, Hymenachne amplexicaulis

Summary		
Canopy Cover T1 / T2 %	35	
Shrub cover (S1/S2) %	0	
Canopy Height - Median (m)	10	
No of Canopy Species Recruiting (%)	100	1 out of 1 canopy trees recruiting
Large Tree Count	44	
Tree Species Richness	2	
Shrub Species Richness	0	
Grass Species Richness	1	
Forb Species Richness	3	
Native Grass Cover (%)	9	
Leaf Litter Cover (%)	0	NB: Groundcover normally attributed to leaf litter as it is totally dry
Non-native plant cover (%)	<5	
Coarse Woody Debris (m)	18	

Note: Leaf litter is likely to Hymenachne amplexicaulis*

Biocondition Site 15 (offset)
Regional Ecosystem: 11.10.7
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start: -22.73728° E149.660607°
Location End: -22.737947° E149.660068°

Landform / Soil: Gently sloping colluvial plain / apron formed on sedimentary rocks.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /51
T2 Median Height / Cover (m/%): 14 /8
S1 Median Height / Cover (m/%): 6 / <5

Tree Cover	T1 Interval (m)	T2	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra	0 - 5		5			19
Eucalyptus crebra	7 - 13.		6			21
Eucalyptus crebra	16 - 20		4			21
Eucalyptus crebra	26 - 34		8			17
Eucalyptus crebra	40 - 46		6			21
Eucalyptus crebra	48 - 51		3			19
Eucalyptus crebra	61 - 66		5			21
Eucalyptus crebra	66 - 69			3		15
Eucalyptus crebra	71 - 76			5		15
Eucalyptus crebra	74 - 84		10			21
Alphitonia excelsa	88 - 92				4	6
Eucalyptus crebra	96 - 100		4			21
Totals			**51**	**8**	**4**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	10	10	9	27.5	10
Leaf	74	85	60	40	70
Sida cordifolia	10	2.5	5	2.5	
Cyperus sp.	2.5			5	5
Eriachne glabrata	2.5		20	15	2.5
Glycine tabacina	1		1		
Entolosia stricta		2.5			
Aristida sp.			5	10	2.5
Leptochloa digitata					10
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: No Benchmark. Default trees > 44cm DBH**
Eucalyptus crebra	1
Total	**1**

Additional Species:

Trees:

Shrubs: Pogonolobus reticulatus, Acacia crassa, Maytenus cunninghamii, Petalostigma pubescens, Breynia oblongifolia

Forbs: Eremophila debilus, Pterocaulon sphacelatum, Laxmannia gracilus, Enchylaena tomentosa

Grass: Eragrostis elongata, Aristida calycina

Exotic species: Lantana camara*, Sida cordifolia*

Summary		
Canopy Cover T1 %	51	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	1 out of 1 canopy trees recruiting
Large Tree Count	1	
Tree Species Richness	1	
Shrub Species Richness	6	
Grass Species Richness	6	
Forb Species Richness	1	
Native Grass Cover (%)	12.4	
Leaf Litter Cover (%)	65.8	
Non-native plant cover (%)	30	Dense cover of lantana although very dry at time of survey
Coarse Woody Debris (m)	32	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 16 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.737656° / 149.663858°
Location End: -22.738515° / 149.663619°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Margins of terrace incised with no evidence of basement rock in gully incisions.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 20 /37
T2 Median Height / Cover (m/%): 11 /23
S1 Median Height / Cover (m/%): NA

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Corymbia dallachiana		0 - 3			3		10
Eucalyptus crebra		4 - 18.			14		15
Eucalyptus crebra	18 - 25			7			22
Eucalyptus crebra	27 - 33			6			22
Eucalyptus crebra	35 - 44			9			21
Corymbia dallachiana		50 - 54			4		12
Eucalyptus crebra		65 - 67			2		8
Eucalyptus crebra	81 - 88			7			19
Eucalyptus crebra	92 - 100			8			21
Totals				**37**	**23**	**0**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	5	51.5	17.5	15	40	
Leaf	45	40	16.5	20	20	28.3
Aristida calycina	40			10		
Eragrostis elongata	5		40	40	15	
Eriachne glabrata	5	5	15		5	
Glycine tabacina		1				
Brunoniella australis			5			
Stylosanthes humilis*		2.5	1			
Cyperus gracilis				5	5	
Heteropogon contortus				5	10	
Grevillea parallela					5	
Sida cordifolia*			5	5		
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Petalostigma pubescens	2
Grevillea parallela	2
Eucalyptus platyphylla	2

Eucalyptus Crebra	2	
Total	**4**	**4**

Additional Species:

Trees: Eucalyptus populnea, Eucalyptus platyphylla, Corymbia clarksoniana

Shrubs: Acacia disparrima, Acacia leiocalyx, Acacia crassa, Acacia salicinia, Maytenus cunninghamii, Capparis lasiantha

Grass: Aristida personata

Forbs: Alternanthera sp., Desmodium macrocarpum(?),

Exotic species: Lantana camara

Summary		
Canopy Cover T1 / T2 %	37	
Shrub cover (S1/S2) %	5	
Canopy Height - Median (m)	20	
No of Canopy Species Recruiting (%)	60	2 out of 3 canopy trees recruiting
Large Tree Count	8	
Tree Species Richness	4	
Shrub Species Richness	8	
Grass Species Richness	5	
Forb Species Richness	4	
Native Grass Cover (%)	39	
Leaf Litter Cover (%)	28.3	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	20	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 17 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:--22.746182° / 149.663486°
Location End: -22.746997°/ 149.663882°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Margins of terrace incised with no evidence of basement rock in gully incisions.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /35
T2 Median Height / Cover (m/%): 13 /12
S1 Median Height / Cover (m/%): 3 / <5

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra		0 - 5			5		15
Eucalyptus crebra	7 - 14.			7			17
Eucalyptus crebra		15 - 18			3		10
Eucalyptus crebra	28 - 34			6			21
Eucalyptus crebra	52 - 59			7			22
Eucalyptus populnea	62 - 71			9			18
Eucalyptus populnea	73 - 77						21
Eucalyptus crebra	82 - 88			6			18
Eucalyptus crebra	92 - 97				4		14
Totals				**35**	**12**	**0**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	30	20	5	40	38	
Leaf	20	50	77.5	30	20	39.5
Aristida sp.	50	25	5	5	20	29
Eragrostis elongatus			5	2.5		
Heteropogon contortus				15	10	
Aristida personata				5		
Eriachne glabrata				2.5		
Eremophila debilis			7.5			
Stylosanthes humilis*		2.5				
Brunoniella australis		2.5			2.5	
Cyperus gracilis					10	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2
Eucalyptus Crebra	1
Total	**3**

Additional Species:

Trees: Eucalyptus platyphylla, Corymbia dallachiana

Shrubs: Acacia disparrima, Alphitonia excelsa, Psydrax odorata, Maytenus cunninghamii, Grevillea parallela, Atalaya hemiglauca, Acacia crassa, Acacia leiocalyx

Grass and graminoids: Lomandra multiflora, Cyperus sp.

