

**Appendix 4    Terrestrial fauna survey site descriptions**

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	M001	<b>Position (WGS84)</b>	-31.147148, 119.505356
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	negligible	<b>Rock type</b>	ferrous - Ironstone, quartz
<b>Soil colour</b>	red-orange, yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.13	28 Nov 2019	28 Nov 2019
1	Site description	1.22	03 Oct 2019	03 Oct 2019

Site description - visit 1 (03 Oct 2019)				
Low-mid open gimlet/wandoo woodland over mixed open shrubs over patchy low <i>Maireana</i> samphire				
<b>Habitat</b>	open woodland			
<b>Disturbance</b>	evidence of feral animals; vehicle tracks; weed infestation;			
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	under vegetation	
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>				
<b>Herb cover (%)</b>	5			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	M002	<b>Position (WGS84)</b>	-31.608479, 119.531883
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow, grey	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.09	27 Nov 2019	27 Nov 2019
1	Site description	0.00	03 Oct 2019	03 Oct 2019

Site description - visit 1 (03 Oct 2019)				
Low mallee over <i>Allocasuarina</i> and mixed <i>Acacia</i> low-mid shrubland, small patches of spinifex				
<b>Habitat</b>	mallee woodland			
<b>Disturbance</b>				
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	relatively recent (1-5 years)	
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>	under vegetation	
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	40	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	1			
<b>Herb cover (%)</b>	5			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	M003	<b>Position (WGS84)</b>	-31.543182, 119.528084
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	quartz
<b>Soil colour</b>	red–orange, yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.60	01 Dec 2019	01 Dec 2019
1	Site description	0.02	03 Oct 2019	03 Oct 2019

**Site description - visit 1 (03 Oct 2019)**

Open mid-tall mixed *Eucalyptus* woodland over tall *Melaleuca* shrubland and some mallee over scattered low-mid shrubs and herbs, all components patchy in small-scale mosaic

<b>Habitat</b>	woodland		
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not evident
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	under vegetation
<b>Tree cover (%)</b>	45	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	10	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>	2		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	M004	Position (WGS84)	-30.925348, 119.503311
Topography	plain	Soil texture	sand
Slope	negligible	Rock type	calcrete
Soil colour	red–orange, yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.47	04 Oct 2019	04 Oct 2019

Site description - visit 1 (04 Oct 2019)				
Mixed <i>Eucalyptus</i> woodland with scattered mallees over mid <i>Eremophila</i> shrubland over low shrubs and herbs				
Habitat	woodland			
Disturbance	firebreak; vehicle tracks			
Vegetation condition	Excellent	Fire age	not evident	
Total veg. cover (%)	40	Litter distribution	under vegetation	
Tree cover (%)	20	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)				
Herb cover (%)	2			



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	M005	Position (WGS84)	-30.953615, 119.509697
Topography	plain	Soil texture	sand, sandy loam
Slope	negligible	Rock type	none
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.75	04 Oct 2019	04 Oct 2019

Site description - visit 1 (04 Oct 2019)				
Scattered <i>Melaleuca</i> tall shrubs over mid <i>Dodonea</i> shrubland over pigface and <i>Maireana</i> low shrubs				
Habitat	shrubland			
Disturbance	evidence of feral animals; vehicle tracks			
Vegetation condition	Excellent	Fire age	not evident	
Total veg. cover (%)	30	Litter distribution	under vegetation	
Tree cover (%)	2	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)	10			
Herb cover (%)	2			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	M007	Position (WGS84)	-31.302305, 119.511658
Topography	plain	Soil texture	sand
Slope	negligible	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.78	27 Nov 2019	27 Nov 2019
1	Site description	0.33	04 Oct 2019	04 Oct 2019

**Site description - visit 1 (04 Oct 2019)**

Scattered tall *Hakea*, *Acacia*, *Grevillea* and mallee over closed mid *Allocasuarina* shrubland over mixed low shrubs and herbs, occasional spinifex

Habitat	shrubland			
Disturbance	firebreak			
Vegetation condition	Excellent	Fire age	not evident	
Total veg. cover (%)	70	Litter distribution	even/continuous	
Tree cover (%)	2	Litter depth(cm)	0	
Shrub cover (%)	70	Litter cover (%)	0	
Grass cover (%)	0.1			
Herb cover (%)				



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	M008	<b>Position (WGS84)</b>	-31.47657, 119.526581
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.00	01 Dec 2019	01 Dec 2019
1	Site description	0.38	04 Oct 2019	04 Oct 2019

Site description - visit 1 (04 Oct 2019)				
<i>Eucalyptus socialis</i> mallee woodland over mid-tall <i>Melaleuca</i> shrubland over mixed low-mid shrubs				
<b>Habitat</b>	mallee woodland			
<b>Disturbance</b>				
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not evident	
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	under vegetation	
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	30	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>				
<b>Herb cover (%)</b>				



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR001	Position (WGS84)	-31.421319, 119.516903
Topography	plain	Soil texture	sand, laterite
Slope	negligible	Rock type	none
Soil colour	yellow, grey	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	2.00	25 Nov 2019	25 Nov 2019

**Site description - visit 1 (25 Nov 2019)**

*Callitris* tall shrubland with mid to tall *Allocasuarina* over low Myrtaceae shrubs and sparse *Triodia* stage 3 hummock grass

Habitat	shrubland			
Disturbance				
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	70	Litter distribution		
Tree cover (%)	70	Litter depth(cm)	0	
Shrub cover (%)	10	Litter cover (%)	0	
Grass cover (%)	1			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR002	<b>Position (WGS84)</b>	-31.481179, 119.527594
<b>Topography</b>	plain	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	negligible	<b>Rock type</b>	granite - rocks, quartz
<b>Soil colour</b>	red-orange, brown	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Camera trap	592.00	27 Nov 2019	02 Dec 2019
1	Foraging	1.05	27 Nov 2019	27 Nov 2019
1	Site description	1.77	25 Nov 2019	25 Nov 2019

**Site description - visit 1 (25 Nov 2019)**

Mid-tall open *Eucalyptus* woodland over mid mallees, *Melaleuca* and *Callitris* over low-mid *Acacia*, *Santalum* and Myrtaceae shrubs; sparse woody debris and patchy leaf litter on sandy clay-loam and laterite pebbles

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, litter, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PR003	Position (WGS84)	-31.619932, 119.549278
Topography	undulating plain	Soil texture	sand, laterite
Slope	gentle	Rock type	granite - rocks, quartz
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	1.10	25 Nov 2019	25 Nov 2019

Site description - visit 1 (25 Nov 2019)				
Sparse mallee trees over <i>Callitris</i> , <i>Acacia</i> and <i>Melaleuca</i> on yellow sand with some lateritic pebbles				
Habitat	open woodland			
Disturbance	evidence of feral animals, vehicle tracks			
Vegetation condition	Excellent	Fire age	not recorded	
Total veg. cover (%)	90	Litter distribution		
Tree cover (%)	85	Litter depth(cm)	0	
Shrub cover (%)	85	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	1			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR004	<b>Position (WGS84)</b>	-31.590972, 119.52724
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	ferrous - Ironstone, quartz
<b>Soil colour</b>	brown, grey	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.00	26 Nov 2019	26 Nov 2019
1	Site description	2.00	25 Nov 2019	25 Nov 2019

Site description - visit 1 (25 Nov 2019)				
Mallee tall shrubs over mostly <i>Acacia</i> mid shrubland with some low <i>Melaleuca</i> on yellow-brown sandy soil				
<b>Habitat</b>	shrubland			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	50	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PR005	Position (WGS84)	-31.590556, 119.528961
Topography	breakaway	Soil texture	rocks
Slope	moderate	Rock type	calcrete
Soil colour	red–orange, brown, grey	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.00	25 Nov 2019	25 Nov 2019

**Site description - visit 1 (25 Nov 2019)**

Scattered mallet eucalypts over *Callitris* and *Melaleuca* mid-tall shrubs over open low mixed shrubland, over scattered sedges; breakaway with woody debris including hollow logs

Habitat	shrubland			
Disturbance				
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	30	Litter distribution		
Tree cover (%)	15	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)	1			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PR006	Position (WGS84)	-30.93158, 119.511961
Topography	undulating plain	Soil texture	sand
Slope	negligible	Rock type	none
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	1.03	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Open mallee and Gimlet woodland over mixed *Acacia* and *Melaleuca* mid shrubs, over open low shrubs and herbs on stony ground

Habitat	mallee woodland			
Disturbance	evidence of feral animals, vehicle tracks			
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	40	Litter distribution		
Tree cover (%)	25	Litter depth(cm)	0	
Shrub cover (%)	25	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	3			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PR007	Position (WGS84)	-30.971694, 119.505248
Topography	hill slope	Soil texture	sand
Slope	gentle	Rock type	none
Soil colour	red–orange, yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.73	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Open *Eucalyptus* trees and mallee over mixed *Acacia* and other shrubs over sparse low spinifex hummock grass on yellow sands

Habitat	mallee woodland			
Disturbance	evidence of feral animals, vehicle tracks			
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	40	Litter distribution		
Tree cover (%)	40	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)	3			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR008	<b>Position (WGS84)</b>	-31.013272, 119.504699
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.00	28 Nov 2019	28 Nov 2019
1	Site description	2.90	26 Nov 2019	26 Nov 2019

Site description - visit 1 (26 Nov 2019)				
Open mallee woodland over mid-tall mixed <i>Acacia</i> shrubland, patchy litter under vegetation				
<b>Habitat</b>	mallee woodland			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	35	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PR009	<b>Position (WGS84)</b>	-31.043988, 119.504983
<b>Topography</b>	hill top	<b>Soil texture</b>	rocks, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	granite - outcropping, granite - rocks, quartz, calcrete
<b>Soil colour</b>	brown, whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	1.07	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Scattered mallees over mid-tall *Callitris* and mixed *Acacia* shrubland over low shrubs, sedges, herbs and sparse spinifex hummocks; patches of low weathered granite outcrop

<b>Habitat</b>	shrubland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	10	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	40	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	5		
<b>Herb cover (%)</b>	5		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR010	<b>Position (WGS84)</b>	-31.057029, 119.504339
<b>Topography</b>	breakaway	<b>Soil texture</b>	sand, rocks
<b>Slope</b>	gentle	<b>Rock type</b>	calcrete
<b>Soil colour</b>	whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	2.62	26 Nov 2019	26 Nov 2019
1	Site description	0.73	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Open eucalypt woodland over mid-tall *Acacia*, *Melaleuca* and other mixed shrubs on white sand and weathered granite breakaway

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	30	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	30	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR011	<b>Position (WGS84)</b>	-31.082225, 119.50414
<b>Topography</b>	breakaway	<b>Soil texture</b>	sand, laterite
<b>Slope</b>	steep	<b>Rock type</b>	granite - rocks, quartz, calcrete
<b>Soil colour</b>	grey, whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.07	28 Nov 2019	28 Nov 2019
1	Site description	1.53	26 Nov 2019	26 Nov 2019

Site description - visit 1 (26 Nov 2019)				
Open mid eucalypt woodland and mallee over sparse low-mid shrubs on weathered granite breakaway and white sand; large fallen trees with hollows, rock crevice and shallow cave habitat, boulder piles, leaf litter				
<b>Habitat</b>	open woodland			
<b>Disturbance</b>	evidence of feral animals			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	20	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	3	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	PR012	Position (WGS84)	-31.098961, 119.504922
Topography	undulating plain	Soil texture	sandy loam, laterite
Slope	negligible	Rock type	ferrous - Ironstone, calcrete
Soil colour	yellow, grey	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.80	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Dense mid-tall shrubland of *Allocasurina*, *Melaleuca* and *Acacia*, over mixed low Myrtaceae shrubs on sandy laterite gravel

Habitat	shrubland			
Disturbance	evidence of feral animals			
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	90	Litter distribution		
Tree cover (%)	80	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR013	<b>Position (WGS84)</b>	-31.184119, 119.507552
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, laterite
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.43	27 Nov 2019	27 Nov 2019
1	Site description	1.10	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (26 Nov 2019)**

Mid *Allocasuarina* shrubland and scattered *Melaleuca* over mixed small-leaf Myrtaceae shrubs on yellow sand

