

# APPENDIX 8: MHQAT RESULTS – KOALA

IMPACT SITE

Assessment Unit - Regional Ecosystem		RE 12.5.4 <i>Eucalyptus latisinensis</i> +/- <i>Corymbia intermedia</i> , <i>C. trachyphloia</i> subsp. <i>trachyphloia</i> , <i>Angophora leiocarpa</i> , <i>Eucalyptus exserta</i> woodland. Occurs on complex of remnant Tertiary surfaces and Cainozoic and Mesozoic sediments. Contains Palustrine. (BVG1M:9g).										
Trasect No.	Maximum Score	Benchmark 12.5.4	Transect 1			Transect 2			Transect 3			
Site condition			Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	
<b>BioCondition</b>												
Recruitment of woody perennial species in EDL	5	100	40	40	3.00	33	33	3.00	100	100	5.00	
Native plant species richness - trees	5	5	10	200	5.00	12	240	5.00	11	220	5.00	
Native plant species richness - shrubs	5	9	4	44	2.50	4	44	2.50	2	22	0.00	
Native plant species richness - grasses	5	7	4	57	2.50	4	57	2.50	4	57	2.50	
Native plant species richness - forbes	5	18	3	17	0.00	8	44	2.50	6	33	2.50	
Tree emergent height		N/A										
Tree canopy height		17	18	106	5.00	19	112	5.00	17	100	5.00	
Tree subcanopy height		8	10	125	5.00	8	100	5.00	10	125	5.00	
<b>Average canopy height</b>	5				5.00			5.00			5.00	
Tree emergent canopy cover		N/A						N/A			N/A	
Tree canopy cover		37	24.8	67	5.00	54.8	148	5.00	58.8	159	5.00	
Tree subcanopy cover		14	45	321	3.00	44.5	318	3.00	51.5	368	3.00	
<b>Average canopy cover</b>	5				4.00			4.00			4.00	
Shrub canopy cover	5	19	20.3	107	5.00	6.9	36	3.00	19.5	103	5.00	
Native grass cover	5	42	16	38	1.00	6	14	1.00	7	17	1.00	
Organic litter	5	29	36	124	5.00	19	66	5.00	23	79	5.00	
Coarse woody debris	5	416	283	68	5.00	215	52	5.00	488	117	5.00	
Large trees (euc plus non-euc)	15	27	18	67	10.00	24	89	10.00	32	119	15.00	
Non-native plant cover	10	0	70	N/A	0.00	80	N/A	0.00	75	N/A	0.00	
<b>Total (BioCondition)</b>	<b>80.00</b>				48.00			48.50			55.00	
Quality and availability of food and foraging habitat	10				8.00			8.00			9.67	
Quality and availability of shelter	10				8.00			8.00			9.67	
Site Condition Score (per transect)					64.0			64.5			74.3	
<b>MAX Site Condition Score (pertransect)</b>					100.0			100.0			100.0	
Site Condition Score (average)		67.6										
MAX Site Condition Score		100										
<b>Site Condition Score - out of 3</b>		<b>2.03</b>										

Site Context	Max Score	Score
Size of patch	10	5
Connectedness	5	0
Context	5	2
Ecological Corridors	6	0
Role of site location to total population	5	5
Threats to the species	15	7
Species mobility capacity	10	7
Site Context Score		26
MAX Site Context Score		56
<b>Site Context Score - out of 3</b>		<b>1.39</b>

Species Stocking Rate (SSR)	Score	Score
Presence detected on or adjacent to the site	0 No	5 Adjacent
Species usage of the site	0 Not habitat	5 Dispersal
Approximate density	0 0%	10 Low
Role of species population (on the site)*	0 0	5 5-15
SSR Score		40.0
MAX SSR Score		70
<b>SSR Score - out of 4</b>		<b>2.29</b>