Forbs: Desmodium macrocarpum(?), Glycine tabacina

Exotic species: Lantana camara*, Opuntia stricta*,

Summary		
Canopy Cover T1 / T2 %	35	
Shrub cover (S1/S2) %	5	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	50	2 out of 4 canopy trees recruiting
Large Tree Count	3	
Tree Species Richness	4	
Shrub Species Richness	8	
Grass Species Richness	5	
Forb Species Richness	4	
Native Grass Cover (%)	29	
Leaf Litter Cover (%)	39.5	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	29	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 18 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.742437° / 149.663623°
Location End: -22.743245°/ 149.664038°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Margins of terrace incised with no evidence of basement rock in gully incisions.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /53
T2 Median Height / Cover (m/%): 10 /43
S1 Median Height / Cover (m/%): 7 / 10

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra		0 - 2.5			2.5		8
Corymbia dallachiana		4 - 7.		.	7		7
Eucalyptus crebra	17 - 30			13			21
Eucalyptus populnea	37 - 43			6			17
Eucalyptus crebra	51 - 57			6			22
Eucalyptus populnea	70 - 85			15			19
Eucalyptus crebra	85 - 91			6			17
Eucalyptus crebra	93 - 100			7			21
Totals				**53**	**9.5**	**0**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**		
Bare	32.5	40	25	50	40		
Leaf	40	39	30	25	22.5		26.8
Paspalideum distans					25		
Heteropogon contortus	10	2.5			10		
Eragrostis elongata	5	15	20				
Aristida calycina				10			
Eriachne glabrata	10	2.5					
Glycine tabacina		1					
Chloris divaricata				5			23.2
Fimbristylis sp.			5				
Cyperus gracilis	2.5						
Brunoniella australis					2.5		
Cyperus sp.			20	10			
Total	**100**	**100**	**##**	**100**	**100**		

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2
Eucalyptus Crebra	2
Total	**4**

Additional Species:

Trees:

Shrubs: Grevillea parallela, Atalaya hemiglauca, Alphitonia excelsa, Parsonsia eucalyptifolia

Grass and graminoids: Eragrostis sp

Forbs: Pterocaulon sphacelatum

Exotic species: Stylosanthes humilis*, Sida cordifolia*

Summary		
Canopy Cover T1 / T2 %	53	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	4	
Tree Species Richness	3	
Shrub Species Richness	4	
Grass Species Richness	7	
Forb Species Richness	2	
Native Grass Cover (%)	23.2	
Leaf Litter Cover (%)	26.8	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	15	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 19 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.750991° / 149.666807°
Location End: -22.750449°/ 149.666043°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Minor drainage depression passes through centre of the plot. Margins of terrace incised with no evidence of basement rock

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /34
T2 Median Height / Cover (m/%): 11 /8
S1 Median Height / Cover (m/%): 3 / 2

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra	0 - 3			3			16
Eucalyptus crebra	5 - 12.			7			19
Eucalyptus crebra	20 - 26						22
Eucalyptus crebra	28 - 35			7			16
Eucalyptus crebra		46 - 49			3		12
Eucalyptus populnea	52 - 61			9			16
Eucalyptus crebra		64 - 67			3		9
Eucalyptus populnea	70 - 78			8			19
Eucalyptus populnea		70 - 72			2		14
Atalaya hemiglauca			91 - 93			2	3
Eucalyptus populnea	96 - 100			4			
Totals				**34**	**8**	**2**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	34	31.5	32.5	17.5	28	
Leaf	30	30	25	15	26	25.2
Acacia salicinia	10					
Paspalideum distans	10					35
Chloris divaricata	10					
Themeda triandra	5	20	20	60	10	
Aristida personata		15				
Eriachne glabrata			10			
Aristida calycina					15	
Lomandra filiformis		2.5			5	
Sida spinosa*		1				
Cyperus gracilis			10	5	10	
Brunoniella australis			2.5		2.5	
Eriachne glabrata						
Glycine tabacina	1			2.5	3.5	

Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2
Eucalyptus Crebra	4
Total	**6**

Additional Species:

Trees:

Shrubs: Psydrax odorata, Grevillea parallela, Maytenus cunninghamii, Atalaya hemiglauca, Breynia oblongifolia, Grewia retusifolia, Ehretia membranifolia, Capparis canensens, Acacia bidwillii, Alphitonia excelsa

Grass and graminoids: Heteropogon contortus

Forbs:

Exotic species: Opuntia tomentosa, Lepidium bonariense

Summary		
Canopy Cover T1 / T2 %	34	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	6	
Tree Species Richness	2	
Shrub Species Richness	10	
Grass Species Richness	7	
Forb Species Richness	2	
Native Grass Cover (%)	35	
Leaf Litter Cover (%)	25.2	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	45	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 20 (offset)
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start: -22.750269° / 149.667665°
Location End: -22.750835° / 149.668447°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel. No bedrock exposed in stream channel.

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 32 /27
T2 Median Height / Cover (m/%): 13 /46
S1 Median Height / Cover (m/%): 6 / 24

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Melaleuca leucadendra	0 - 6			6			32
Mallotus philippensis			20 - 25			5	7
Casuarina cunninghamiana		24 - 30			6		12
Melaleuca leucadendra	32 - 45			13			33
Melaleuca trichostachya			32 - 37			6	6
Melaleuca trichostachya			55 - 59			4	7
Casuarina cunninghamiana		41 - 45			4		15
Melaleuca leucadendra		52 - 65			13		23
Lophostemon grandiflorus			56 - 61			5	6
Melaleuca leucadendra	65 - 71			6			25
Eucalyptus tereticornis	71 - 78			7			27
Cryptocarya triplinervis		68 - 71			3		9
Melaleuca leucadendra		75 - 83			8		21
Lophostemon grandiflorus			79 - 83			4	8
Melaleuca leucadendra		86 - 91			5		12
Melaleuca leucadendra		93 - 100			7		22
Totals				**32**	**46**	**24**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	25	40	30	32.5	25	
Leaf	10	30	40	40	20	28
Panicum maximum var. tricho	25			2.5		
Lomandra longifolia	25	30			40	
Cyperus polystachyus	15			10		
Chrysopogon fallax			20	15		
Commelina ensifolia	.		5			
Lepidium bonariense*			2.5			
Melaleuca leucadendra			2.5			
Trophis scandens					10	

Lomandra longifolia					5
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**			
Casuarina cunninghamiana	.	1		
Melaleuca leucadendra	11			
Lophostemon grandiflorus		8		
Eucalyptus tereticornis	2			
Total	**13**			

Additional Species:

Trees: Corymbia tessellaris, Lophostemon suaveolens

Shrubs: Ficus opposita

Grass and Graminoids: Chionachne ramiflorus

Forbs: Eustrephis latifolius, Cyanthilium cinereum

Exotic species: Cynodon dactylon*, Cryptostegia grandiflora*, Lantana camara*, Cardiospermum grandiflorum*, Ageratum conyzoides, Urena lobata*, Xanthium occidentale*, Macroptilium atropurpureum*

Summary		
Canopy Cover T1 / T2 %	32	
Shrub cover (S1/S2) %	24	
Canopy Height - Median (m)	27	
No of Canopy Species Recruiting (%)	100	3 out of 3 canopy trees recruiting
Large Tree Count Eucs	13	
Large Tree Count - Non-eucs	9	
Tree Species Richness	5	
Shrub Species Richness	5	
Grass Species Richness	2	
Forb Species Richness	2	
Native Grass Cover (%)	7	
Leaf Litter Cover (%)	28	
Non-native plant cover (%)		30% cover of lantana on the lower river terraces
Coarse Woody Debris (m)	23	

Biocondition Site 21 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.753500° / 149.666664°
Location End: -22.754190°/ 149.667220°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Break of slope with gentle rise on footslopes 300m to the west.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /51
T2 Median Height / Cover (m/%): 13 /15
S1 Median Height / Cover (m/%): 6 / 11

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus populnea	0 - 11			11			19
Eucalyptus crebra	11 - 17.			6			18
Eucalyptus crebra	25 - 34			9			19
Eucalyptus crebra			36 - 38			2	4
Eucalyptus populnea		34 - 39			5		13
Atalaya hemiglauca			38 - 41			3	6
Eucalyptus crebra		42 - 46			4		14
Alphitonia excelsa			46 - 49			3	6
Eucalyptus crebra	50 - 57			7			17
Eucalyptus populnea	57 - 63			6			17
Eucalyptus crebra	63 - 68			5			22
Eucalyptus crebra		74 - 80			6		15
Eucalyptus crebra	87 - 94			7			21
Atalaya hemiglauca			96 - 98			2	6
Alphitonia excelsa			99 - 100			1	6
Totals				**51**	**15**	**11**	

Ground Cover

	Q1		**Q2**	**Q3**	**Q4**		**Q5**	
Bare		42.5	15	10	10	10		
Leaf		40	52.5	46.5	65	61.5		53.1
Eragrostis elongata		15		2.5	5			
Heteropogon contortus		2.5	15	20				
Eriachne glabrata			10					
Aristida sp.								
Themeda triandra				15	10	20		
Chloris divaricata								
Themeda triandra								
Panicum sp.						2.5		23.5
Atalaya hemiglauca								
Grevillea parallela					5			

Capparis lasiantha				5	
Glycine sp.			1		
Cyperus gracilis		2.5			5
Atalaya hemiglauca			5		
Eucalyptus crebra		5			
Euphorbia hirta*					1
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	0
Eucalyptus Crebra	2
Total	**2**

Additional Species:

Trees:

Shrubs: Pogonolobus reticulatus, Alectryon diversifolius, Acacia salicinia, Grevillea parallela, Maytenus cunninghamii, Carrisa ovata, Myoporum acuminatum, Psydrax odorata

Grass and graminoids: Aristida sp.