<b>Habitat</b>	shrubland			
<b>Disturbance</b>	evidence of feral animals			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	80	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	60	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	60	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	PR014	Position (WGS84)	-31.230735, 119.509777
Topography	undulating plain	Soil texture	sand
Slope	negligible	Rock type	none
Soil colour	yellow, whitish	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.95	04 Oct 2019	04 Oct 2019
1	Site description	1.88	03 Oct 2019	03 Oct 2019
1	Site description	1.07	26 Nov 2019	26 Nov 2019
1	Foraging	0.02	01 Dec 2019	01 Dec 2019

**Site description - visit 1 (26 Nov 2019)**

Sparse mallee over mid-tall shrubland of *Callitris*, *Allocasurina*, *Grevillea* and *Banksia* over mixed small-leaf Myrtaceae over scattered *Lepidosperma*, sedges and spinifex hummocks on yellow sand

Habitat	shrubland		
Disturbance	evidence of feral animals		
Vegetation condition	Very Good	Fire age	moderate (>5 years)
Total veg. cover (%)	60	Litter distribution	
Tree cover (%)	20	Litter depth(cm)	0
Shrub cover (%)	50	Litter cover (%)	0
Grass cover (%)	2		
Herb cover (%)	0		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site description - visit 1 (03 Oct 2019)			
Tall closed shrubland, <i>Allocasuarina</i> over low-tall myrtaceous shrubs incl. <i>Banksia</i>			
<b>Habitat</b>	shrubland		
<b>Disturbance</b>			
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not evident
<b>Total veg. cover (%)</b>	80	<b>Litter distribution</b>	even/continuous
<b>Tree cover (%)</b>	60	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	40	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>	2		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PR015	Position (WGS84)	-31.544425, 119.528481
Topography	hill slope	Soil texture	sandy loam
Slope	gentle	Rock type	granite - rocks, quartz
Soil colour	whitish	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	1.10	26 Nov 2019	26 Nov 2019

Site description - visit 1 (26 Nov 2019)				
Open eucalypt woodland over scattered mallees and moderately dense <i>Melaleuca</i> tall shrubland; abundant but patchy leaf litter, trees with hollows, fallen hollow logs				
Habitat	open woodland			
Disturbance	evidence of feral animals, litter			
Vegetation condition	Excellent	Fire age	moderate (>5 years)	
Total veg. cover (%)	35	Litter distribution		
Tree cover (%)	32	Litter depth(cm)	0	
Shrub cover (%)	1	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR016	<b>Position (WGS84)</b>	-31.575976, 119.527553
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red–orange, yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.32	26 Nov 2019	26 Nov 2019
1	Site description	1.00	27 Nov 2019	27 Nov 2019

**Site description - visit 1 (27 Nov 2019)**

Mid open mallee woodland over mid-tall *Allocasuarina*, *Melaleuca* and *Acacia* shrubland; abundant leaf litter

<b>Habitat</b>	mallee woodland		
<b>Disturbance</b>			
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	50	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	1		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR017	Position (WGS84)	-31.093129, 119.505047
Topography	undulating plain	Soil texture	sandy loam
Slope	gentle	Rock type	granite - rocks
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	1.70	28 Nov 2019	28 Nov 2019

**Site description - visit 1 (28 Nov 2019)**

Previously cleared area: moderately dense low-mid shrubland of *Acacia*, *Melaleuca* and *Allocasuarina* on sandy lateritic soil; adjacent to (uncleared) mallee woodland over very dense tall *Melaleuca* shrubland

Habitat	mallee woodland			
Disturbance	evidence of feral animals, revegetation			
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	50	Litter distribution		
Tree cover (%)		Litter depth(cm)	0	
Shrub cover (%)	50	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR018	<b>Position (WGS84)</b>	-31.549984, 119.528685
<b>Topography</b>	hill top	<b>Soil texture</b>	sand, rocks
<b>Slope</b>	gentle	<b>Rock type</b>	granite - rocks, quartz
<b>Soil colour</b>	whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.23	26 Nov 2019	26 Nov 2019
1	Site description	0.83	28 Nov 2019	28 Nov 2019

**Site description - visit 1 (28 Nov 2019)**

Previously cleared area on low ridge: scattered low mallee over low mixed *Acacia* and *Melaleuca* shrubs and sparse sedge grass on coarse whitish sand with some granite rocks

<b>Habitat</b>	mallee woodland		
<b>Disturbance</b>	evidence of feral animals, historic clearing, vehicle tracks		
<b>Vegetation condition</b>	Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	25	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	5	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR019	<b>Position (WGS84)</b>	-31.602024, 119.526842
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam, laterite
<b>Slope</b>	negligible	<b>Rock type</b>	ferrous - Ironstone, granite - rocks, quartz
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.00	29 Nov 2019	29 Nov 2019
1	Site description	0.77	28 Nov 2019	28 Nov 2019

**Site description - visit 1 (28 Nov 2019)**

Open mallee tall shrubland over mixed low shrubland of *Acacia*, *Melaleuca*, *Allocasuarina* and mixed Myrtaceae on yellow sandy lateritic soil

<b>Habitat</b>	shrubland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	65	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	50	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	1		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR020	Position (WGS84)	-31.283823, 119.511835
Topography	hill top	Soil texture	sand, sandy loam
Slope	gentle	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.00	01 Dec 2019	01 Dec 2019
1	Site description	0.80	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Open tall shrubland of *Grevillea*, *Acacia* and *Allocasuarina* over *Hakea*, *Allocasurina*, *Acacia* and mixed Myrtaceae mid shrubs over low sedge grass on yellow sand; gently sloping hilltop / high point of undulating plains

Habitat	shrubland		
Disturbance	evidence of feral animals		
Vegetation condition	Excellent	Fire age	moderate (>5 years)
Total veg. cover (%)	50	Litter distribution	
Tree cover (%)	2	Litter depth(cm)	0
Shrub cover (%)	50	Litter cover (%)	0
Grass cover (%)	30		
Herb cover (%)	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR021	<b>Position (WGS84)</b>	-31.317679, 119.511978
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow, grey	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.33	03 Dec 2019	03 Dec 2019
1	Site description	0.80	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Mid-tall semi-closed shrubland of *Allocasurina*, *Acacia* and Myrtaceae on yellow grey sand with scattered rock fragments; patchy leaf litter

<b>Habitat</b>	shrubland			
<b>Disturbance</b>				
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR022	<b>Position (WGS84)</b>	-31.326471, 119.512147
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.22	01 Dec 2019	01 Dec 2019
1	Site description	0.40	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Dense low woodland/tall shrubland of *Acacia*, *Callitris*, and *Melaleuca* on yellow-grey sandy soil; abundant woody debris and leaf litter

<b>Habitat</b>	woodland		
<b>Disturbance</b>	evidence of feral animals		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	80	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	70	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	30	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR023	Position (WGS84)	-31.342064, 119.511876
Topography	undulating plain	Soil texture	sand, sandy loam, laterite
Slope	gentle	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.77	29 Nov 2019	29 Nov 2019

Site description - visit 1 (29 Nov 2019)				
Dense tall shrubland of <i>Allocasuarina</i> , mallees, <i>Callitris</i> and <i>Acacia</i> over mixed low-mid shrubs including Myrtaceae on yellow sandy lateritic soil; abundant leaf litter				
Habitat	shrubland			
Disturbance				
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	55	Litter distribution		
Tree cover (%)	40	Litter depth(cm)	0	
Shrub cover (%)	20	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR024	<b>Position (WGS84)</b>	-31.359215, 119.513054
<b>Topography</b>	hill slope	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red–orange, yellow, grey	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.50	01 Dec 2019	01 Dec 2019
1	Site description	0.53	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Dense mid-tall *Allocasuarina* and *Acacia* shrubland over low-mid shrubs of same with Myrtaceae, over sparse sedge grass on yellow-grey sand; leaf litter

<b>Habitat</b>	shrubland		
<b>Disturbance</b>	revegetation		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>	1		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR025	Position (WGS84)	-31.377158, 119.512158
Topography	undulating plain	Soil texture	sand, sandy loam
Slope	gentle	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.43	29 Nov 2019	29 Nov 2019

Site description - visit 1 (29 Nov 2019)				
Cleared/ripped area adjacent to access track and emu fence: mixed shrubland of <i>Acacia</i> , <i>Allocasuarina</i> , and Myrtaceae on yellow sand				
Habitat	shrubland			
Disturbance	historic clearing, revegetation, vehicle tracks			
Vegetation condition	Good	Fire age	not recorded	
Total veg. cover (%)	30	Litter distribution		
Tree cover (%)		Litter depth(cm)	0	
Shrub cover (%)	30	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR026	<b>Position (WGS84)</b>	-31.39536, 119.51246
<b>Topography</b>	hill slope	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red–orange, yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.43	04 Oct 2019	04 Oct 2019
1	Site description	0.73	29 Nov 2019	29 Nov 2019

Site description - visit 1 (29 Nov 2019)				
Cleared/ripped area adjacent to access track and emu fence: scattered remnant mallees over low-mid Myrtaceae, <i>Acacia</i> and <i>Allocasuarina</i> shrubs on orange sand with laterite pebbles				
<b>Habitat</b>	open woodland			
<b>Disturbance</b>	historic clearing, vehicle tracks			
<b>Vegetation condition</b>	Good	<b>Fire age</b>	not recorded	
<b>Total veg. cover (%)</b>	20	<b>Litter distribution</b>		
<b>Tree cover (%)</b>		<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	1			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR027	<b>Position (WGS84)</b>	-31.523551, 119.528152
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy clay, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	ferrous - Ironstone, quartz
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.43	27 Nov 2019	27 Nov 2019
1	Site description	1.17	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Open mid-tall *Eucalyptus* woodland over open *Acacia*, *Melaleuca* and *Callitris* mid shrubland over patchy mixed low shrubs; patchy leaf litter and woody debris including hollow logs

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	litter, revegetation, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	20	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	15	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR028	<b>Position (WGS84)</b>	-31.557949, 119.528137
<b>Topography</b>	hill slope	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	granite - rocks, quartz
<b>Soil colour</b>	whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.00	27 Nov 2019	27 Nov 2019
1	Site description	0.43	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Semi-cleared and regenerated: open *Eucalyptus* woodland over tall *Melaleuca* and mallee shrubs over mixed low shrubs of *Acacia* and Myrtaceae on white loamy sand with quartz and granite rocks; woody debris including hollows

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	25	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	15	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	10	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR029	Position (WGS84)	-31.610853, 119.544263
Topography	hill slope	Soil texture	sandy loam, laterite
Slope	gentle	Rock type	ferrous - Ironstone, quartz
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.83	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Scattered mallees over low-mid *Allocasurina*, *Acacia* and Myrtaceae shrubland over sparse sedge grass on orange/yellow/grey sand with laterite pebbles; standing and fallen dead sticks remain from fire

Habitat	shrubland		
Disturbance	exploration (drill pads and access tracks)		
Vegetation condition	Very Good	Fire age	relatively recent (1-5 years)
Total veg. cover (%)	80	Litter distribution	
Tree cover (%)		Litter depth(cm)	0
Shrub cover (%)	70	Litter cover (%)	0
Grass cover (%)	0		
Herb cover (%)	0		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	PR030	Position (WGS84)	-31.609716, 119.547569
Topography	plain	Soil texture	sandy loam
Slope	negligible	Rock type	none
Soil colour	yellow, whitish	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.77	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

Open *Eucalyptus* woodland over shrub-mallees and moderately dense mid-tall *Melaleuca* on yellow sandy loam; abundant leaf litter and debris

Habitat	woodland			
Disturbance				
Vegetation condition	Very Good	Fire age	moderate (>5 years)	
Total veg. cover (%)	60	Litter distribution		
Tree cover (%)	60	Litter depth(cm)	0	
Shrub cover (%)	5	Litter cover (%)	0	
Grass cover (%)	1			
Herb cover (%)	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