*SSR Supplementary Table	Score	Score
*Key source population for breeding	0 No	10 Yes/ Possibly
*Key source population for dispersal	0 No	5 Yes/ Possibly
*Necessary for maintaining genetic diversity	0 No	15 Yes/ Possibly
*Near the limit of the species range	0 No	15 Yes
<b>SSR Supplementary Score</b>		<b>5.00</b>

Final habitat quality score (weighted)	12.5.4
Site Condition score (out of 4)	2.03
Site Context Score (out of 3)	1.39
Species Stocking Rate Score (out of 3)	2.29
Habitat Quality score (out of 10)	5.71
*area weighting not applicable	
<b>TOTAL SCORE (10)</b>	<b>6</b>

OFFSET SITE - EXISTING

Assessment Unit 1 - REGROWTH		RE 12.12.5 <i>Corymbia citriodora</i> subsp. <i>variegata</i> , <i>Eucalyptus crebra</i> woodland on Mesozoic to Proterozoic igneous rocks																		
Transect No.	Maximum Score	Benchmark 12.12.5			Transect BC02			Transect BC03			Transect BC05			Transect BC06			Transect BC07			
Site condition		Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	
<b>BioCondition</b>																				
Recruitment of woody perennial species in EDL	5	100	100	100	5.00	100	100	5.00	100	100	5.00	100	100	5.00	100	100	5.00	100	100	5.00
Native plant species richness - trees	5	5	3	60	2.50	6	120	5.00	5	100	5.00	4	80	2.50	3	60	2.50	3	60	2.50
Native plant species richness - shrubs	5	9	5	56	2.50	12	133	5.00	9	100	5.00	6	67	2.50	2	22	0.00	2	22	0.00
Native plant species richness - grasses	5	11	7	64	2.50	9	82	2.50	9	82	2.50	7	64	2.50	6	55	2.50	6	55	2.50
Native plant species richness - forbes	5	17	21	124	5.00	15	88	2.50	22	129	5.00	14	82	2.50	10	59	2.50	10	59	2.50
Tree emergent height		N/A																		
Tree canopy height		22	N/A			N/A			N/A			N/A			N/A			N/A		
Tree subcanopy height		9	N/A			N/A			N/A			N/A			N/A			N/A		
<b>Average canopy height</b>	5	15.5	13.5	87	5.00	12	77	5.00	11.5	74	5.00	9.5	61	3.00	N/A	9	58	3.00		
Tree emergent canopy cover		N/A																		
Tree canopy cover		41	N/A			N/A			N/A			N/A			N/A			N/A		
Tree subcanopy cover		10	N/A			N/A			N/A			N/A			N/A			N/A		
<b>Average canopy cover</b>	5	25.5	30.95	121	5.00	23.85	94	5.00	41.1	161	5.00	24.45	96	5.00	14.75	58	3.00			
Shrub canopy cover	5	3	4.7	157	5.00	6.1	203	3.00	14.1	470	3.00	1	33	3.00	4.3	143	5.00			
Native grass cover	5	35	29	83	3.00	30.2	86	3.00	25.4	73	3.00	54	154	5.00	37	106	5.00			
Organic litter	5	35	49	140	5.00	6	23	3.00	32.4	93	5.00	12.4	35	3.00	5	14	3.00			
Coarse woody debris	5	578	230	40	2.00	570	99	5.00	520	90	5.00	330	57	5.00	260	45	2.00			
Large trees (euc plus non-euc)	15	29	0	0	0.00	1	3	5.00	1	3	5.00	0	0	0.00	1	3	5.00			
Non-native plant cover	10	0	5	N/A	5.00	20	N/A	5.00	10	N/A	5.00	10	N/A	5.00	5	N/A	5.00			
<b>Total (BioCondition)</b>	<b>80.00</b>				<b>47.50</b>			<b>54.00</b>			<b>58.50</b>			<b>44.00</b>						<b>43.50</b>
Quality and availability of food and foraging habitat	10				4.17			6.67			6.67			3.50						4.50
Quality and availability of shelter	10				4.17			6.67			6.67			3.50						4.50
Site Condition Score (per transect)					55.8			67.3			71.8			51.0						52.5
MAX Site Condition Score (per transect)					100.0			100.0			100.0			100.0						100.0
Site Condition Score (average)		59.7																		
MAX Site Condition Score		100																		
<b>Site Condition Score - out of 3</b>		<b>1.79</b>																		