Forbs: Pterocaulon sphacelatum

Exotic species: Opuntia tomentosa*, Lepidium bonariense*, Sida spinosa*

Summary		
Canopy Cover T1 / T2 %	51	
Shrub cover (S1/S2) %	<10	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	2	
Tree Species Richness	2	
Shrub Species Richness	10	
Grass Species Richness	9	
Forb Species Richness	2	
Native Grass Cover (%)	23.5	
Leaf Litter Cover (%)	53.1	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	83	

Additional Notes: Heavily logged with removal of ironbark

Biocondition Site 22 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.756893° / 149.664280°
Location End: -22.756497°/ 149.663435°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty silty clay loam. Break of slope with gentle rise on footslopes 150m to the west.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 18 /51
T2 Median Height / Cover (m/%): NA
S1 Median Height / Cover (m/%): 6 / 4

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus populnea	0 - 4			4			18
Eucalyptus crebra x populnea	4 - 7.			3			18
Eucalyptus populnea	17 - 24			7			19
Eucalyptus crebra	29 - 39			10			17
Acacia salicinia			42 - 44			2	5
Eucalyptus crebra	59 - 79			20			19
Eucalyptus populnea	79 - 86			7			23
Acacia salicinia			82 - 84			2	6
Totals				**51**	**0**	**4**	

Ground Cover

	Q1		**Q2**	**Q3**	**Q4**		**Q5**	
Bare	15	10	20	15				
Leaf	50	50	31.5	63	60			50.9
Themeda triandra	10	25	25	20				
Cymbopogon refractus	25	5	15					
Eremophila debilis		10						
Eriachne glabrata			5					
Panicum sp.					40			36
Glycine sp.			2.5	1				
Stylosanthes humilis			1					
Eucalyptus crebra				1				
Total	**100**	**100**	**100**	**100**	**100**			

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2
Eucalyptus Crebra	3
Total	**5**

Additional Species:

Trees: Corymbia dallachiana

Shrubs: Acacia salicina, Capparis canescens, Myoporum acuminatum, Petalostigma pubescens, Atalaya hemiglauca, Breynia oblongifolia, Grevillea parallela, Alphitonia excelsa.

Grass and graminoids: Eragrostis elongatus, Bothriochloa decipiens (?), Aristida calycina, Heteropogon contortus, Chloris divaricata

Forbs: Pterocaulon sphacelatum

Exotic species:

Summary		
Canopy Cover T1 / T2 %	51	
Shrub cover (S1/S2) %	<5	
Canopy Height - Median (m)	18	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	5	
Tree Species Richness	3	
Shrub Species Richness	9	
Grass Species Richness	9	
Forb Species Richness	2	
Native Grass Cover (%)	36	
Leaf Litter Cover (%)	51	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	49	

Additional Notes: Heavily logged with removal of ironbark. Site has been subject to heavy grazing activity

Biocondition Site 23 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.756893° / 149.664280°
Location End: -22.756497°/ 149.663435°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam. Break of slope with gentle rise on footslopes 150m to the west.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 20 /57
T2 Median Height / Cover (m/%): 12 /9
S1 Median Height / Cover (m/%): 6 / 24

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra	0 - 8			8			23
Eucalyptus crebra		13 - 17			4		12
Eucalyptus crebra	20 - 30			10			21
Eucalyptus populnea		28 - 33			5		8
Acacia salicinia			31 - 35			4	5
Eucalyptus crebra	38 - 45			7			10
Eucalyptus crebra	47 - 56			9			23
Eucalyptus crebra	57 - 65			8			22
Atalaya hemiglauca			67 - 70			3	6
Corymbia dallachiana			73 - 76			3	6
Eucalyptus populnea	75 - 85			10 .			18
Atalaya hemiglauca			82 - 89			7	6
Eucalyptus crebra	84 - 89			5			18
Acacia salicinia			88 - 94			6	7
Acacia salicinia			97 - 98			1	6
Totals				**57**	**9**	**24**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	10	10	40	15	10	
Leaf	61.5	60	42.5	45	40	49.8
Heteropogon contortus	10					
Aristida calycina	10		15		10	
Eragrostis elongatus	5	10				
Cymbopogon refractus	2.5	5		10		
Chloris divaricata				5	40	24.5
Glycine sp.	1					
Pterocaulon sphacelatum			2.5			
Myoporum acuminatum				25		
Cyperus gracilis		15				
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus
Eucalyptus populnea	
Eucalyptus Crebra	2
Total	**2**

Additional Species:

Trees: Corymbia dallachiana

Shrubs: Alphitonia excelsa, Grewia retusifolia, Capparis mitchellii, Capparis canescens, Myoporum acuminatum, Pogonolobus reticulatus, Maytenus cunninghamii

Grass and graminoids: Aristida latifolia

Forbs: Brunoniella australis

Exotic species:

Summary		
Canopy Cover T1 / T2 %	57	
Shrub cover (S1/S2) %	24	
Canopy Height - Median (m)	20	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	2	
Tree Species Richness	3	
Shrub Species Richness	9	
Grass Species Richness	6	
Forb Species Richness	3	
Native Grass Cover (%)	25	
Leaf Litter Cover (%)	50	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	92	

Additional Notes: Heavily logged with removal of ironbark. Site has been subject to heavy grazing activity

Biocondition Site 24 (offset)
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start:-22.767269° / 149.657604°
Location End: -22.766490° / 149.657269°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel. No bedrock exposed in stream channel.

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 33 /34
T2 Median Height / Cover (m/%): 10 /43
S1 Median Height / Cover (m/%): 7 / 49

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Pouteria chartacea		0 - 7			7		19
Mallotus philippensis			5 - 7.			2	6
Casuarina cunninghamiana		7 - 12.			5		16
Mallotus philippensis			12 - 22.			10	8
Eucalyptus tereticornis	12 - 24.			12			32
Eucalyptus tereticornis		24 - 28			4		19
Alphitonia excelsa			21 - 28.			7	7
Mallotus philippensis			29 - 34			5	6
Casuarina cunninghamiana		34 - 42			9		18
Mallotus philippensis			50 - 56			6	6
Mallotus philippensis			58 - 64			6	6
Melaleuca fluviatilis	67 - 89			22			34
Casuarina cunninghamiana		67 - 75			8		13
Lophostemon grandiflorus		89 - 97				9	14
Acacia disparrima			96 - 100			4	7
Totals				**34**	**33**	**49**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	40	30	30	20	25	
Leaf	40	30	30	20	20	28
Cyperus polystachyus	10	10	10			
Jasminum didymum	10					
Psydrax odorata		5				
Trophis scandens		10				
Entolosia stricta		10				
Panicum maximum var. trichoglume		5		50	40	
Chrysopogon fallax			25			
Eragrostis elongata					10	
Sida cordifolia*			5			
Eustrephis latifolius				5		

Lantana camara*				2.5	
Alternanthera pungens*				2.5	
Passiflora suberosa*					2.5
Paspalideum distans					2.5
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**	
Casuarina cunninghamiana	.	9
Melaleuca fluviatilis	5	
Lophostemon grandiflorus		3
Eucalyptus tereticornis	3	
Pouteria chartacea		1
Total	**8**	**13**

Additional Species:

Trees: Corymbia tessellaris

Shrubs: Ficus opposita, Planchonia careya, Flueggia virosa, Breynia oblongifolia

Grass and Graminoids: Aristida sp., Lomandra longifolia, lomandra filiformis

Forbs: Cyanthilium cinereum

Exotic species: Lantana camara*

Summary		
Canopy Cover T1 / T2 %	34	
Shrub cover (S1/S2) %	50	
Canopy Height - Median (m)	33	
No of Canopy Species Recruiting (%)	100	3 out of 3 canopy trees recruiting
Large Tree Count Eucs	8	
Large Tree Count - Non-eucs	13	
Tree Species Richness	4	
Shrub Species Richness	8	
Grass Species Richness	4	
Forb Species Richness	4	
Native Grass Cover (%)	8	
Leaf Litter Cover (%)	28	
Non-native plant cover (%)		30% cover of lantana on the lower river terraces
Coarse Woody Debris (m)	7	

Additional Notes: Dense shrub cover of lantana camara on flood plain levee adjacent to channel

Biocondition Site 25 (offset)
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start:-22.769507° / 149.657046°
Location End: -22.769376° / 149.656139°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel. No bedrock exposed in stream channel.