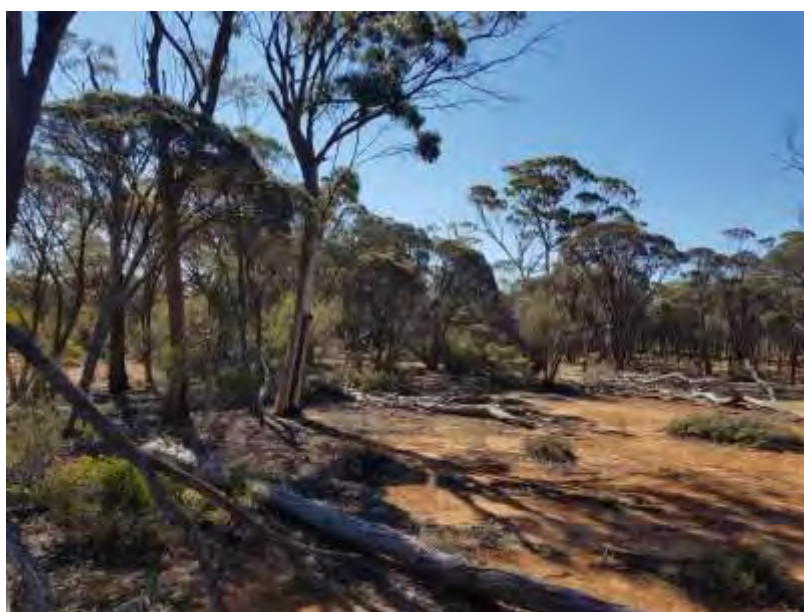
Site details			
Site	PR031	Position (WGS84)	-31.607515, 119.553406
Topography	plain	Soil texture	sandy loam
Slope	negligible	Rock type	none
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.15	01 Dec 2019	01 Dec 2019
1	Site description	1.00	29 Nov 2019	29 Nov 2019

**Site description - visit 1 (29 Nov 2019)**

*Eucalyptus* woodland over *Melaleuca* tall shrubs/small trees over mixed *Acacia* and *Melaleuca* low-mid shrubs and a single sedge grass clump on sandy soil; patchy leaf litter, abundant fallen logs and branches with hollows

Habitat	woodland			
Disturbance				
Vegetation condition	Excellent	Fire age	moderate (>5 years)	
Total veg. cover (%)	40	Litter distribution		
Tree cover (%)	40	Litter depth(cm)	0	
Shrub cover (%)	15	Litter cover (%)	0	
Grass cover (%)	1			
Herb cover (%)	0			



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Site details			
Site	PR032	Position (WGS84)	-31.510192, 119.52768
Topography	hill slope	Soil texture	sandy loam, laterite
Slope	gentle	Rock type	none
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.50	01 Dec 2019	01 Dec 2019
1	Site description	0.67	30 Nov 2019	30 Nov 2019
1	Foraging	0.00	03 Oct 2019	03 Oct 2019

**Site description - visit 1 (30 Nov 2019)**

Open mid mallee woodland over low-mid *Santalum*, *Allocasuarina*, *Acacia* and Myrtaceae shrubs over small shrubs of the same; patchy leaf litter, woody debris

Habitat	mallee woodland		
Disturbance	revegetation, vehicle tracks		
Vegetation condition	Very Good	Fire age	moderate (>5 years)
Total veg. cover (%)	35	Litter distribution	
Tree cover (%)	15	Litter depth(cm)	0
Shrub cover (%)	20	Litter cover (%)	0
Grass cover (%)	0		
Herb cover (%)	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR033	<b>Position (WGS84)</b>	-31.494485, 119.527616
<b>Topography</b>	undulating plain	<b>Soil texture</b>	laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.50	01 Dec 2019	01 Dec 2019
1	Site description	0.53	30 Nov 2019	30 Nov 2019

Site description - visit 1 (30 Nov 2019)				
Mid-tall open <i>Eucalyptus</i> woodland over mallee and <i>Melaleuca</i> tall shrubs over mixed low shrubs; patchy leaf litter, abundant woody debris from historic clearing				
<b>Habitat</b>	open woodland			
<b>Disturbance</b>	evidence of feral animals, revegetation, vehicle tracks			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)	
<b>Total veg. cover (%)</b>	30	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	15	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	1			
<b>Herb cover (%)</b>	2			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR034	<b>Position (WGS84)</b>	-31.266435, 119.511981
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.15	03 Oct 2019	03 Oct 2019
1	Site description	0.70	30 Nov 2019	30 Nov 2019

**Site description - visit 1 (30 Nov 2019)**

Sparse mallee woodland over dense tall shrubland of *Allocasuarina*, *Acacia*, and *Melaleuca* over low mixed shrubs including small-leaf Myrtaceae on yellow sand

<b>Habitat</b>	mallee woodland			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not recorded	
<b>Total veg. cover (%)</b>	80	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	60	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	50	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	0			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR035	<b>Position (WGS84)</b>	-31.207982, 119.508997
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.00	03 Oct 2019	03 Oct 2019
1	Site description	0.57	30 Nov 2019	30 Nov 2019

**Site description - visit 1 (30 Nov 2019)**

Mallee open shrubland over mid *Allocasurina*, *Callitris*, *Acacia*, *Hakea* and mixed Myrtaceae shrubs over very sparse spinifex hummocks on yellow sand

<b>Habitat</b>	shrubland			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not recorded	
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>		
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0	
<b>Shrub cover (%)</b>	50	<b>Litter cover (%)</b>	0	
<b>Grass cover (%)</b>	1			
<b>Herb cover (%)</b>	0			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR036	<b>Position (WGS84)</b>	-30.99887, 119.504707
<b>Topography</b>	plain	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.77	28 Nov 2019	28 Nov 2019
1	Site description	2.30	30 Nov 2019	30 Nov 2019
1	Foraging	0.00	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (30 Nov 2019)**

Open *Eucalyptus* woodland and scattered mallee over low-mid shrubland of *Acacia*, *Eremophila* and mixed Myrtaceae on red-orange sandy loam; abundant leaf litter and woody debris including some large hollow logs

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	25	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	25	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	5	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	1		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR037	<b>Position (WGS84)</b>	-31.441397, 119.52061
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	brown, yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.03	27 Nov 2019	27 Nov 2019
1	Site description	1.13	01 Dec 2019	01 Dec 2019

**Site description - visit 1 (01 Dec 2019)**

Mallee tall shrubland with *Allocasuarina*, *Hakea*, *Acacia* mid shrubs over low Myrtaceae on yellow brown sandy loam

<b>Habitat</b>	shrubland		
<b>Disturbance</b>	evidence of feral animals		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	65	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	50	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	30	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR038	<b>Position (WGS84)</b>	-31.068236, 119.504902
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.17	28 Nov 2019	28 Nov 2019
1	Site description	2.40	01 Dec 2019	01 Dec 2019

**Site description - visit 1 (01 Dec 2019)**

Sparse low mallee over *Acacia*, *Allocasuarina* and mixed Myrtaceae low-mid shrubland on yellow sand, with patchy litter and woody debris

<b>Habitat</b>	shrubland		
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	relatively recent (1-5 years)
<b>Total veg. cover (%)</b>	35	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	2	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	30	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR039	<b>Position (WGS84)</b>	-31.138746, 119.5056
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.00	26 Nov 2019	26 Nov 2019
1	Site description	0.73	02 Dec 2019	02 Dec 2019

**Site description - visit 1 (02 Dec 2019)**

Open *Eucalyptus* woodland over mixed low-mid shrubs including mallees, *Acacia*, *Santalum* and Myrtaceae over flowering herbs; patchy leaf litter, abundant hollows in standing large eucalypts and fallen logs

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, historic clearing, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	25	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	10		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site details			
Site	PR040	Position (WGS84)	-31.111682, 119.505068
Topography	undulating plain	Soil texture	sand
Slope	negligible	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.07	26 Nov 2019	26 Nov 2019
1	Site description	4.30	02 Dec 2019	02 Dec 2019
1	Foraging	0.00	26 Nov 2019	26 Nov 2019

**Site description - visit 1 (02 Dec 2019)**

Mid open mallee shrubland over low-mid *Acacia*, *Allocasuarina*, *Hakea* and mixed Myrtaceae on yellow sand; patchy leaf litter under mallees

Habitat	shrubland		
Disturbance	evidence of feral animals, vehicle tracks		
Vegetation condition	Very Good	Fire age	moderate (>5 years)
Total veg. cover (%)	50	Litter distribution	
Tree cover (%)	20	Litter depth(cm)	0
Shrub cover (%)	20	Litter cover (%)	0
Grass cover (%)	0		
Herb cover (%)	0		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site details			
Site	PR041	Position (WGS84)	-31.095335, 119.505172
Topography	undulating plain	Soil texture	sandy loam, laterite
Slope	negligible	Rock type	granite - rocks, quartz
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	2.60	02 Dec 2019	02 Dec 2019

Site description - visit 1 (02 Dec 2019)	
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Open mallee woodland over tall *Melaleuca* and mallee shrubs over mixed shrubland of *Acacia*, *Allocasurina*, and Myrtaceae over scattered spinifex and sedge grasses on sandy loam and laterite; leaf litter patchy

Habitat	mallee woodland		
Disturbance	vehicle tracks		
Vegetation condition	Very Good	Fire age	not recorded
Total veg. cover (%)	60	Litter distribution	
Tree cover (%)	30	Litter depth(cm)	0
Shrub cover (%)	30	Litter cover (%)	0
Grass cover (%)	5		
Herb cover (%)	1		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PRCAM01	<b>Position (WGS84)</b>	-31.59198, 119.526913
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Camera trap	598.75	27 Nov 2019	02 Dec 2019
2	Site description	0.13	27 Nov 2019	27 Nov 2019

**Site description - visit 1 (27 Nov 2019)**

open Mallee woodland with tall allocasurina and melaleuca shrubs over mixed acacia and melaleuca low shrubs hollows in Mallee and melaleuca. abundant leaf litter lots of needles.

<b>Habitat</b>	mallee woodland		
<b>Disturbance</b>			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	25	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

**Site description - visit 2 (27 Nov 2019)**

Open mallee woodland over tall mulga shrubs over low-mid Myrtaceae shrubs and sparse tussock grass on red-orange sandy loam; patchy leaf litter, thick under mallees

<b>Habitat</b>			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	35	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	30	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PRCAM03	<b>Position (WGS84)</b>	-31.299928, 119.511936
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sand
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	yellow	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Camera trap	688.08	27 Nov 2019	03 Dec 2019
2	Site description	140.00	20 Jan 2020	26 Jan 2020

Site description - visit 1 (27 Nov 2019)			
<b>Habitat</b>	open woodland		
<b>Disturbance</b>			
<b>Vegetation condition</b>		<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	35	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	35	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			

Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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**Site description - visit 2 (20 Jan 2020)**

Mallee and *Allocasuarina* tall shrubland over low *Allocasuarina* and mixed Myrtaceae and other shrubs over sparse sedge grass with patchy leaf litter.

<b>Habitat</b>			
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	2	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	40	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>	0		

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PRCAM04	<b>Position (WGS84)</b>	-31.05704, 119.504715
<b>Topography</b>	breakaway	<b>Soil texture</b>	rocks, silt
<b>Slope</b>	moderate	<b>Rock type</b>	granite - rocks, quartz
<b>Soil colour</b>	whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
2	Site description	0.00	27 Nov 2019	27 Nov 2019
1	Camera trap	594.25	27 Nov 2019	02 Dec 2019

**Site description - visit 1 (27 Nov 2019)**

breakaway with very good overhangs with deep shelter and boulders around a the edge. sparse tall eucalyptus trees around the breakaway with hollows and abundant leaf letter.

<b>Habitat</b>	open woodland		
<b>Disturbance</b>			
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	15	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	10	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	5	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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**Site description - visit 2 (27 Nov 2019)**

Open *Eucalyptus* woodland with mallee and *Callitris* trees over mulga, *Melaleuca* and other mixed shrubs on whitish calcrete breakaway sand with laterite and rocks with patchy leaf litter.