Assessment Unit 2 - NON-REMNANT		Non-remnant vegetation (cleared and disturbed areas) (pre-clearing RE 12.12.5)																	
Transect No.	Maximum Score	Benchmark 12.12.5			Transect BC01			Transect BC04											
Site condition		Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score									
<b>BioCondition</b>																			
Recruitment of woody perennial species in EDL	5	100	100	100	5.00	0	0	0	0.00										
Native plant species richness - trees	5	5	3	60	2.50	1	20	0	0.00										
Native plant species richness - shrubs	5	9	3	33	2.50	0	0	0	0.00										
Native plant species richness - grasses	5	11	7	64	2.50	4	36	2.50											
Native plant species richness - forbes	5	17	8	47	2.50	5	29	2.50											
Tree emergent height		N/A																	
Tree canopy height		22	N/A			N/A													
Tree subcanopy height		9	N/A			N/A													
<b>Average canopy height</b>	5	15.5	10	65	3.00	4	26	3.00											
Tree emergent canopy cover		N/A																	
Tree canopy cover		41	N/A			N/A													
Tree subcanopy cover		10	N/A			N/A													
<b>Average canopy cover</b>	5	25.5	0	0	0.00	0	0	0.00											
Shrub canopy cover	5	3	0	0	0.00	0	0	0.00											
Native grass cover	5	35	59	169	5.00	70.6	202	5.00											
Organic litter	5	35	0	0	0.00	3.6	10	3.00											
Coarse woody debris	5	578	200	35	2.00	330	57	5.00											
Large trees (euc plus non-euc)	15	29	0	0	0.00	0	0	0.00											
Non-native plant cover	10	0	40	N/A	3.00	15	N/A	5.00											
<b>Total (BioCondition)</b>	<b>80.00</b>				<b>28.00</b>			<b>26.00</b>											
Quality and availability of food and foraging habitat	10				1.83			1.00											
Quality and availability of shelter	10				1.83			1.00											
Site Condition Score (per transect)					31.7			28.0											
MAX Site Condition Score (per transect)					100.0			100.0											
Site Condition Score (average)		29.8																	
MAX Site Condition Score		100																	
<b>Site Condition Score - out of 3</b>		<b>0.90</b>																	

Site Context	Max Score	Data	Score
Size of patch	10	207 (135 B)	7
Connectedness	5	8%	2
Context	5	6%	2
Ecological Corridors	6	within	6
Role of site location to total population	5	Critical	5
Threats to the species	15	Moderate	7
Species mobility capacity	10	Minor restrict	7
Site Context Score			36
MAX Site Context Score			56
<b>Site Context Score - out of 3</b>			<b>1.93</b>

Species Stocking Rate (SSR)	Score	0	5	10	Score (AU2)	Score (AU1)
Presence detected on or adjacent to the site	Score	No	Adjacent	On site	5	5
Species usage of the site	Score	0	5	10	15	10
Approximate density	Score	0	10	20	30	10
Role of species population (on the site)*	Score	0	5	10	15	10
SSR Score					30.0	35.0
MAX SSR Score					70	70
<b>SSR Score - out of 4</b>					<b>1.71</b>	<b>2.00</b>

*SSR Supplementary Table	Score	0	10
*Key source population for breeding	Score	No	Yes/ Possibly
*Key source population for dispersal	Score	0	5
*Necessary for maintaining genetic diversity	Score	0	15
*Near the limit of the species range	Score	0	15
<b>SSR Supplementary Score</b>			