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 25 / 20
T2 Median Height / Cover (m/%): 14 /94
S1 Median Height / Cover (m/%): 7 / 19

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Lophostemon grandiflorus		0 - 5			5		12
Casuarina cunninghamiana		7 - 18.			11		18
Corymbia tessellaris	11 - 20.			9			30
Lophostemon suaveolens		18 - 26			8		22
Lophostemon grandiflorus			22 - 26			4	4
Casuarina cunninghamiana		27 - 32			5		18
Corymbia tessellaris	32 - 43			11			27
Lophostemon grandiflorus			37 - 40			3	6
Casuarina cunninghamiana		39 - 47			8		14
Lophostemon suaveolens		44 - 62			18		21
Mallotus philippensis			57 - 62			5	7
Casuarina cunninghamiana		61 - 67			6		14
Lophostemon suaveolens		68 - 72			5		15
Melaleuca fluviatilis		70 - 80			10		18
Mallotus philippensis			75 - 78			7	7
Lophostemon grandiflorus		80 - 85			5		9
Melaleuca fluviatilis		83 - 89			6		19
Lophostemon suaveolens		90 - 97			7		18
Totals				**20**	**94**	**19**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare			10		50	
Leaf	92.5	60	70	20	30	54.5
Chrysopogon fallax		30				6
Cyperus sp.	2.5	10	15			
Eustrephis latifolius	5					
Passiflora suberosa			2.5			
Megathyrsus maximus subsp. trichoglume			2.5			
Lomandra longifolia				80	15	
Glycine tabacina					5	

Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**				
Casuarina cunninghamiana	.		13		
Melaleuca fluviatilis					
Lophostemon grandiflorus			18		
Eucalyptus tereticornis		1			
Corymbia tessellaris		4			
Lophostemon suaveolens		4			
Eucalyptus platyphylla		1			
Total		**10**	**31**		

Additional Species:

Trees:

Shrubs:Diospyros humilis, Cupaniopsis anacardioides, Acacia polystachya, Flueggea virosa

Grass and Graminoids:

Forbs: Cyanthilium cinereum

Exotic species: Lantana camara*, Cryptostegia grandiflora*, Stachytarpheta jamaicensis*, Praxelis clematidea*

Summary		
Canopy Cover T1 / T2 %	>80	
Shrub cover (S1/S2) %	19	
Canopy Height - Median (m)	29	
No of Canopy Species		
Recruiting (%)	70	5 out of 7 canopy trees recruiting
Large Tree Count Eucs	10	
Large Tree Count - Non-eucs	31	
Tree Species Richness	7	
Shrub Species Richness	5	
Grass Species Richness	1	
Forb Species Richness	3	
Native Grass Cover (%)	8	
Leaf Litter Cover (%)	6	
Non-native plant cover (%)	40% cover of lantana on the margins	
Coarse Woody Debris (m)	11	

Additional Notes: Dense shrub cover of lantana camara on flood plain levee adjacent to channel

Biocondition Site 26 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.11.15a
Location Start:-22.757823° / 149.665827°
Location End: -22.758158°/149.664906°

Landform / Soil: Upper terrace of Deep Creek above current flood level. Flat terrace formed on silty clay loam

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /47
T2 Median Height / Cover (m/%): 12 /18
S1 Median Height / Cover (m/%): 6 / 2

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus crebra	0 - 15			15			17
Eucalyptus crebra	15 - 25			10			21
Eucalyptus populnea	28 - 33			5			17
Eucalyptus populnea		35 - 39			4		12
Eucalyptus crebra	47 - 59			12			19
Eucalyptus crebra x populnea		66 - 71			6		12
Eucalyptus crebra		74 - 79			5		8
Corymbia dallachiana		82 - 85			3		8
Eucalyptus crebra			93 - 95			2	4
Corymbia dallachiana	95 - 100			5			21
Eucalyptus populnea							
Atalaya hemiglauca							
Eucalyptus crebra							
Acacia salicinia							
Acacia salicinia							
Totals				**47**	**18**	**2**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**		
Bare		15	20	20	15		
Leaf	61.5	52.5	55	47.5	39		51.1
Aristida latifolia	30						
Heteropogon contortus	5	30	20				
Eriachne glabrata	2.5		5				
Cymbopogon refractus				30	40		32.5
Spermacoce sp.	1						
Stylosanthes humilis*		2.5		2.5			
Cyperus sp.					5		
Phyllanthus maderaspatensis					1		
Total	**100**	**100**	**100**	**100**	**100**		

Large Trees	Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus
Eucalyptus populnea	
Eucalyptus Crebra	2
Total	**2**

Additional Species:

Trees: Corymbia dallachiana

Shrubs: Vachellia bidwillii, Grevillea parallela Alphitonia excelsa, Grewia retusifolia, Capparis mitchellii, Capparis canescens, Myoporum acuminatum, Pogonolobus reticulatus, Maytenus cunninghamii

Grass and graminoids: Aristida latifolia

Forbs: Brunoniella australis

Exotic species:

Summary		
Canopy Cover T1 / T2 %	57	
Shrub cover (S1/S2) %	24	
Canopy Height - Median (m)	20	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	2	
Tree Species Richness	3	
Shrub Species Richness	9	
Grass Species Richness	6	
Forb Species Richness	3	
Native Grass Cover (%)	25	
Leaf Litter Cover (%)	50	
Non-native plant cover (%)	<1	
Coarse Woody Debris (m)	92	

Additional Notes: Heavily logged with removal of ironbark. Site has been subject to heavy grazing activity

Biocondition Site 27 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): Non-remnant
Location Start:-22.768177° / 149.608783°
Location End: -22.767478°/149.608260°

Landform / Soil: Upper terrace of Tooloombah Creek above current flood level. Flat terrace formed on silty clay loam. Minor overflow flood path to the east.

Structural Formation: Woodland

T1 Median Height / Cover (m/%): 19 /65
T2 Median Height / Cover (m/%): 10 /14
S1 Median Height / Cover (m/%): 6 / 7

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus populnea	0 - 10			10			16
Eucalyptus populnea	11 - 15.			10			21
Eucalyptus populnea	16 - 31			15			17
Eucalyptus populnea	35 - 37			2			15
Eucalyptus crebra	37 - 46			9			16
Eucalyptus crebra	53 - 65			12			17
Eucalyptus crebra	66 - 73			7			18
Acacia salicinia			77 - 81			4	5
Acacia salicinia			83 - 86			3	7
Eucalyptus crebra		86 - 94			8		12
Eucalyptus populnea		94 - 100			6		11
Totals				**65**	**14**	**7**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	40	30	5	10	15	
Leaf	40	40	40	22.5	40	-36.5
Bothriochloa decipiens (?)	10	15		10		
Sporobolus virginicus	5		10	5		
Cymbopogon refractus				30		
Chloris divaricata					20	
Eragrostis elongata		5	30	10	10	
Aristida latifolia (?)						32
Eremophila debilis			2.5			
Sida cordifolia*			2.5			
Pterocaulon sphacelatum				2.5	5	
Cyperus gracilis	5	10	10	10	10	
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2

Eucalyptus Crebra	
Total	**2**

Additional Species:

Trees:

Shrubs: Geijera parviflora, Breynia oblongifolia, Atalaya hemiglauca

Grass and graminoids: Aristida latifolia, Heteropogon contortus

Forbs:

Exotic species: Lantana camara*, Cryptostegia grandiflora*

Summary		
Canopy Cover T1 / T2 %	65	
Shrub cover (S1/S2) %	7	
Canopy Height - Median (m)	16	
No of Canopy Species Recruiting (%)	100	2 out of 2 canopy trees recruiting
Large Tree Count	2	
Tree Species Richness	2	
Shrub Species Richness	4	
Grass Species Richness	8	
Forb Species Richness	0	
Native Grass Cover (%)	32	
Leaf Litter Cover (%)	36.5	
Non-native plant cover (%)		<5
Coarse Woody Debris (m)	97	

Additional Notes: Heavily logged with removal of ironbark. Site has been subject to heavy grazing activity

Biocondition Site 28 (offset)
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start:-22.769398° / 149.607805°
Location End: -22.768659° / 149.607335°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel. No bedrock exposed in stream channel.