<b>Habitat</b>			
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	
<b>Total veg. cover (%)</b>	65	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	55	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	10	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR-SRE01	<b>Position (WGS84)</b>	-30.96261, 119.507534
<b>Topography</b>	undulating plain	<b>Soil texture</b>	
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	6,589.83	30 Nov 2019	24 Jan 2020
2	Litter sieve	3.05	24 Jan 2020	24 Jan 2020
2	Site description	0.97	24 Jan 2020	24 Jan 2020
2	SRE foraging	1.02	24 Jan 2020	24 Jan 2020

Site description - visit 2 (24 Jan 2020)	
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Open mallee woodland over mulga tall shrubland over *Allocasuarina*, Myrtaceae and other shrubs on salmon coloured clay with patchy leaf litter

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	
<b>Total veg. cover (%)</b>	45	<b>Litter distribution</b>	even/continuous
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR-SRE02	<b>Position (WGS84)</b>	-31.045519, 119.5046
<b>Topography</b>	plain	<b>Soil texture</b>	sandy clay, clay
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	6,608.50	30 Nov 2019	24 Jan 2020
2	Foraging	1.00	24 Jan 2020	24 Jan 2020
2	Site description	1.00	24 Jan 2020	24 Jan 2020
2	SRE foraging	1.00	24 Jan 2020	24 Jan 2020

Site description - visit 1 (30 Nov 2019)			
<b>Habitat</b>			
<b>Disturbance</b>			
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			

**Site description - visit 2 (24 Jan 2020)**

Open *Eucalyptus* woodland over *Santalum*, *Acacia* sp, Myrtaceae and other mixed shrubs on red-orange sandy clay loam with patchy leaf litter and large fallen hollow logs

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Very Good	<b>Fire age</b>	
<b>Total veg. cover (%)</b>	45	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	30	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
Site	PR-SRE03	Position (WGS84)	-31.055525, 119.504749
Topography	undulating plain	Soil texture	sandy clay, clay
Slope	negligible	Rock type	none
Soil colour	red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	6,722.92	30 Nov 2019	25 Jan 2020
2	Litter sieve	1.70	25 Jan 2020	25 Jan 2020
2	SRE foraging	0.55	25 Jan 2020	25 Jan 2020

**Site description - visit 1 (30 Nov 2019)**

*Acacia* dense tall shrubland with some *Allocasuarina* over scattered *Grevillea* and other low-mid shrubs, on pale sandy soil below breakaway; abundant leaf litter (needle-like leaves)

Habitat	shrubland		
Disturbance			
Vegetation condition	Excellent	Fire age	not evident
Total veg. cover (%)	85	Litter distribution	even/continuous
Tree cover (%)	85	Litter depth(cm)	0
Shrub cover (%)	10	Litter cover (%)	0
Grass cover (%)	0		
Herb cover (%)	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR-SRE04	<b>Position (WGS84)</b>	-31.087862, 119.504739
<b>Topography</b>	drainage line	<b>Soil texture</b>	sandy loam, clay, laterite
<b>Slope</b>	gentle	<b>Rock type</b>	granite - rocks, quartz
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	1.38	28 Nov 2019	28 Nov 2019
1	Wet pitfall trap	5,864.25	01 Dec 2019	19 Jan 2020
2	Litter sieve	2.15	19 Jan 2020	19 Jan 2020

**Site description - visit 1 (01 Dec 2019)**

Eucalyptus woodland over melaleuca tall shrubs/small trees over mixed melaleuca, acacia, shrubs with a single sedge grass clump. lots of fallen logs and branches with hollows. patchy leaf litter.

<b>Habitat</b>	woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	30	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>	2		



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site details			
Site	PR-SRE05	Position (WGS84)	-31.327932, 119.511748
Topography	hill slope	Soil texture	sand, sandy loam
Slope	gentle	Rock type	none
Soil colour	yellow	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	6,381.08	03 Dec 2019	25 Jan 2020
2	Litter sieve	2.50	25 Jan 2020	25 Jan 2020
2	SRE foraging	0.83	25 Jan 2020	25 Jan 2020

**Site description - visit 1 (03 Dec 2019)**

Mallee open woodland with tall *Hakea* and *Allocasuarina* trees over *Allocasurina*, *Hakea*, *Acacia* and Myrtaceae shrubs on yellow sandy loam. patchy leaf litter and woody debris.

Habitat	mallee woodland		
Disturbance	evidence of feral animals, vehicle tracks		
Vegetation condition	Excellent	Fire age	not recorded
Total veg. cover (%)	60	Litter distribution	
Tree cover (%)	40	Litter depth(cm)	0
Shrub cover (%)	30	Litter cover (%)	0
Grass cover (%)			
Herb cover (%)			



Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site details			
<b>Site</b>	PR-SRE06	<b>Position (WGS84)</b>	-31.154213, 119.5071
<b>Topography</b>	drainage line	<b>Soil texture</b>	sandy loam, clay
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.70	27 Nov 2019	27 Nov 2019
1	Wet pitfall trap	5,719.08	02 Dec 2019	19 Jan 2020
2	Litter sieve	2.85	19 Jan 2020	19 Jan 2020
2	SRE foraging	1.33	19 Jan 2020	19 Jan 2020

Site description - visit 1 (02 Dec 2019)	
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Low point between two long gentle sloping hills; *Eucalyptus* woodland over *Acacia*, *Santalum*, Myrtaceae and other shrubs. Patchy leaf litter under trees, massive hollow logs, and hollows in standing eucalypts

<b>Habitat</b>	open woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	30	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	20	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR-SRE07	<b>Position (WGS84)</b>	-31.608104, 119.552237
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam, clay
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.12	01 Dec 2019	01 Dec 2019
2	SRE foraging	1.02	21 Jan 2020	21 Jan 2020
2	Wet pitfall trap	6,122.83	01 Dec 2019	21 Jan 2020

Site description - visit 2 (21 Jan 2020)			
<b>Habitat</b>			
<b>Disturbance</b>			
<b>Vegetation condition</b>		<b>Fire age</b>	
<b>Total veg. cover (%)</b>		<b>Litter distribution</b>	
<b>Tree cover (%)</b>		<b>Litter depth(cm)</b>	
<b>Shrub cover (%)</b>		<b>Litter cover (%)</b>	
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

**Site description - visit 1 (01 Dec 2019)**

Mid-tall open *Eucalyptus* woodland over *Melaleuca* tall shrubs/small trees over low-mid *Melaleuca*, *Acacia* and other shrubs with a single sedge grass clump. lots of fallen logs and branches win hollows. patchy leaf litter.

<b>Habitat</b>	woodland		
<b>Disturbance</b>	vehicle tracks;		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	40	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	1		
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

Site details			
<b>Site</b>	PR-SRE08	<b>Position (WGS84)</b>	-31.612001, 119.537228
<b>Topography</b>	undulating plain	<b>Soil texture</b>	sandy loam
<b>Slope</b>	negligible	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.34	27 Nov 2019	27 Nov 2019
1	Wet pitfall trap	5,979.17	01 Dec 2019	20 Jan 2020
2	Litter sieve	2.50	20 Jan 2020	20 Jan 2020
2	SRE foraging	0.83	20 Jan 2020	20 Jan 2020

**Site description - visit 2 (20 Jan 2020)**

mulga woodland with calytrix allocasurina and sparse Mallee over melaleuca, allocasurina, mulga and myrtacea and other shrubs over continuous leaf litter on yellow sandy loam.

<b>Habitat</b>			
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	80	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	70	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>	1		

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
**Prepared for Mineral Resources Ltd**

**Site description - visit 1 (01 Dec 2019)**

Mallee open woodland over tall *Melaleuca*, shrub mallee, *Santalum* and Myrtaceae mid shrubs on red orange sandy loam; abundant but patchy leaf litter, some large hollows in standing mallee with some woody debris

<b>Habitat</b>	mallee woodland		
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	10	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	0		
<b>Herb cover (%)</b>	0		



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PR-SRE09	<b>Position (WGS84)</b>	-31.548425, 119.528399
<b>Topography</b>	hill top	<b>Soil texture</b>	sand, sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	brown, whitish	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	5,858.50	01 Dec 2019	19 Jan 2020

**Site description - visit 1 (01 Dec 2019)**

*Allocasuarina* (dominant) and eucalypt (sparse) woodland over mallee, *Allocasuarina* and Myrtaceae shrubs on whitish brown sandy loam with abundant, continuous leaf litter; lots of woody debris but no large hollow logs

<b>Habitat</b>	woodland		
<b>Disturbance</b>	vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not evident
<b>Total veg. cover (%)</b>	60	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	50	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PR-SRE10	<b>Position (WGS84)</b>	-31.59189, 119.526938
<b>Topography</b>	hill slope	<b>Soil texture</b>	sandy loam
<b>Slope</b>	gentle	<b>Rock type</b>	none
<b>Soil colour</b>	red-orange, brown	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Wet pitfall trap	5,764.33	02 Dec 2019	19 Jan 2020
2	Litter sieve	1.80	19 Jan 2020	19 Jan 2020
2	SRE foraging	0.67	19 Jan 2020	19 Jan 2020

**Site description - visit 1 (02 Dec 2019)**

Open mallee woodland over tall mulga shrubs over low-mid Myrtaceae shrubs and sparse tussock grass on red-orange sandy loam; patchy leaf litter, thick under mallees

<b>Habitat</b>	woodland		
<b>Disturbance</b>	evidence of feral animals		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	moderate (>5 years)
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	
<b>Tree cover (%)</b>	35	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	20	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>			
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
<b>Site</b>	PRWQ-01	<b>Position (WGS84)</b>	-31.164644, 119.50806
<b>Topography</b>	plain	<b>Soil texture</b>	sandy clay, loam
<b>Slope</b>		<b>Rock type</b>	none
<b>Soil colour</b>	red-brown, red-orange	<b>Rock cover (%)</b>	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.70	21 Jan 2020	21 Jan 2020

**Site description - visit 1 (21 Jan 2020)**

Large *Eucalyptus* trees over *Melaleuca* trees over *Santalum*, Myrtaceae and other shrubs over spinifex on salmon coloured sandy clay loam with dense patches of leaf litter under trees and large fallen hollow logs and large hollows in standing eucalypts.

<b>Habitat</b>	woodland		
<b>Disturbance</b>	evidence of feral animals, vehicle tracks		
<b>Vegetation condition</b>	Excellent	<b>Fire age</b>	not recorded
<b>Total veg. cover (%)</b>	50	<b>Litter distribution</b>	under vegetation
<b>Tree cover (%)</b>	40	<b>Litter depth(cm)</b>	0
<b>Shrub cover (%)</b>	15	<b>Litter cover (%)</b>	0
<b>Grass cover (%)</b>	2		
<b>Herb cover (%)</b>			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PRWQ-02	Position (WGS84)	-31.095615, 119.505484
Topography	plain	Soil texture	sandy clay, loam
Slope		Rock type	none
Soil colour	red-brown, red-orange	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Foraging	0.33	21 Jan 2020	21 Jan 2020
1	Site description	0.27	21 Jan 2020	21 Jan 2020

**Site description - visit 1 (21 Jan 2020)**

Mid *Eucalyptus* woodland over *Melaleuca* trees over *Melaleuca* and Myrtaceae shrubs over sparse spinifex on salmon coloured sandy clay loam with patchy leaf litter under trees

Habitat			
Disturbance	vehicle tracks		
Vegetation condition	Excellent	Fire age	moderate (>5 years)
Total veg. cover (%)	50	Litter distribution	under vegetation
Tree cover (%)	45	Litter depth(cm)	0
Shrub cover (%)	15	Litter cover (%)	0
Grass cover (%)	1		
Herb cover (%)			



**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project**  
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Site details			
Site	PRWQ-1km	Position (WGS84)	-31.639986, 119.538845
Topography	hill top	Soil texture	rocks, laterite
Slope	moderate	Rock type	none
Soil colour	red-orange, grey, whitish	Rock cover (%)	0

Sample and effort summary				
Visit	Sample method	Sample quant. (hrs)	Date start	Date stop
1	Site description	0.00	23 Jan 2020	23 Jan 2020




Site description - visit 1 (23 Jan 2020)				
Top of laterite hill breakaway with gullies at base and between hills; mallee woodland over mid-tall patchy dense Melaleuca and Allocasuarina over mixed low-mid shrubs; caves and overhangs in breakways				
Habitat	mallee woodland			
Disturbance	vehicle tracks			
Vegetation condition	Pristine	Fire age	moderate (>5 years)	
Total veg. cover (%)	70	Litter distribution	under vegetation	
Tree cover (%)	15	Litter depth(cm)	0	
Shrub cover (%)	70	Litter cover (%)	0	
Grass cover (%)	0			
Herb cover (%)	0			





**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site	Latitude	Longitude	Habitat	Site photo
TOC-1	-31.611095	119.538502	Open mallee woodland of white gum over <i>Melaleuca</i> and low mallees over scattered mixed low shrubs including <i>Acacia</i> and <i>Grevillea</i> over a few scattered grasses on orange brown sandy clay with poor drainage.	
TOC-2	-31.591767	119.5262	Open mallee woodland (white gums) with <i>Allocasuarina</i> over <i>Melaleuca</i> over mixed medium and low shrubs including <i>Grevillea</i> and <i>Acacia</i> on orange brown sandy clay in area with poor drainage.	
TOC-3	-31.54837	119.527437	<i>Allocasuarina</i> woodland over medium shrubs of <i>Grevillea</i> and scattered <i>Eucalyptus</i> over mixed low shrubs on yellow sand.	