Final habitat quality score (weighted)	AU1	AU2
Site Condition score (out of 4)	1.79	0.90
Site Context score (out of 3)	1.93	1.93
Species Stocking Rate score (out of 3)	1.71	2.00
Habitat Quality score (out of 10)	5.43	4.82
AU area	73	34
Site area	107	107
Area weighted score	3.71	1.53
<b>TOTAL SCORE (10)</b>	<b>5</b>	

OFFSET SITE - PROPOSED

Modified Habitat Quality Assessment Tool (MHQAT)  
 PROPOSED OFFSET - KOALA  
 Highlight indicates measure predicted to increase with management in accordance with offset completion criteria

Assessment Unit 1 - REGROWTH																		
RE 12.12.5 <i>Corymbia citriodora</i> subsp. <i>variegata</i> , <i>Eucalyptus crebra</i> woodland on Mesozoic to Proterozoic igneous rocks																		
Transect No.	Maximum Score	Benchmark 12.12.5	Transect BC02			Transect BC03			Transect BC05			Transect BC06			Transect BC07			
Site condition	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark
<b>BioCondition</b>																		
Recruitment of woody perennial species in EDL	5	100	100	100	5.00	100	100	5.00	100	100	5.00	100	100	5.00	100	100	5.00	100
Native plant species richness - trees	5	5	5	100	5.00	5	100	5.00	5	100	5.00	5	100	5.00	5	100	5.00	5
Native plant species richness - shrubs	5	9	9	100	5.00	9	100	5.00	9	100	5.00	9	100	5.00	9	100	5.00	9
Native plant species richness - grasses	5	11	7	64	2.50	9	82	2.50	9	82	2.50	7	64	2.50	6	55	2.50	5
Native plant species richness - forbes	5	17	21	124	5.00	15	88	2.50	22	129	5.00	14	82	2.50	10	59	2.50	7
Tree emergent height		N/A																
Tree canopy height		22	N/A			N/A			N/A			N/A			N/A			
Tree subcanopy height		9	N/A			N/A			N/A			N/A			N/A			
Average canopy height	5	15.5	13.5	87	5.00	12.4	80	5.00	12.4	80	5.00	12.4	80	5.00	12.4	80	5.00	12.4
Tree emergent canopy cover		N/A																
Tree canopy cover		41	N/A			N/A			N/A			N/A			N/A			
Tree subcanopy cover		10	N/A			N/A			N/A			N/A			N/A			
Average canopy cover	5	25.5	30.95	121	5.00	23.85	94	5.00	41.1	161	5.00	24.45	96	5.00	20.4	80	5.00	20.4
Shrub canopy cover	5	3	4.7	157	5.00	6.1	203	3.00	14.1	470	3.00	3	100	5.00	4.3	143	5.00	4.3
Native grass cover	5	35	29	83	3.00	30.2	86	3.00	25.4	73	3.00	54	154	5.00	37	106	5.00	37
Organic litter	5	35	49	140	5.00	8	23	3.00	32.4	93	5.00	12.4	35	3.00	5	14	3.00	5
Coarse woody debris	5	578	230	40	2.00	99	99	5.00	520	90	5.00	330	57	5.00	260	45	2.00	45
Large trees (euc plus non-euc)	15	29	1	3	5.00	1	3	5.00	1	3	5.00	1	3	5.00	1	3	5.00	1
Non-native plant cover	10	0	5	N/A	5.00	20	N/A	5.00	10	N/A	5.00	10	N/A	5.00	5	N/A	5.00	5
Total (BioCondition)	80.00				57.50			54.00			58.50			58.00			55.00	
Quality and availability of food and foraging habitat	10				6.67			6.67			6.67			6.67			6.67	
Quality and availability of shelter	10				6.67			6.67			6.67			6.67			6.67	
Site Condition Score (per transect)					70.8			67.3			71.8			71.3			68.3	
MAX Site Condition Score (per transect)					100.0			100.0			100.0			100.0			100.0	
Site Condition Score (average)		69.9																
MAX Site Condition Score		100																
Site Condition Score - out of 3		2.10																