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 29 /21
T2 Median Height / Cover (m/%): 12 /22
S1 Median Height / Cover (m/%): 7 / 16

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Eucalyptus tereticornis	3 - 18.			15			28
Melaleuca trichostachya			52 - 57			5	8
Melaleuca fluviatilis		57 - 66			9		12
Casuarina cunninghamiana			59 - 63			7	7
Corymbia tessellaris	63 - 69			6			30
Melaleuca fluviatilis		76 - 87			11		12
Lophostemon grandiflorus			84 - 88			4	6
Melaleuca fluviatilis		98 - 100			2		13
Totals				**21**	**22**	**16**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	72.5	50	32.5	49	55	
Leaf	10	20	25	10	10	15
Chrysopogon fallax					15	3
Cyperus polystachys	10					
Casuarina cunninghamiana	5					
Unidentified forb	2.5					
Eustraphis latifolius		5				
Sida cordifolia*			2.5			
Cynodon dactylon					15	
Megathyrsus maximus subsp. Trichoglume"		20	30	40		
Lomandra longifolia						
Parthenium hysterophorus*				1		
Cyperus gracilis		5	10			
Bothriochloa pertusa*					5	
Total	**100**	**100**	**100**	**100**	**95**	

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**
Casuarina cunninghamiana	2
Melaleuca fluviatilis	3

Lophostemon grandiflorus	1
Eucalyptus tereticornis	4
Corymbia tessellaris	3
Total	

Additional Species:

Trees:

Shrubs:Diospyros humilis, Cupaniopsis anacardioides, Mallotus philippensis

Grass and Graminoids:

Forbs:

Exotic species: Lantana camara*, Cryptostegia grandiflora*, Stachytarpheta jamaicensis*, Praxelis clematidea*

Summary		
Canopy Cover T1 / T2 %	21	
Shrub cover (S1/S2) %	22	
Canopy Height - Median (m)	29	
No of Canopy Species Recruiting (%)	100	3 out of 3 canopy trees recruiting
Large Tree Count Eucs	7	
Large Tree Count - Non-eucs	6	
Tree Species Richness	7	
Shrub Species Richness	4	
Grass Species Richness	1	
Forb Species Richness	1	
Native Grass Cover (%)	3	
Leaf Litter Cover (%)	15	
Non-native plant cover (%)	40% cover of lantana on the margins	
Coarse Woody Debris (m)	12	

Additional Notes: Dense shrub cover of lantana camara on flood plain levee adjacent to channel

Biocondition Site 29 (offset)
Regional Ecosystem: 11.3.25
Mapped Regional Ecosystem (DNRM): 11.3.25
Location Start:-22.754647° / 149.599144°
Location End: -22.754095° / 149.599731°

Landform / Soil: Incised drainage line. Fluvial sands and silts in channel. No bedrock exposed in stream channel.

Structural Formation: Open Forest

E Median Height / Cover (m/%): 33 /11
T1 Median Height / Cover (m/%): 17 /64
S1 Median Height / Cover (m/%): 6 / 24

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Casuarina cunninghamiana		3 - 8.			12		12
Casuarina cunninghamiana			8 - 16.			8	3
Eucalyptus tereticornis	8 - 19.			11			33
Casuarina cunninghamiana		22 - 29			7		12
Casuarina cunninghamiana			21 - 28			7	6
Melaleuca fluviatilis		28 - 36			8		8
Casuarina cunninghamiana		36 - 47			11		11
Casuarina cunninghamiana		53 - 68			5		10
Melaleuca trichostachya			63 - 68			5	6
Ficus obliqua		71 - 84			13		16
Casuarina cunninghamiana		84 - 92			8		17
Melaleuca trichostachya			88 - 92			4	6
Lophostemon grandiflorus			96 - 100			4	6
Totals				**11**	**64**	**24**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	40	10	10	50	30	
Leaf	35	75	45	20	30	41
Chrysopogon fallax	15					11
Sporobolus virginicus			40			
Casuarina cunninghamiana	5					
Bothriochloa pertusa*	5					
Cynodon dactylon		15			20	
Cyperus polystachys			5		20	
Panicum maximum var. trichoglume*				20		
Melaleuca trichostachya				10		
Total	**100**	**100**	**100**	**100**	**100**	

Large Trees	**Threshold Size: 49cm DBH for Eucs; 29cm for non-Eucs**
Casuarina cunninghamiana	19
Melaleuca fluviatilis	7

Melia azaderach		4
Ficus obliqua		1
Eucalyptus tereticornis	2	
Corymbia tessellaris	1	
Total	**10**	**24**

Additional Species:

Trees:

Shrubs:Unid scrambling shrub, Mallotus philippensis, Cupaniopsis anacardioides, Ficus coronata

Grass and Graminoids:

Forbs: Ludwigia pepaloides

Exotic species: Cryptostegia grandiflora*, Lantana camara*, Parthenium hysterophorus*, Xanthium occidentale

Summary		
Canopy Cover T1 / T2 %	64	
Shrub cover (S1/S2) %	24	
Canopy Height - Median (m)	17	
No of Canopy Species Recruiting (%)	100	6 out of 6 canopy trees recruiting
Large Tree Count Eucs	10	
Large Tree Count - Non-eucs	24	
Tree Species Richness	6	
Shrub Species Richness	5	
Grass Species Richness	2	
Forb Species Richness	1	
Native Grass Cover (%)	11	
Leaf Litter Cover (%)	41	
Non-native plant cover (%)	30% cover of lantana on the margins	
Coarse Woody Debris (m)	35	

Additional Notes: Dense shrub cover of lantana camara on flood plain levee adjacent to channel

Biocondition Site 30 (offset)
Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): Non-remnant
Location Start:-22.755425° / 149.600224°
Location End: -22.754620°/149.600651°

Landform / Soil: Upper terrace of Tooloombah Creek above current flood level. Flat terrace formed on silty clay loam.

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 19/50
T2 Median Height / Cover (m/%): 12 /11
S1 Median Height / Cover (m/%): 6 / 22

Tree Cover	T1 Interval (m)	T2	S1	T1 intercept (m)	T2	S1	height (m)
Corymbia tessellaris		0 - 2			2		12
Eucalyptus crebra			4 - 8.			4	8
Eucalyptus crebra	4 - 10.			6			23
Corymbia clarksoniana		11 - 15.			4		8
Eucalyptus crebra			15 - 18			3	8
Alphitonia excelsa			21 - 23			2	8
Eucalyptus crebra	25 - 40			15			14
Eucalyptus crebra			41 - 44			3	7
Eucalyptus crebra	44 - 60			16			19
Eucalyptus crebra			62 - 65			6	6
Eucalyptus populnea	73 - 82			9			18
Eucalyptus crebra	82 - 86			4			19
Eucalyptus crebra		84 - 89			5		11
Corymbia dallachiana		98 - 100				2	9
Atalaya hemiglauca			73 - 75			2	5
Totals				**50**	**11**	**22**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**	
Bare	10	30	30	10	10	
Leaf	35	30	48	55	48	43.1
Aristida calycina		40				
Themeda triandra	5					9
Atalaya hemiglauca			10			
Borthiochloa pertusa*			10	10	5	
Solanum esuriale			2			
Cyperus gracilis	50			20	15	
Glycine tabacina						
Sida cordifolia*				5		
Glycine sp.	1					
Aristida personata					10	

Sida spinosa*				2.5	
Panicum maximum var. trichoglume				10	
Total	**100**	**100**	**100**	**100**	**100**

Large Trees	**Threshold Size: 39cm DBH Eucalyptus / 24cm DBH non-Eucalyptus**
Eucalyptus populnea	2
Eucalyptus Crebra	5
Total	**7**

Additional Species:

Trees:

Shrubs: Grevillea parallela, Alphitonia excelsa, Grewia retusifolia, Petalostigma pubescens, Capparis canescens, Senna artemisioides

Grass and graminoids: Eragrostis longifolia, Heteropogon contortus

Forbs: .