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Site	Latitude	Longitude	Habitat	Site photo
TOC-4	-31.045105	119.503315	Open <i>Eucalyptus</i> woodland over <i>Melaleuca</i> over mixed shrubs including Myrtaceae and <i>Acacia</i> on whitish brown sandy clay in area of poor drainage.	
TOC-5	-31.056247	119.50684	Small mallee patch surrounded by dense <i>Allocasuarina</i> shrubland over <i>Hakea</i> over mixed Myrtaceae on orange brown sandy clay. Shrubland has scattered mallee patches.	
TOC-6	-31.087515	119.503656	Open <i>Eucalyptus</i> woodland (gimlet) over kwongan, <i>Eremophila</i> and <i>Acacia</i> on red brown sandy clay in area of poor drainage.	

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Site	Latitude	Longitude	Habitat	Site photo
TOC-7	-31.153693	119.507398	Open <i>Eucalyptus</i> woodland of gimlet and white gum over <i>Eremophila</i> and kwongan over mixed scattered low shrubs on red brown clay.	
TOC-OP1	-31.29469	119.510628	<i>Allocasuarina</i> shrubland with scattered mallee over <i>Melaleuca</i> , <i>Acacia</i> and <i>Grevillea</i> on yellow sand.	

**Appendix 5 Introduced flora identified in the desktop review**

Species	Declared Pest	WoNS
* <i>Aira cupaniana</i> (Silvery Hairgrass)		
* <i>Arctotheca calendula</i> (Cape Weed, African Marigold)		
* <i>Brassica tournefortii</i> (Mediterranean Turnip)		
* <i>Bromus rubens</i> (Red Brome)		
* <i>Hypochaeris glabra</i> (Smooth Catsear)		
* <i>Juncus bufonius</i> (Toad Rush)		
* <i>Limonium sinuatum</i> (Perennial Sea Lavender)		
* <i>Mesembryanthemum crystallinum</i> (Iceplant)		
* <i>Mesembryanthemum nodiflorum</i> (Slender Iceplant)		
* <i>Moraea miniata</i> (Two-leaf Cape Tulip)	Y	
* <i>Pentameris airoides</i> (False Hairgrass)		
* <i>Rostraria pumila</i>		
* <i>Sisymbrium runcinatum</i>		
* <i>Sonchus oleraceus</i> (Common Sowthistle)		
* <i>Ursinia anthemoides</i> (Ursinia)		
* <i>Ursinia anthemoides</i> subsp. <i>anthemoides</i>		
* <i>Vulpia bromoides</i> (Squirrel Tail Fescue)		
* <i>Vulpia myuros</i> (Rat's Tail Fescue)		

Appendix 6 Vertebrate fauna desktop and field survey results

Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey
					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14	
<b>AMPHIBIANS</b>												
<b>Limnodynastidae</b>	<i>Heleioporus albopunctatus</i>	Western Spotted Frog			•							
	<i>Neobatrachus albipes</i>	White-footed Trilling Frog			•							
	<i>Neobatrachus kunapalari</i>	Kunapalari Frog			•				•	•		
	<i>Neobatrachus pelobatoides</i>	Humming Frog										
<b>Myobatrachidae</b>	<i>Pseudophryne guentheri</i>	Crawling Toadlet			•							
	<i>Pseudophryne occidentalis</i>	Western Toadlet										
<b>REPTILES</b>												
<b>Agamidae</b>	<i>Ctenophorus cristatus</i>	Crested Dragon			•			•		•	•	•
	<i>Ctenophorus isolepis citrinus</i>	Military Dragon			•			•				
	<i>Ctenophorus maculatus griseus</i>	Spotted Military Dragon			•						•	
	<i>Ctenophorus ornatus</i>	Ornate Crevice Dragon			•							
	<i>Ctenophorus reticulatus</i>	Western Netted Dragon			•							
	<i>Ctenophorus salinarum</i>	Claypan Dragon									•	
	<i>Ctenophorus scutulatus</i>	Lozenge-marked Dragon								•		
	<i>Moloch horridus</i>	Thorny Devil			•						•	•
	<i>Pogona minor minor</i>	Western Bearded Dragon			•			•	•	•	•	
	<i>Tympanocryptis cephalus</i>	Pebble Dragon										
<b>Gekkonidae</b>	<i>Christinus marmoratus</i>	Marbled Gecko			•							
	<i>Gehyra variegata</i>	Common Dtella			•				•	•	•	•
	<i>Heteronotia binoei</i>	Bynoe's Prickly Gecko			•				•	•		•

Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd

Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey	
					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
<b>Carphodactylidae</b>	<i>Nephrurus stellatus</i>	Stellate Knob-tailed Gecko											
	<i>Underwoodisaurus milii</i>	Barking Gecko			•						•	•	•
<b>Diplodactylidae</b>	<i>Crenadactylus ocellatus</i>	Clawless Gecko			•						•	•	•
	<i>Diplodactylus calcicolus</i>	South Coast Gecko										•	
	<i>Diplodactylus granariensis</i>	Western Stone Gecko			•						•	•	•
	<i>Diplodactylus pulcher</i>	Fine-faced Gecko			•						•		
	<i>Hesperoedura reticulata</i>	Reticulated Velvet Gecko							•		•	•	•
	<i>Lucasium maini</i>	Main's Ground Gecko							•		•	•	•
	<i>Strophurus assimilis</i>	Goldfields Spiny-tail Gecko								•			
	<i>Strophurus spinigerus</i>	Soft Spiny-tailed Gecko							•			•	
<b>Pygopodidae</b>	<i>Delma australis</i>	Southern (Marble-faced) Delma									•	•	
	<i>Delma butleri</i>	Butler's Delma											
	<i>Delma fraseri</i>	Fraser's Delma			•							•	
	<i>Lialis burtonis</i>	Burton's Legless lizard			•								
	<i>Pygopus lepidopodus</i>	Common Scaly-foot			•				•			•	
<b>Scincidae</b>	<i>Cryptoblepharus buchananii</i>	Buchanan's Snake-eyed Skink									•	•	
	<i>Cryptoblepharus plagiocephalus</i>	Peron's Snake-eyed Skink			•								•
	<i>Ctenotus atlas</i>	Southern Mallee Ctenotus										•	
	<i>Ctenotus impar</i>	Southwest Odd-striped Ctenotus										•	
	<i>Ctenotus leonhardii</i>	Leonhard's Ctenotus			•								
	<i>Ctenotus mimetes</i>	Checker-sided Ctenotus							•		•		
	<i>Ctenotus pantherinus</i>	Leopard Ctenotus											
	<i>Ctenotus schomburgkii</i>	Barred Wedge-snout Ctenotus										•	•

Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey	
					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
	<i>Ctenotus uber uber</i>	Spotted Ctenotus			•						•	•	•
	<i>Ctenotus xenopleura</i>	Wide-striped Ctenotus								•			
	<i>Cyclodomorphus melanops</i>	Spinifex Slender Bluetongue									•		
	<i>Egernia depressa</i>	Southern Pygmy Spiny-tail Skink											
	<i>Egernia formosa</i>	Goldfields Crevice skink									•		
	<i>Egernia richardi</i>	Bright Crevice Skink			•			•				•	
	<i>Eremiascincus richardsonii</i>	Broad-banded Sandswimmer									•		
	<i>Hemiergis initialis</i>	Southwestern Earless Skink										•	•
	<i>Lerista distinguenda</i>	Southwestern Orange-tailed Slider										•	
	<i>Lerista gerrardii</i>	Bold-striped Robust Slider											•
	<i>Lerista kingi</i>	King's Lerista			•					•	•	•	•
	<i>Lerista macropisthopus</i>	Unpatterned Robust Slider									•		
	<i>Lerista timida</i>	Timid Slider									•		
	<i>Liopholis inornata</i>	Desert Skink						•					
	<i>Liopholis multiscutata</i>	Bull Skink			•							•	•
	<i>Menetia greyii</i>	Common Dwarf Skink			•			•			•	•	•
	<i>Morethia butleri</i>	Woodland Morethia Skink			•			•			•	•	•
	<i>Morethia obscura</i>	Shrubland Morethia Skink										•	
	<i>Tiliqua occipitalis</i>	Western Bluetongue								•	•	•	•
	<i>Tiliqua rugosa rugosa</i>	Bobtail								•		•	•
<b>Varanidae</b>	<i>Varanus giganteus</i>	Perentie									•		
	<i>Varanus gouldii</i>	Gould's Sand Monitor			•					•		•	•

Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey		
					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17	
	<i>Varanus rosenbergi</i>	Heath Monitor												
	<i>Varanus tristis</i>	Black-tailed Monitor								•	•			•
<b>Typhlopidae</b>	<i>Anilius australis</i>	Southern Blindsnake										•		
	<i>Anilius bicolor</i>	Dark-spined Blindsnake			•									
	<i>Anilius bituberculatus</i>	Prong-snouted Blindsnake									•			
	<i>Anilius hamatus</i>	Pale-headed Blindsnake									•			
<b>Pythonidae</b>	<i>Aspidites ramsayi</i>	Woma (southwest)	P1 (DBCA list)		•		•							
	<i>Morelia spilota imbricata</i>	Southwestern Carpet Python			•									
<b>Elapidae</b>	<i>Brachyuropsis semifasciatus</i>	Southern Shovel-snout			•						•			
	<i>Furina ornata</i>	Moon Snake									•			
	<i>Paroplocephalus atriceps</i>	Lake Cronin Snake	P3 (DBCA list)				•							
	<i>Pseudechis australis</i>	Mulga Snake, King Brown			•			•			•			
	<i>Pseudonaja a. affinis</i>	Dugite (mainland)			•							•		
	<i>Pseudonaja mengdeni</i>	Gwardar, Western Brown Snake			•									
	<i>Pseudonaja modesta</i>	Ringed Brown Snake			•									
	<i>Simoselaps bertholdi</i>	Jan's Banded Snake			•						•	•		
	<i>Suta gouldii</i>	Gould's Hooded Snake			•									
	<i>Suta monachus</i>	Monk Snake									•			
	<i>Suta fasciata</i>	Rosen's Snake			•									
<b>BIRDS</b>														
<b>Casuariidae</b>	<i>Dromaius novaehollandiae</i>	Emu			•	•			•				•	•
<b>Megapodiidae</b>	<i>Leipoa ocellata</i>	Malleefowl	VU (EPBC & BC Acts)		•	•	•	•	•		•	•	•	•
<b>Phasianidae</b>	* <i>Pavo cristatus</i>	Indian Peafowl												•

Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
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Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey	
					NMap	Birddata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
Anatidae	<i>Tadorna tadornoides</i>	Australian Shelduck				•							
	<i>Chenonetta jubata</i>	Australian Wood Duck			•	•							
	<i>Anas gracilis</i>	Grey Teal				•						•	
	<i>Anas superciliosus</i>	Pacific Black Duck				•							
	<i>Malacorhynchus membranaceus</i>	Pink-eared Duck					•						
	<i>Aythya australis</i>	Hardhead					•						
Podicipedidae	<i>Tachybaptus novaehollandiae</i>	Australasian Grebe				•							
	<i>Poliocephalus poliocephalus</i>	Hoary-headed Grebe				•							
Columbidae	* <i>Columba livia</i>	Rock Dove, Feral Pigeon				•		•					
	* <i>Streptopelia senegalensis</i>	Laughing Dove				•		•					
	<i>Phaps chalcoptera</i>	Common Bronzewing			•	•					•	•	•
	<i>Phaps elegans</i>	Brush Bronzewing										•	
	<i>Ocyphaps lophotes</i>	Crested Pigeon			•	•					•		•
Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth			•	•					•	•	•
Eurostopodidae	<i>Eurostopodus argus</i>	Spotted Nightjar			•	•		•			•	•	
Aegothelidae	<i>Aegotheles cristatus</i>	Australian Owlet Nightjar			•	•					•		
Apodidae	<i>Apus pacificus</i>	Fork-tailed Swift	Mig. (EPBC & BC Acts)					•					
Phalacrocoracidae	<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant				•							
Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron				•							
	<i>Ardea ibis</i>	Cattle Egret						•					
	<i>Ardea modesta</i>	Great Egret						•					
Accipitridae	<i>Elanus caeruleus</i>	Black-shouldered Kite			•	•							

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Family	Species	Common name	Status	Introduced	Desktop sources <sup>1</sup>							This survey		
					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17	
	<i>Hamirostra isura</i>	Square-tailed Kite			•	•								
	<i>Hamirostra melanosternon</i>	Black-breasted Buzzard			•									
	<i>Haliastur sphenurus</i>	Whistling Kite								•	•	•		
	<i>Milvus migrans</i>	Black Kite				•								
	<i>Accipiter fasciatus</i>	Brown Goshawk				•					•			
	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk				•						•		
	<i>Circus assimilis</i>	Spotted Harrier			•	•								
	<i>Aquila audax</i>	Wedge-tailed Eagle			•	•			•				•	•
	<i>Hieraeetus morphnoides</i>	Little Eagle			•	•							•	
<b>Falconidae</b>	<i>Falco cenchroides</i>	Nankeen Kestrel			•	•								•
	<i>Falco berigora</i>	Brown Falcon			•	•			•		•	•	•	•
	<i>Falco hypoleucos</i>	Grey Falcon	VU (EPBC & BC Acts)					•						
	<i>Falco longipennis</i>	Australian Hobby			•	•								•
	<i>Falco peregrinus</i>	Peregrine Falcon	OS (BC Act)			•					•	•		
<b>Rallidae</b>	<i>Fulica atra</i>	Eurasian Coot				•								
	<i>Tribonyx ventralis</i>	Black-tailed Native-hen				•								
<b>Otididae</b>	<i>Ardeotis australis</i>	Australian Bustard												•
<b>Recurvirostridae</b>	<i>Cladorhynchus leucocephalus</i>	Banded Stilt				•								
	<i>Himantopus himantopus</i>	Black-winged Stilt				•								
	<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet				•								
<b>Charadriidae</b>	<i>Charadrius ruficapillus</i>	Red-capped Plover				•								
	<i>Elsayornis melanops</i>	Black-fronted Dotterel				•								
	<i>Thinornis rubricollis</i>	Hooded Plover	P4 (DBCA list)					•	•					

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					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
	<i>Vanellus tricolor</i>	Banded Lapwing				•							
<b>Scolopacidae</b>	<i>Actitis hypoleucos</i>	Common Sandpiper	Mig. (EPBC & BC Acts)			•		•					
	<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	Mig. (EPBC & BC Acts)					•					
	<i>Calidris ferruginea</i>	Curlew Sandpiper (CR)	CR/Mig. (EPBC & BC Acts)					•					
	<i>Calidris melanotos</i>	Pectoral Sandpiper	Mig. (EPBC & BC Acts)					•					
	<i>Tringa nebularia</i>	Common Greenshank	Mig. (EPBC & BC Acts)			•	•						
<b>Turnicidae</b>	<i>Turnix varia</i>	Painted Button-quail										•	
	<i>Turnix velox</i>	Little Button-quail					•						
<b>Laridae</b>	<i>Larus novaehollandiae</i>	Silver Gull					•						
<b>Cacatuidae</b>	<i>Calyptorhynchus banksii</i>	Red-tailed Black Cockatoo				•				•			•
	<i>Cacatua leadbeateri</i>	Major Mitchell's Cockatoo				•	•				•		•
	<i>Cacatua roseicapilla</i>	Galah				•			•	•			•
	<i>Cacatua sanguinea</i>	Little Corella					•						
	<i>Nymphicus hollandicus</i>	Cockatiel					•						
<b>Psittaculidae</b>	<i>Parvipsitta porphyrocephala</i>	Purple-crowned Lorikeet					•				•	•	•
	<i>Pezoporus occidentalis</i>	Night Parrot	EN (EPBC)/CR (BC Act)					•					
	<i>Polytelis anthopeplus</i>	Regent Parrot				•	•					•	
	<i>Platycercus icterotis xanthogenys</i>	Western Rosella (inland)	P4 (DBCAs list)			•			•			•	
	<i>Platycercus zonarius</i>	Australian Ringneck				•	•		•	•	•	•	•

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					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17	
	<i>Platycercus varius</i>	Mulga Parrot				•								•
	<i>Melopsittacus undulatus</i>	Budgerigar				•								
	<i>Neophema elegans</i>	Elegant Parrot				•			•				•	
	<i>Neophema splendida</i>	Scarlet-chested Parrot												•
<b>Cuculidae</b>	<i>Chrysococcyx basalis</i>	Horsfield's Bronze-Cuckoo				•			•			•	•	
	<i>Chrysococcyx lucidus</i>	Shining Bronze-Cuckoo				•								
	<i>Chrysococcyx osculans</i>	Black-eared Cuckoo						•				•		
	<i>Cacomantis pallidus</i>	Pallid Cuckoo					•							
	<i>Cacomantis flabelliformis</i>	Fan-tailed Cuckoo			•	•							•	
<b>Strigidae</b>	<i>Ninox boobook</i>	Southern Boobook							•			•		
<b>Tytonidae</b>	<i>Tyto alba</i>	Barn Owl					•							
<b>Halcyonidae</b>	<i>Todiramphus pyrrhopygia</i>	Red-backed Kingfisher			•	•						•		
	<i>Todiramphus sanctus</i>	Sacred Kingfisher				•								
<b>Meropidae</b>	<i>Merops ornatus</i>	Rainbow Bee-eater			•	•		•		•		•	•	•
<b>Climacteridae</b>	<i>Climacteris rufa</i>	Rufous Treecreeper				•						•	•	•
<b>Maluridae</b>	<i>Malurus splendens</i>	Splendid Fairy-wren			•									•
	<i>Malurus lamberti</i>	Variiegated Fairy-wren				•						•		
	<i>Malurus leucopterus</i>	White-winged Fairy-wren			•	•								
	<i>Malurus pulcherrimus</i>	Blue-breasted Fairy-wren			•	•		•					•	•
<b>Acanthizidae</b>	<i>Sericornis frontalis</i>	White-browed Scrubwren											•	
	<i>Hylacola cauta</i>	Shy Heathwren (western)			•	•							•	
	<i>Pyrrholaemus brunneus</i>	Redthroat			•	•		•				•	•	•
	<i>Smicrornis brevirostris</i>	Weebill			•	•		•				•	•	•

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					NMap	Birddata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
	<i>Gerygone fusca</i>	Western Gerygone			•	•					•		
	<i>Acanthiza chrysorrhoa</i>	Yellow-rumped Thornbill			•	•					•	•	
	<i>Acanthiza robustirostris</i>	Slaty-backed Thornbill									•		
	<i>Acanthiza uropygialis</i>	Chestnut-rumped Thornbill			•	•			•		•		
	<i>Acanthiza apicalis</i>	Broad-tailed (Inland) Thornbill			•	•			•		•	•	•
	<i>Aphelocephala leucopsis</i>	Southern Whiteface			•	•							
<b>Pardalotidae</b>	<i>Pardalotus punctatus</i>	Spotted Pardalote				•						•	
	<i>Pardalotus striatus</i>	Striated Pardalote			•	•			•		•	•	•
<b>Meliphagidae</b>	<i>Certhionyx variegatus</i>	Pied Honeyeater				•							
	<i>Gavicalis virescens</i>	Singing Honeyeater				•			•	•	•	•	•
	<i>Nesoptilotis leucotis</i> (ex Lich.)	White-eared Honeyeater			•	•			•	•	•	•	•
	<i>Lichenostomus cratitius</i>	Purple-gaped Honeyeater				•						•	
	<i>Ptilotula ornata</i>	Yellow-plumed Honeyeater				•			•		•	•	•
	<i>Purnella albifrons</i>	White-fronted Honeyeater			•	•			•		•	•	
	<i>Manorina flavigula</i>	Yellow-throated Miner			•	•			•	•		•	•
	<i>Acanthagenys rufogularis</i>	Spiny-cheeked Honeyeater			•	•				•	•	•	•
	<i>Anthochaera carunculata</i>	Red Wattlebird			•	•			•	•	•	•	•
	<i>Epthianura albifrons</i>	White-fronted Chat			•	•							
	<i>Sugomel niger</i>	Black Honeyeater			•	•							
	<i>Glyciphila melanops</i>	Tawny-crowned Honeyeater			•	•				•		•	•
	<i>Lichmera indistincta</i>	Brown Honeyeater			•	•			•	•	•	•	•
	<i>Melithreptus brevirostris</i>	Brown-headed Honeyeater			•	•			•		•	•	
<b>Pomatostomidae</b>	<i>Pomatostomus superciliosus</i>	White-browed Babbler			•	•			•	•	•	•	•

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					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
<b>Cinclosomatidae</b>	<i>Cinclosoma clarum</i>	Copperback Quail-thrush				•					•	•	
<b>Neosittidae</b>	<i>Daphoenositta chrysoptera</i>	Varied Sittella			•	•			•		•	•	•
<b>Campephagidae</b>	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike			•	•			•		•	•	•
	<i>Lalage tricolor</i>	White-winged Triller				•					•	•	
<b>Pachycephalidae</b>	<i>Pachycephala inornata</i>	Gilbert's Whistler			•	•					•	•	•
	<i>Pachycephala occidentalis</i>	Western Golden Whistler				•			•			•	
	<i>Pachycephala rufiventris</i>	Rufous Whistler			•	•			•	•	•		•
	<i>Colluricincla harmonica</i>	Grey Shrike-thrush			•	•			•	•	•	•	•
	<i>Oreoica gutturalis</i>	Crested Bellbird			•	•			•	•	•	•	•
<b>Artamidae</b>	<i>Artamus personatus</i>	Masked Woodswallow				•							
	<i>Artamus cinereus</i>	Black-faced Woodswallow			•	•							
	<i>Artamus cyanopterus</i>	Dusky Woodswallow			•	•					•	•	•
	<i>Artamus minor</i>	Little Woodswallow									•		
<b>Cracticidae</b>	<i>Cracticus torquatus</i>	Grey Butcherbird			•	•				•	•	•	•
	<i>Cracticus nigrogularis</i>	Pied Butcherbird			•	•			•		•		•
	<i>Cracticus tibicen</i>	Australian Magpie			•	•					•		•
	<i>Strepera versicolor</i>	Grey Currawong			•	•			•		•	•	•
<b>Rhipiduridae</b>	<i>Rhipidura albiscapa</i>	Grey Fantail			•	•			•				•
	<i>Rhipidura leucophrys</i>	Willie Wagtail			•	•				•	•	•	•
<b>Corvidae</b>	<i>Corvus coronoides</i>	Australian Raven			•	•			•	•	•	•	•
	<i>Corvus bennetti</i>	Little Crow			•	•					•		•
	<i>Corvus orru</i>	Torresian Crow			•	•							
<b>Monarchidae</b>	<i>Grallina cyanoleuca</i>	Magpie-Lark			•	•				•			