Assessment Unit 2 - NON-REMNANT									
Non-remnant vegetation (cleared and disturbed areas) (pre-clearing RE 12.12.5)									
Transect No.	Maximum Score	Benchmark 12.12.5	Transect BC01		Transect BC04				
Site condition	Score	Raw Data	% Benchmark	Score	Raw Data	% Benchmark			
<b>BioCondition</b>									
Recruitment of woody perennial species in EDL	5	100	100	5.00	0	0			
Native plant species richness - trees	5	5	5	100	5.00	5			
Native plant species richness - shrubs	5	9	9	100	5.00	9			
Native plant species richness - grasses	5	11	7	64	2.50	4			
Native plant species richness - forbes	5	17	8	47	2.50	5			
Tree emergent height		N/A							
Tree canopy height		22	N/A		N/A				
Tree subcanopy height		9	N/A		N/A				
Average canopy height	5	15.5	12.4	80	5.00	12.4			
Tree emergent canopy cover		N/A							
Tree canopy cover		41	N/A		N/A				
Tree subcanopy cover		10	N/A		N/A				
Average canopy cover	5	25.5	20.4	80	5.00	20.4			
Shrub canopy cover	5	3	3	100	5.00	3			
Native grass cover	5	35	59	169	5.00	70.6			
Organic litter	5	35	0	0	0.00	3.6			
Coarse woody debris	5	578	200	35	2.00	330			
Large trees (euc plus non-euc)	15	29	0	0	0.00	0			
Non-native plant cover	10	0	25	N/A	5.00	15			
Total (BioCondition)	80.00			47.00		48.00			
Quality and availability of food and foraging habitat	10			5.00		5.00			
Quality and availability of shelter	10			5.00		5.00			
Site Condition Score (per transect)				57.0		58.0			
MAX Site Condition Score (per transect)				100.0		100.0			
Site Condition Score (average)		57.5							
MAX Site Condition Score		100							
Site Condition Score - out of 3		1.73							

Site Context	Max Score	Data	Score
Size of patch	10	314 (242 B)	10
Connectedness	5	6%	2
Context	5	6%	2
Ecological Corridors	6	within	6
Role of site location to total population	5	Critical	5
Threats to the species	15	Low	15
Species mobility capacity	10	High	10
Site Context Score			50
MAX Site Context Score			56
Site Context Score - out of 3			2.68

Species Stocking Rate (SSR)	Score	0	5	10	Score (AU1)	Score (AU2)
Presence detected on or adjacent to the site		No	Adjacent	On site	5	5
Species usage of the site		0	5	10	15	10
Approximate density		Not habitat	Dispersal	Foraging	Breeding	10
Role of species population (on the site)*		0	5	10	15	10
SSR Score		0	5-15	20-35	40-45	35.0
MAX SSR Score						70
SSR Score - out of 4						2.00

SSR Supplementary Table	Score	0	10
*Key source population for breeding		No	Yes/ Possibly
*Key source population for dispersal		No	Yes/ Possibly
*Necessary for maintaining genetic diversity		No	Yes/ Possibly
*Near the limit of the species range		No	Yes
SSR Supplementary Score			20.00

Final habitat quality score (weighted)	AU1	AU2
Site Condition score (out of 4)	2.10	1.73
Site Context score (out of 3)	2.68	2.68
Species Stocking Rate score (out of 3)	2.00	2.00
Habitat Quality score (out of 10)	6.78	6.40
AU area	73	34
Site area	107	107
Area weighted score	4.62	2.03
<b>TOTAL SCORE (10)</b>	<b>7</b>	