Exotic species: Stylosanthes humilis

Summary		
Canopy Cover T1 / T2 %	50	
Shrub cover (S1/S2) %	22	
Canopy Height - Median (m)	19	
No of Canopy Species Recruiting (%)	100	3 out of 3 canopy trees recruiting
Large Tree Count	7	
Tree Species Richness	3	
Shrub Species Richness	6	
Grass Species Richness	4	
Forb Species Richness	3	
Native Grass Cover (%)	9	
Leaf Litter Cover (%)	43	
Non-native plant cover (%)	<5	
Coarse Woody Debris (m)	88	

Additional Notes: Heavily logged with removal of ironbark. Site has been subject to heavy grazing activity

Central Queensland Coal Project

Attachment B

Vegetation Data – Secondary and Quaternary Sites

Secondary Site 1

Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.4.2
Location Start: -22.697249°, 149.682816°
Location End: -22.6968° E149.668273°

Transect Length: 50m

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 26 /36
T2 Median Height / Cover (m/%): 12 /26
S1 Median Height / Cover (m/%): 3 / <5

Landform / Soil: Flat, loamy plain on terrace elevated above current flood level.
Loamy soils with minor surface gravel.

Structural Formation: Woodland verging on open forest

Tree Cover	T1 Interval (m)	T2 interval (T1 intercept (m)	T2 Intercept (height
Eucalyptus crebra	7 - 15.	8	17
Eucalyptus crebra	14 - 17	3	12
Eucalyptus crebra	21 - 29	8	21
Eucalyptus platyphylla	27 - 37	10	12
Eucalyptus crebra	35 - 43	8	21
Eucalyptus crebra	48 - 50	2	17
Totals		**26**	**13**

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	15	20	15.5	15	12
Leaf	62.5	48	52	52	55
Eragrostis longifolia	15			10	10
Chloris divaricata		7	15	18	
Heteropogon contortus		20	5		18
Cymbopogon refractus	5	5	10		
Sida cordifolia	2.5		2.5	5	5
Total	**100**	**100**	**100**	**100**	**100**

Stems	**T1**	**T2**	**S1**	**S2**
Eucalyptus crebra	6	2		
Eucalyptus platyphylla		2		
Pittosporum spinescens				2
Santalum lanceolatum			1	
Carissa ovata				14

Grevillea parallela			3	5
Capparis mitchelli				1
Capparis lasiantha				4
Total	**6**	**4**	**4**	**26**

Notes: Site has been heavily logged for ironbark**. Minor lantana and rubber vine in vicinity**

Secondary Site 2

Regional Ecosystem: 11.4.2
Mapped Regional Ecosystem (DNRM): 11.4.2
Location Start: -22.697001°, 149.681670°
Location End: -22.697204° E149.681233°

Transect Length: 50m

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 19 /48
T2 Median Height / Cover (m/%): 11 /14
S1 Median Height / Cover (m/%): 6 / 4

Landform / Soil: Flat, loamy plain on terrace elevated above current flood level.
Clay loam soils with minor surface gravel.

Structural Formation: Woodland verging on open forest

Tree Cover (m)	T1 Interval (	T2 interva	S1 Interva	T1 intercept (	T2 Inte	S1 Interval	height
Eucalyptus crebra	2 - 7.			5			18
Eucalyptus populnea	11 - 19.			8			17
Eucalyptus crebra		17 - 21			4		11
Eucalyptus crebra	27 - 34			7			19
Atalaya hemiglauca			28 - 32			4	6
Eucalyptus crebra	39 - 43			4			17
Eucalyptus populnea		45 - 48			3		11
Totals				**24**	**7**	**4**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare	20	45	40	23	25
Leaf	45	25	45	50	40
Aristida latifolia	15	15			
Eriachne glabrata	10			15	
Eragrostis longifolia		10			10
Chloris divaricata	2.5		10	8	
Heteropogon contortus		5	5		25
Cymbopogon refractus	5				
Sida cordifolia	2.5			5	
Total	**100**	**100**	**100**	**101**	**100**

Stems	**T1**	**T2**	**S1**	**S2**
Eucalyptus crebra	5		3	
Eucalyptus populnea	1	1		

Eucalyptus platyphylla		1		
Atalaya hemiglauca			13	7
Alectryon diversifolius				2
Geijera parviflora			2	1
Pittosporum spinescens				3
Carissa ovata				8
Capparis lasiantha				5
Total	**6**	**2**	**18**	**26**

Notes: Site has been heavily logged for ironbark**.** Minor lantana and rubber vine in vicinity

Secondary Site 3

Regional Ecosystem: 11.3.35
Mapped Regional Ecosystem (DNRM): 11.4.2
Location Start: -22.696483° / 149.680977°
Location End: -22.696109° / 149.680677°

Landform / Soil: Upper alluvial terrace of Deep Creek. Dissected loamy alluvial plain

Structural Formation: Open Forest

T1 Median Height / Cover (m/%): 17 /42
T2 Median Height / Cover (m/%): 11 /10
S1 Median Height / Cover (m/%): 3 / 8

Tree Cover (m)	T1 Interval (r	T2 interv	S1 Interv	T1 intercept (r	T2 Interc	S1 Interc	height
Eucalyptus platyphylla	0 - 7			7			11
Corymbia clarksoniana		9 - 11.			2		7
Eucalyptus platyphylla	11 - 19.			8			17
Eucalyptus platyphylla	23 - 29			6			16
Lophostemon suaveolens		31 - 34			3		7
Corymbia clarksoniana	39 - 43						17
Acacia leiocalyx			41 - 44			2	6
Planchonea careya			45 - 47			2	3
Eucalyptus platyphylla	47 - 50			3			17
Totals				**21**	**5**	**4**	

Ground Cover

	Q1	**Q2**	**Q3**	**Q4**	**Q5**
Bare					
Leaf			20	25	5
Arundinella nepalensis	80	70	15	22.5	70
Heteropogon contortus			25		
Imperata cylindrica	20	22.5	35	45	25
Sida cordifolia*		2.5		5	
Eustrephis latifolius		5	5	2.5	
Total	**100**	**100**	**100**	**100**	**100**

Stems	**T1**	**T2**	**S1**	**S2**
Eucalyptus platyphylla	6	2		
Lophostemon suaveolens		2	2	
Corymbia clarksoniana	1	1		
Planchonea careya			4	
Acacia leiocalyx			4	
Total	**7**	**5**	**10**	**0**