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					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17					
	<i>Myiagra inquieta</i>	Restless Flycatcher																
<b>Petroicidae</b>	<i>Microeca fascinans</i>	Jacky Winter			•	•						•	•	•				
	<i>Petroica boodang</i>	Scarlet Robin				•												
	<i>Petroica goodenovii</i>	Red-capped Robin			•	•			•			•	•	•	•			
	<i>Melanodryas cucullata</i>	Hooded Robin				•								•				
	<i>Eopsaltria australis griseogularis</i>	Western Yellow Robin			•	•			•					•				
	<i>Drymodes brunneopygia</i>	Southern Scrub-robin			•	•			•					•				•
<b>Megaluridae</b>	<i>Megalurus mathewsi</i>	Rufous Songlark				•												
<b>Timaliidae</b>	<i>Zosterops lateralis</i>	Silveryeye			•	•					•							
<b>Hirundinidae</b>	<i>Cheramoeca leucosterna</i>	White-backed Swallow			•	•									•			•
	<i>Hirundo neoxena</i>	Welcome Swallow			•	•									•			•
	<i>Petrochelidon nigricans</i>	Tree Martin			•	•						•		•				
<b>Nectariniidae</b>	<i>Dicaeum hirundinaceum</i>	Mistletoebird				•									•			
<b>Estrildidae</b>	<i>Taeniopygia guttata</i>	Zebra Finch			•	•												
<b>Motacillidae</b>	<i>Anthus australis</i>	Australasian Pipit				•												•
	<i>Motacilla cinerea</i>	Grey Wagtail	Mig. (EPBC & BC Acts)						•									
<b>MAMMALS</b>																		
<b>Tachyglossidae</b>	<i>Tachyglossus aculeatus</i>	Echidna, Short-beaked Echidna									•				•			•
<b>Dasyuridae</b>	<i>Dasyurus geoffroii</i>	Chuditch, Western Quoll	VU (EPBC & BC Acts)		•		•								•			•
	<i>Ningauai yvonnae</i>	Southern Ningauai													•			
	<i>Phascogale calura</i>	Red-tailed Phascogale, Keengoor	EN (EPBC)/CD (BC Act)		•		•											

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					NMap	Birdata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
	<i>Sminthopsis dolichura</i>	Little Long-tailed Dunnart			•				•		•	•	
	<i>Sminthopsis gilberti</i>	Gilbert's Dunnart										•	
	<i>Sminthopsis granulipes</i>	White-tailed Dunnart			•							•	
	<i>Sminthopsis ooldea</i>	Ooldea Dunnart										•	
<b>Myrmecobiidae</b>	<i>Myrmecobius fasciatus</i>	Numbat, Walpurti	EN (EPBC & BC Acts)				•						
<b>Thylacomyidae</b>	<i>Macrotis lagotis</i>	Bilby	VU (EPBC & BC Acts)		•		•						
<b>Peramelidae</b>	<b><i>Isoodon sp.</i></b>	Bandicoot sp.											•
<b>Potoroidae</b>	<i>Bettongia lesueur graii</i>	Boodie (inland)	EX (EPBC & BC Acts)		•						(•)		
<b>Macropodidae</b>	<i>Macropus fuliginosus</i>	Western Grey Kangaroo						•	•			•	•
	<i>Notamacropus irma</i>	Western Brush Wallaby	P4 (DBCAs list)				•					•	
	<i>Osphranter robustus erubescens</i>	Euro, Biggada (mainland)			•								
	<i>Osphranter rufus</i>	Red Kangaroo, Marlu											•
	<i>Petrogale lateralis lateralis</i>	Black-flanked Rock-wallaby	EN (EPBC & BC Acts)				•						
<b>Burramyidae</b>	<i>Cercartetus concinnus</i>	Southwestern Pygmy Possum			•			•			•	•	
<b>Molossidae</b>	<i>Ozimops kitcheneri</i> ("sp. 4")	Southwestern Freetail-bat						•				•	
	<i>Ozimops petersi</i> ("sp. 3")	Inland Freetail-bat									•		
	<i>Austronomus australis</i>	White-striped Freetail-bat						•			•	•	
<b>Vespertilionidae</b>	<i>Chalinolobus gouldii</i>	Gould's Wattled Bat			•			•			•	•	
	<i>Chalinolobus morio</i>	Chocolate Wattled Bat						•			•		
	<i>Nyctophilus geoffroyi</i>	Lesser Long-eared Bat						?			•		
	<i>Nyctophilus major tor</i>	Southern Long-eared Bat						?					
	<i>Scotorepens balstoni</i>	Inland Broad-nosed Bat						•			•	•	
	<i>Vespadelus baverstocki</i>	Inland Forest Bat						?			•	•	

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					NMap	Birddata	TPFA	PMST	KLA 09	Eco 12	Biota 14		WW 17
	<i>Vespadelus regulus</i>	Southern Forest Bat							?		•	•	
<b>Muridae</b>	<i>Leporillus</i> sp.	Stick-nest Rat	EX (EPBC & BC Acts) or VU (EPBC)/CD (BC Act)								(•)		(•)
	<i>Notomys mitchelli</i>	Mitchell's Hopping-mouse			•				•		•	•	•
	<i>Pseudomys albocinereus</i>	Ash-grey Mouse										•	
	<i>Pseudomys bolami</i>	Bolam's Mouse									•		
	<i>Pseudomys hermannsburgensis</i>	Sandy Inland Mouse									•		
	* <i>Mus musculus</i>	House Mouse		•	•			•	•		•		
<b>Leporidae</b>	* <i>Oryctolagus cuniculus</i>	Rabbit		•				•	•	•	•	•	•
<b>Bovidae</b>	* <i>Bos taurus</i>	Domestic Cattle		•								•	•
	* <i>Capra hircus</i>	Goat		•				•					
	* <i>Ovis aries</i>	Sheep		•					•				•
<b>Suidae</b>	* <i>Sus scrofa</i>	Pig		•				•					
<b>Equidae</b>	* <i>Equus asinus</i>	Donkey		•				•					•
	* <i>Equus caballus</i>	Horse		•				•					
<b>Canidae</b>	* <i>Canis lupus familiaris</i>	Dog/Dingo		•				•	•	•		•	•
	* <i>Vulpes vulpes</i>	Red Fox		•				•	•	•		•	•
<b>Felidae</b>	* <i>Felis catus</i>	Domestic Cat		•				•	•	•		•	•

1 Sources listed in Table 4-1, Table 4-2: NatureMap (DBCA 2019a), BirdData (Birdlife Australia 2020), Threatened and Priority Fauna Database (DBCA 2019b), Protected Matters Search Tool (DoEE 2020a), KLA (2009), Ecoscape (2012), Western Wildlife (2017).

Appendix 7 Flora species inventory

Family	Species	Status
Aizoaceae	<i>*Mesembryanthemum nodiflorum</i>	Weed
Aizoaceae	<i>Disphyma crassifolium</i> subsp. <i>clavellatum</i>	
Aizoaceae	<i>Sarcozona praecox</i>	
Amaranthaceae	<i>Ptilotus divaricatus</i>	
Amaranthaceae	<i>Ptilotus drummondii</i>	
Amaranthaceae	<i>Ptilotus exaltatus</i>	
Amaranthaceae	<i>Ptilotus halophilus</i>	
Amaranthaceae	<i>Ptilotus holosericeus</i>	
Amaranthaceae	<i>Ptilotus obovatus</i>	
Amaranthaceae	<i>Ptilotus schwartzii</i>	
Apiaceae	<i>Daucus glochidiatus</i>	
Apiaceae	<i>Platysace trachymenioides</i>	
Apocynaceae	<i>Alyxia buxifolia</i>	
Araliaceae	<i>Hydrocotyle corynophora</i>	P1 (DBCA list)
Araliaceae	<i>Trachymene cyanopetala</i>	
Araliaceae	<i>Trachymene ornata</i>	
Asparagaceae	<i>Arthropodium dyeri</i>	
Asparagaceae	<i>Chamaexeros macranthera</i>	
Asparagaceae	<i>Lomandra collina</i>	
Asparagaceae	<i>Lomandra effusa</i>	
Asparagaceae	<i>Thysanotus manglesianus</i>	
Asparagaceae	<i>Thysanotus patersonii</i>	
Asparagaceae	<i>Thysanotus</i> sp. Twining Wheatbelt (N.H. Brittan 81/29)	
Asparagaceae	<i>Xerolirion divaricata</i>	
Asphodelaceae	<i>*Asphodelus fistulosus</i>	Weed
Asteraceae	<i>*Arctotheca calendula</i>	Weed
Asteraceae	<i>*Carthamus lanatus</i>	Weed
Asteraceae	<i>*Centaurea benedicta</i>	Weed & Range extension
Asteraceae	<i>*Centaurea melitensis</i>	Weed
Asteraceae	<i>*Ursinia anthemoides</i> subsp. <i>anthemoides</i>	Weed
Asteraceae	<i>Actinobole uliginosum</i>	
Asteraceae	<i>Angianthus cornutus</i>	
Asteraceae	<i>Angianthus tomentosus</i>	
Asteraceae	<i>Asteridea athrixoides</i>	
Asteraceae	<i>Calocephalus multiflorus</i>	
Asteraceae	<i>Centipeda crateriformis</i> subsp. <i>compacta</i>	
Asteraceae	<i>Cephalipterum drummondii</i>	
Asteraceae	<i>Cratystylis subspinescens</i>	
Asteraceae	<i>Erymophyllum ramosum</i> subsp. <i>ramosum</i>	
Asteraceae	<i>Erymophyllum tenellum</i>	
Asteraceae	<i>Leiocarpa semicalva</i>	

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Family	Species	Status
Asteraceae	<i>Olearia exiguifolia</i>	
Asteraceae	<i>Olearia muelleri</i>	
Asteraceae	<i>Olearia pimeleoides</i>	
Asteraceae	<i>Ozothamnus occidentalis</i>	
Asteraceae	<i>Podolepis capillaris</i>	
Asteraceae	<i>Pogonolepis muelleriana</i>	
Asteraceae	<i>Pogonolepis stricta</i>	
Asteraceae	<i>Rhodanthe pygmaea</i>	
Asteraceae	<i>Waitzia acuminata</i> var. <i>acuminata</i>	
Boraginaceae	<i>Halgania cyanea</i>	
Boraginaceae	<i>Halgania integerrima</i>	
Boraginaceae	<i>Halgania lavandulacea</i>	
Boryaceae	<i>Borya constricta</i>	
Brassicaceae	* <i>Carrichtera annua</i>	Weed
Brassicaceae	<i>Lepidium rotundum</i>	
Casuarinaceae	<i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i>	
Casuarinaceae	<i>Allocasuarina campestris</i>	
Casuarinaceae	<i>Allocasuarina corniculata</i>	
Casuarinaceae	<i>Allocasuarina</i> sp.	
Casuarinaceae	<i>Allocasuarina spinosissima</i>	
Chenopodiaceae	<i>Atriplex nummularia</i>	
Chenopodiaceae	<i>Atriplex vesicaria</i>	
Chenopodiaceae	<i>Didymanthus roei</i>	
Chenopodiaceae	<i>Dissocarpus paradoxus</i>	
Chenopodiaceae	<i>Enchylaena tomentosa</i> var. <i>tomentosa</i>	
Chenopodiaceae	<i>Maireana amoena</i>	
Chenopodiaceae	<i>Maireana appressa</i>	
Chenopodiaceae	<i>Maireana carnosae</i>	
Chenopodiaceae	<i>Maireana georgei</i>	
Chenopodiaceae	<i>Maireana radiata</i>	
Chenopodiaceae	<i>Maireana thesioides</i>	
Chenopodiaceae	<i>Maireana trichoptera</i>	
Chenopodiaceae	<i>Maireana triptera</i>	
Chenopodiaceae	<i>Maireana villosa</i>	
Chenopodiaceae	<i>Rhagodia drummondii</i>	
Chenopodiaceae	<i>Rhagodia spinescens</i>	
Chenopodiaceae	<i>Rhagodia ulicina</i>	Range extension
Chenopodiaceae	<i>Sclerolaena diacantha</i>	
Chenopodiaceae	<i>Sclerolaena eurotioides</i>	
Chenopodiaceae	<i>Sclerolaena fusiformis</i>	
Chenopodiaceae	<i>Sclerolaena gardneri</i>	
Chenopodiaceae	<i>Sclerolaena parviflora</i>	
Chenopodiaceae	<i>Tecticornia doliiformis</i>	