Quaternary Site #	Latitude	Longitude	Currently Mapped RE	Proposed RE	Landscape Position / Soils	Structural Formation	Canopy - T1 Height Range / PCC/ Dominant Species	Canopy T2 Height Range / PCC/ Dominant Species	Shrub S1 Height/Cover/ Dominant Species	Shrub S2 Height/Cover/ Dominant Species	Ground
Q1	-22.737832°	149.664572°	11.11.15a	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	18 - 26m / 40% / Eucalyptus platyphylla, Corymbia tessellaris, Corymbia clarksoniana	8 - 14m / 20% / Lophostemon suaveolens, Corymbia tessellaris	3 - 7m/ 25% / Acacia crassa, Alphitonia excelsa,	2 - 3m / 70%/ Lantana camara	
Q2	-22.746405°	149.661462°	11.11.15a	11.11.15a	Gently sloping colluvial plain slightly above break of slope to relict alluvial terrace	Woodland	16 - 18m / 45%/ Eucalyptus crebra	8 - 12m / 15%/ Corymbia dallachiana, Eucalyptus crebra			
Q3	-22.748910°	149.664923°	11.11.15a	11.3.35	Narrow ephemeral gully line passing through lower alluvial terrace of river	Woodland	15 - 22m / 50%/ Eucalyptus platyphylla, Corymbia tessellaris, Eucalyptus tereticornis	8 - 11m / 30%/ Lophostemon suaveolens, Lophostemon grandiflorus	4 - 7m / 25%/ Alphitonia excelsa	2 - 3m / 60%/ Lantana camara	
Q4	-22.749368°	149.665035°	11.11.15a	11.4.2	Ephemeral drainage line - 5m channel width	Riparian woodland	8 - 11m / 60%/ Lophostemon grandiflorus				
Q5	-22.751091°	149.664479°	11.11.15a	11.11.15a	Gently sloping colluvial plain slightly above break of slope to relict alluvial terrace	Woodland	15 - 18m / 40%/ Eucalyptus crebra	8 - 12m /10%/ Corymbia dallachiana, Eucalyptus crebra			
Q6	-22.754374°	149.665199°	11.11.15a	11.4.9	Below break of slope on older, flat alluvial terrace. Heavy clay soils (vertosols) with strong gilgai microtopography	Thicket / Scrub	18 - 25m / 30%/ Acacia harpophylla. Brachychiton rupestris (occasional)		3 - 8m / 80% / Eleodendron australe, Alectryon diversifolius, Geijer		
Q7	-22.753258°	149.663292°	11.11.15a	11.11.15a	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100 to the east	Woodland	15 - 18m / 40%/ Eucalyptus crebra	8 - 13m /10%/ Corymbia dallachiana, Eucalyptus crebra, Eucalyptus exserta			
Q8	-22.763905°	149.659653°	Non-remnant	Non-remnant	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100 to the east	Woodland	15 - 18m / 30%/ Eucalyptus crebra	8 - 13m /15%/ Eucalyptus crebra,			
Q9	-22.762159°	149.657185°	11.11.15a	11.11.15a	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100m to the	Woodland	15 - 18m / 30%/ Eucalyptus crebra	8 - 13m /15%/ Eucalyptus crebra,			
Q10	-22.765143°	149.656085°	Non-remnant	Non-remnant	Undulating colluvial surface formed on sedimentary rocks.	Regrowth Woodland	4 - 7m / 30%/ Eucalyptus crebra				
Q11	-22.769182°	149.656686°	11.3.25	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	18 - 26m / 40% / Eucalyptus platyphylla, Corymbia tessellaris, Corymbia clarksoniana, Lophostemon suaveolens	8 - 11m / 20% / Lophostemon suaveolens	3 - 7m/ 20% / Acacia crassa, Alphitonia excelsa,	2 - 3m / 50%/ Lantana camara	
Q12	-22.760799°	149.657413°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks.	Woodland	15 - 18m / 30%/ Eucalyptus crebra, Corymbia dallachiana, Eucalyptus exserta	8 - 13m /15%/ Corymbia dallachiana, Eucalyptus exserta			
Q13	-22.756760°	149.661075°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks. Break of slope with relict alluvial terrace 300m to the east	Woodland	16 - 21m / 30%/ Eucalyptus crebra, Corymbia dallachiana	8 - 13m /10%/ Corymbia dallachiana, Eucalyptus exserta			
Q14	-22.749913°	149.660066°	11.11.15a	11.11.15a	Narrow ephemeral gully line incised into metasedimentary rocks	Woodland	8 - 13m / 50%/Lophostemon grandiflorus. Emergent Eucalyptus crebra				
Q15	-22.752088°	149.661964°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks.	Woodland	15 - 19m / 35%/ Eucalyptus crebra, Corymbia dallachiana	8 - 11m /10%/ Corymbia dallachiana,			
Q16	-22.748967°	149.661034°	11.11.15a	11.3.25	Narrow ephemeral gully line incised into metasedimentary rocks	Woodland	8 - 13m / 60%/Lophostemon grandiflorus, Alphitonia excelsa				
Q17	-22.743005°	149.661744°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks. Break of slope with relict alluvial terrace 150m to the east	Woodland	17 - 22m / 40%/ Eucalyptus crebra, Corymbia dallachiana	8 - 13m /10%/ Corymbia dallachiana		Dense groundcover of Sida cordifolia	
Q18	-22.695577°	149.682771°	11.4.2	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	15 - 19m / 60% / Eucalyptus platyphylla, Lophostemon suaveolens, Corymbia tessellaris, Corymbia clarksoniana,	8 - 11m / 20% / Lophostemon suaveolens		2 - 3m / 50%/ Lantana camara	Imperata cylindrica
Q19	-22.695749°	149.682878°	11.4.2	11.3.35	Overflow flood depression on alluvium	Woodland to open forest	15 - 22m / 60% / Eucalyptus platyphylla, Corymbia tessellaris, Eucalyptus tereticornis, Lophostemon suaveolens	7 - 10m / 10% / Lophostemon suaveolens			Dense Chrysopogon fallax
Q20	-22.696772°	149.683723°	11.4.2	11.3.27	Overflow flood channel with open lagoon.	Wetland	Open wetland with fringing open forest of Lophostemon suaveolens. Fringing woodland at 18m and 40% cover				
Q21	-22.697580°	149.683971°	11.4.2	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland to open forest	14 - 19m / 60% / Eucalyptus platyphylla, Corymbia tessellaris, Lophostemon suaveolens	7 - 10m / 10% / Lophostemon suaveolens		2 - 3m / 50%/ Lantana camara	Imperata cylindrica

Q22	-22.766938°	149.611891°	Non-remnant	11.3.4	Narrow alluvial floodplain associated with Ephemeral Stream	Woodland to open forest	15 - 21 / 60%/ Eucalyptus tereticornis, Eucalyptus crebra, Corymbia tessellaris, Corymbia clarksoniana				
Q23	-22.697728°	149.678533°	11.4.9	11.4.2	Margins of older alluvial clay terrace	Woodland to open forest	14 - 22 / 50%/ Eucalyptus crebra, Eucalyptus populnea,	7 - 11m / 15% / Acacia harpophylla, Eucalyptus populnea, Grevillea parralella, Acacia salicinia	2 - 4m / 10%/ Vachellia bidwillii, Acacia harpophylla	1m/ 30%/ Carrisa ovata, Alectryon diversifolius, Psydrax odorata	Cymbopogon refractus, Themeda triandra, Heteropogon contortus
Q24	Q24	149.680102°	11.4.9	11.4.2	Margins of older alluvial clay terrace	Woodland to open forest	14 -18 / 50%/ Eucalyptus populnea, Eucalyptus crebra, Acacia harpophylla	7 - 11m / 10% / Acacia harpophylla, Grevillea parralella, .	2 - 4m / 10%/ Acacia harpophylla, Psydrax odorata	1m/ 20%/ Carrisa ovata, Acacia harpophylla, Psydrax odorata	0

Quaternary Site #	Latitude	Longitude	Currently Mapped RE	Proposed RE	Landscape Position / Soils	Structural Formation	Canopy - T1 Height Range / PCC/ Dominant Species	Canopy T2 Height Range / PCC/ Dominant Species	Shrub S1 Height/Cover/ Dominant Species	Shrub S2 Height/Cover/ Dominant Species	Ground
Q1	-22.737832°	149.664572°	11.11.15a	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	18 - 26m / 40% / Eucalyptus platyphylla, Corymbia tessellaris, Corymbia clarksoniana	8 - 14m / 20% / Lophostemon suaveolens, Corymbia tessellaris	3 - 7m/ 25% / Acacia crassa, Alphitonia excelsa,	2 - 3m / 70%/ Lantana camara	
Q2	-22.746405°	149.661462°	11.11.15a	11.11.15a	Gently sloping colluvial plain slightly above break of slope to relict alluvial terrace	Woodland	16 - 18m / 45%/ Eucalyptus crebra	8 - 12m / 15%/ Corymbia dallachiana, Eucalyptus crebra			
Q3	-22.748910°	149.664923°	11.11.15a	11.3.35	Narrow ephemeral gully line passing through lower alluvial terrace of river	Woodland	15 - 22m / 50%/ Eucalyptus platyphylla, Corymbia tessellaris, Eucalyptus tereticornis	8 - 11m / 30%/ Lophostemon suaveolens, Lophostemon grandiflorus	4 - 7m / 25%/ Alphitonia excelsa	2 - 3m / 60%/ Lantana camara	
Q4	-22.749368°	149.665035°	11.11.15a	11.4.2	Ephemeral drainage line - 5m channel width	Riparian woodland	8 - 11m / 60%/ Lophostemon grandiflorus				
Q5	-22.751091°	149.664479°	11.11.15a	11.11.15a	Gently sloping colluvial plain slightly above break of slope to relict alluvial terrace	Woodland	15 - 18m / 40%/ Eucalyptus crebra	8 - 12m /10%/ Corymbia dallachiana, Eucalyptus crebra			
Q6	-22.754374°	149.665199°	11.11.15a	11.4.9	Below break of slope on older, flat alluvial terrace. Heavy clay soils (vertosols) with strong gilgai microtopography	Thicket / Scrub	18 - 25m / 30%/ Acacia harpophylla. Brachychiton rupestris (occasional)		3 - 8m / 80% / Eleodendron australe, Alectryon diversifolius, Geijer		
Q7	-22.753258°	149.663292°	11.11.15a	11.11.15a	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100 to the east	Woodland	15 - 18m / 40%/ Eucalyptus crebra	8 - 13m /10%/ Corymbia dallachiana, Eucalyptus crebra, Eucalyptus exserta			
Q8	-22.763905°	149.659653°	Non-remnant	Non-remnant	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100 to the east	Woodland	15 - 18m / 30%/ Eucalyptus crebra	8 - 13m /15%/ Eucalyptus crebra,			
Q9	-22.762159°	149.657185°	11.11.15a	11.11.15a	Gently sloping colluvial surface. Above break of slope to relict alluvial terrace 100m to the	Woodland	15 - 18m / 30%/ Eucalyptus crebra	8 - 13m /15%/ Eucalyptus crebra,			
Q10	-22.765143°	149.656085°	Non-remnant	Non-remnant	Undulating colluvial surface formed on sedimentary rocks.	Regrowth Woodland	4 - 7m / 30%/ Eucalyptus crebra				
Q11	-22.769182°	149.656686°	11.3.25	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	18 - 26m / 40% / Eucalyptus platyphylla, Corymbia tessellaris, Corymbia clarksoniana, Lophostemon suaveolens	8 - 11m / 20% / Lophostemon suaveolens	3 - 7m/ 20% / Acacia crassa, Alphitonia excelsa,	2 - 3m / 50%/ Lantana camara	
Q12	-22.760799°	149.657413°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks.	Woodland	15 - 18m / 30%/ Eucalyptus crebra, Corymbia dallachiana, Eucalyptus exserta	8 - 13m /15%/ Corymbia dallachiana, Eucalyptus exserta			
Q13	-22.756760°	149.661075°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks. Break of slope with relict alluvial terrace 300m to the east	Woodland	16 - 21m / 30%/ Eucalyptus crebra, Corymbia dallachiana	8 - 13m /10%/ Corymbia dallachiana, Eucalyptus exserta			
Q14	-22.749913°	149.660066°	11.11.15a	11.11.15a	Narrow ephemeral gully line incised into metasedimentary rocks	Woodland	8 - 13m / 50%/Lophostemon grandiflorus. Emergent Eucalyptus crebra				
Q15	-22.752088°	149.661964°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks.	Woodland	15 - 19m / 35%/ Eucalyptus crebra, Corymbia dallachiana	8 - 11m /10%/ Corymbia dallachiana,			
Q16	-22.748967°	149.661034°	11.11.15a	11.3.25	Narrow ephemeral gully line incised into metasedimentary rocks	Woodland	8 - 13m / 60%/Lophostemon grandiflorus, Alphitonia excelsa				
Q17	-22.743005°	149.661744°	11.11.15a	11.11.15a	Undulating colluvial surface formed on sedimentary rocks. Break of slope with relict alluvial terrace 150m to the east	Woodland	17 - 22m / 40%/ Eucalyptus crebra, Corymbia dallachiana	8 - 13m /10%/ Corymbia dallachiana		Dense groundcover of Sida cordifolia	
Q18	-22.695577°	149.682771°	11.4.2	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland	15 - 19m / 60% / Eucalyptus platyphylla, Lophostemon suaveolens, Corymbia tessellaris, Corymbia clarksoniana,	8 - 11m / 20% / Lophostemon suaveolens		2 - 3m / 50%/ Lantana camara	Imperata cylindrica
Q19	-22.695749°	149.682878°	11.4.2	11.3.35	Overflow flood depression on alluvium	Woodland to open forest	15 - 22m / 60% / Eucalyptus platyphylla, Corymbia tessellaris, Eucalyptus tereticornis, Lophostemon suaveolens	7 - 10m / 10% / Lophostemon suaveolens			Dense Chrysopogon fallax
Q20	-22.696772°	149.683723°	11.4.2	11.3.27	Overflow flood channel with open lagoon.	Wetland	Open wetland with fringing open forest of Lophostemon suaveolens. Fringing woodland at 18m and 40% cover				
Q21	-22.697580°	149.683971°	11.4.2	11.3.35	Upper alluvial flood terrace of Deep Creek. Landscape position subject to seasonal flooding. Sility alluvial soils	Woodland to open forest	14 - 19m / 60% / Eucalyptus platyphylla, Corymbia tessellaris, Lophostemon suaveolens	7 - 10m / 10% / Lophostemon suaveolens		2 - 3m / 50%/ Lantana camara	Imperata cylindrica

Q22	-22.766938°	149.611891°	Non-remnant	11.3.4	Narrow alluvial floodplain associated with Ephemeral Stream	Woodland to open forest	15 - 21 / 60%/ Eucalyptus tereticornis, Eucalyptus crebra, Corymbia tessellaris, Corymbia clarksoniana				
Q23	-22.697728°	149.678533°	11.4.9	11.4.2	Margins of older alluvial clay terrace	Woodland to open forest	14 - 22 / 50%/ Eucalyptus crebra, Eucalyptus populnea,	7 - 11m / 15% / Acacia harpophylla, Eucalyptus populnea, Grevillea parralella, Acacia salicinia	2 - 4m / 10%/ Vachellia bidwillii, Acacia harpophylla	1m/ 30%/ Carrisa ovata, Alectryon diversifolius, Psydrax odorata	Cymbopogon refractus, Themeda triandra, Heteropogon contortus
Q24	Q24	149.680102°	11.4.9	11.4.2	Margins of older alluvial clay terrace	Woodland to open forest	14 -18 / 50%/ Eucalyptus populnea, Eucalyptus crebra, Acacia harpophylla	7 - 11m / 10% / Acacia harpophylla, Grevillea parralella, .	2 - 4m / 10%/ Acacia harpophylla, Psydrax odorata	1m/ 20%/ Carrisa ovata, Acacia harpophylla, Psydrax odorata	0

Central Queensland Coal Project

Attachment C

Site Photographs

Biocondition Site Photographs

Biocondition 1_End to Start

Biocondition 1_Start to End

Biocondition 2_End to Start

Biocondition 2_Start to End

Biocondition 3_End to Start

Biocondition 3_Start to End

Biocondition 4_End to Start

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Biocondition 6_End to Start

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Biocondition 7_End to Start

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Biocondition 30_End to Start

Biocondition 30_Start to End

Secondary Site Photographs

Secondary 1_Start to End

Secondary 2_Start to End

Secondary 3_Start to End

Quaternary Site Photographs

Quaternary Site 1

Quaternary Site 6

Quaternary Site 7

Quaternary Site 14

Quaternary Site 20

Quaternary Site 21

Quaternary Site 23

Quaternary Site 24