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<b>Family</b>	<b>Species</b>	<b>Status</b>
Chenopodiaceae	<i>Tecticornia peltata</i>	
Chenopodiaceae	<i>Tecticornia</i> sp. Dennys Crossing (K.A. Shepherd & J. English KS 552)	
Colchicaceae	<i>Wurmbea tenella</i>	
Convolvulaceae	<i>Wilsonia humilis</i>	
Crassulaceae	<i>Crassula colorata</i> var. <i>colorata</i>	
Cupressaceae	<i>Callitris columellaris</i>	
Cupressaceae	<i>Callitris preissii</i>	
Cyperaceae	<i>Caustis dioica</i>	
Cyperaceae	<i>Lepidosperma ?lyonsii</i>	P1 (DBCA list)
Cyperaceae	<i>Lepidosperma ?sanguinolentum</i>	
Cyperaceae	<i>Lepidosperma</i> aff. <i>gahnoides</i>	
Cyperaceae	<i>Lepidosperma</i> aff. sp. Parker Range (N. Gibson & M. Lyons 2094)	
Cyperaceae	<i>Lepidosperma costale</i>	
Cyperaceae	<i>Lepidosperma diurnum</i>	
Cyperaceae	<i>Lepidosperma drummondii</i>	
Cyperaceae	<i>Lepidosperma ferricola</i>	P3 (DBCA list)
Cyperaceae	<i>Lepidosperma lyonsii</i>	P4 (DBCA list)
Cyperaceae	<i>Lepidosperma rigidulum</i>	
Cyperaceae	<i>Lepidosperma sanguinolentum</i>	
Cyperaceae	<i>Lepidosperma</i> sp.	
Cyperaceae	<i>Lepidosperma</i> sp. Bandalup Scabrid (N. Eveleigh 10798)	
Cyperaceae	<i>Lepidosperma</i> sp. Mt Caudan (N. Gibson & M. Lyons 2081)	P1 (DBCA list)
Cyperaceae	<i>Lepidosperma</i> sp. Parker Range (N. Gibson & M. Lyons 2094)	P1 (DBCA list)
Cyperaceae	<i>Mesomelaena preissii</i>	
Cyperaceae	<i>Schoenus hexandrus</i>	
Cyperaceae	<i>Schoenus</i> sp. A1 Boorabbin (K.L. Wilson 2581)	
Cyperaceae	<i>Schoenus subaphyllus</i>	
Dilleniaceae	<i>Hibbertia ancistrophylla</i>	
Dilleniaceae	<i>Hibbertia conspicua</i>	
Dilleniaceae	<i>Hibbertia eatoniae</i>	
Dilleniaceae	<i>Hibbertia exasperata</i>	
Dilleniaceae	<i>Hibbertia pungens</i>	
Droseraceae	<i>Drosera andersoniana</i>	
Droseraceae	<i>Drosera moorei</i>	
Ecdeiocoleaceae	<i>Ecdeiocolea monostachya</i>	
Ericaceae	<i>Acrotriche lancifolia</i>	
Ericaceae	<i>Leucopogon hamulosus</i>	
Ericaceae	<i>Leucopogon</i> sp. Boorabbin (K.R. Newbey 8374)	
Ericaceae	<i>Leucopogon</i> sp. Coolgardie (M. Hislop & F. Hort MH 3197)	
Ericaceae	<i>Leucopogon</i> sp. Forrestania (G.F. Craig 2386)	
Ericaceae	<i>Leucopogon</i> sp. outer wheatbelt (M. Hislop 30)	

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<b>Family</b>	<b>Species</b>	<b>Status</b>
Ericaceae	<i>Leucopogon</i> sp. Yellowdine (M. Hislop & F. Hort MH 3194)	P1 (DBCA list)
Ericaceae	<i>Lissanthe scabra</i>	P2 (DBCA list)
Ericaceae	<i>Styphelia dielsiana</i>	
Ericaceae	<i>Styphelia hamulosa</i>	
Ericaceae	<i>Styphelia serratifolia</i>	
Euphorbiaceae	<i>Beyeria sulcata</i> var. <i>gracilis</i>	
Euphorbiaceae	<i>Beyeria sulcata</i> var. <i>sulcata</i>	
Euphorbiaceae	<i>Ricinocarpos muricatus</i>	
Fabaceae	<i>Acacia acuminata</i>	
Fabaceae	<i>Acacia acutata</i>	
Fabaceae	<i>Acacia andrewsii</i>	
Fabaceae	<i>Acacia asepala</i>	P2 (DBCA list)
Fabaceae	<i>Acacia assimilis</i> subsp. <i>assimilis</i>	
Fabaceae	<i>Acacia beauverdiana</i>	
Fabaceae	<i>Acacia colletioides</i>	
Fabaceae	<i>Acacia concolorans</i>	P2 (DBCA list)
Fabaceae	<i>Acacia deficiens</i>	
Fabaceae	<i>Acacia desertorum</i> var. <i>nudipes</i>	P3 (DBCA list)
Fabaceae	<i>Acacia enervia</i> subsp. <i>enervia</i>	
Fabaceae	<i>Acacia erinacea</i>	
Fabaceae	<i>Acacia gibbosa</i>	
Fabaceae	<i>Acacia hemiteles</i>	
Fabaceae	<i>Acacia heteroneura</i> var. <i>jutsonii</i>	
Fabaceae	<i>Acacia hystrix</i> subsp. <i>hystrix</i>	
Fabaceae	<i>Acacia intricata</i>	
Fabaceae	<i>Acacia jennerae</i>	
Fabaceae	<i>Acacia longispinea</i>	
Fabaceae	<i>Acacia merrallii</i>	
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>erugata</i>	
Fabaceae	<i>Acacia neurophylla</i> subsp. <i>neurophylla</i>	
Fabaceae	<i>Acacia nigripilosa</i> subsp. <i>nigripilosa</i>	
Fabaceae	<i>Acacia nivea</i>	
Fabaceae	<i>Acacia nyssophylla</i>	
Fabaceae	<i>Acacia poliochroa</i>	
Fabaceae	<i>Acacia resinimarginea</i>	
Fabaceae	<i>Acacia resinosa</i>	
Fabaceae	<i>Acacia rossei</i>	
Fabaceae	<i>Acacia</i> sp.	
Fabaceae	<i>Acacia steedmanii</i> subsp. <i>steedmanii</i>	
Fabaceae	<i>Acacia stereophylla</i> var. <i>stereophylla</i>	
Fabaceae	<i>Acacia tetragonophylla</i>	
Fabaceae	<i>Acacia warramaba</i>	
Fabaceae	<i>Acacia yorkrakinensis</i> subsp. <i>acrita</i>	

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<b>Family</b>	<b>Species</b>	<b>Status</b>
Fabaceae	<i>Bossiaea</i> sp. Jackson Range (G. Cockerton & S. McNee LCS 13614)	P3 (DBCAs list)
Fabaceae	<i>Bossiaea walkeri</i>	
Fabaceae	<i>Daviesia argillacea</i>	
Fabaceae	<i>Daviesia croniniana</i>	
Fabaceae	<i>Daviesia intricata</i> subsp. <i>xiphophylla</i>	
Fabaceae	<i>Daviesia nematophylla</i>	
Fabaceae	<i>Daviesia rhizomata</i>	
Fabaceae	<i>Gastrolobium parviflorum</i>	
Fabaceae	<i>Gastrolobium spinosum</i>	
Fabaceae	<i>Gompholobium viscidulum</i>	
Fabaceae	<i>Jacksonia nematoclada</i>	
Fabaceae	<i>Leptosema daviesioides</i>	
Fabaceae	<i>Mirbelia seorsifolia</i>	
Fabaceae	<i>Mirbelia trichocalyx</i>	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>filifolia</i>	
Fabaceae	<i>Senna artemisioides</i> subsp. <i>x artemisioides</i>	
Fabaceae	<i>Senna stowardii</i>	
Fabaceae	<i>Templetonia aculeata</i>	
Fabaceae	<i>Templetonia ceracea</i>	
Fabaceae	<i>Templetonia smithiana</i>	
Frankeniaceae	<i>Frankenia cinerea</i>	
Frankeniaceae	<i>Frankenia interioris</i>	
Frankeniaceae	<i>Frankenia pauciflora</i>	
Geraniaceae	* <i>Erodium cicutarium</i>	Weed
Geraniaceae	<i>Erodium cygnorum</i>	
Goodeniaceae	<i>Dampiera eriocephala</i>	
Goodeniaceae	<i>Dampiera luteiflora</i>	
Goodeniaceae	<i>Dampiera stenostachya</i>	
Goodeniaceae	<i>Goodenia berardiana</i>	
Goodeniaceae	<i>Goodenia havilandii</i>	
Goodeniaceae	<i>Goodenia pinifolia</i>	
Goodeniaceae	<i>Goodenia pusilliflora</i>	
Goodeniaceae	<i>Lechenaultia brevifolia</i>	
Goodeniaceae	<i>Scaevola restiacea</i> subsp. <i>restiacea</i>	
Goodeniaceae	<i>Scaevola spinescens</i>	
Gyrostemonaceae	<i>Codonocarpus cotinifolius</i>	
Gyrostemonaceae	<i>Gyrostemon racemiger</i>	
Haemodoraceae	<i>Conostylis bealiana</i>	
Haemodoraceae	<i>Haemodorum ?discolor</i>	
Haemodoraceae	<i>Haemodorum discolor</i>	
Haloragaceae	<i>Glischrocaryon angustifolium</i>	
Haloragaceae	<i>Glischrocaryon aureum</i>	

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Family	Species	Status
Hemerocallidaceae	<i>Dianella revoluta</i> var. <i>divaricata</i>	
Iridaceae	<i>Patersonia rudis</i> subsp. <i>velutina</i>	
Juncaginaceae	<i>Triglochin isingiana</i>	
Lamiaceae	<i>Cyanostegia angustifolia</i>	
Lamiaceae	<i>Microcorys</i> sp. nov. (GBW 22/11/2019).	sp. nov.
Lamiaceae	<i>Pityrodia lepidota</i>	
Lamiaceae	<i>Prostanthera grylloana</i>	
Lamiaceae	<i>Prostanthera semiteres</i> subsp. <i>semiteres</i>	
Lamiaceae	<i>Westringia acifolia</i>	P1 (DBCA list)
Lamiaceae	<i>Westringia cephalantha</i>	
Lamiaceae	<i>Westringia rigida</i>	
Lauraceae	<i>Cassytha glabella</i> forma <i>casuarinae</i>	
Lauraceae	<i>Cassytha glabella</i> forma <i>glabella</i>	
Lauraceae	<i>Cassytha racemosa</i>	
Loranthaceae	<i>Amyema miquelii</i>	
Myrtaceae	? <i>Tetrapora tenuiramea</i>	
Myrtaceae	<i>Astus subroseus</i>	
Myrtaceae	<i>Baeckea elderiana</i>	
Myrtaceae	<i>Baeckea grandibracteata</i>	
Myrtaceae	<i>Baeckea grandibracteata</i> subsp. Parker Range (K. Newbey 9270)	P3 (DBCA list)
Myrtaceae	<i>Baeckea muricata</i>	
Myrtaceae	<i>Baeckea</i> sp.	
Myrtaceae	<i>Beaufortia orbifolia</i>	
Myrtaceae	<i>Beaufortia puberula</i>	
Myrtaceae	<i>Calothamnus gilesii</i>	
Myrtaceae	<i>Calytrix birdii</i>	
Myrtaceae	<i>Calytrix breviseta</i> subsp. <i>stipulosa</i>	
Myrtaceae	<i>Calytrix duplistipulata</i>	
Myrtaceae	<i>Calytrix merrelliana</i>	
Myrtaceae	<i>Chamelaucium</i> sp. Parker Range (B.H. Smith 1255)	P1 (DBCA list)
Myrtaceae	<i>Chamelaucium megalopetalum</i>	
Myrtaceae	<i>Chamelaucium pauciflorum</i> subsp. <i>Perenjori</i> (B.J. Conn 2181)	
Myrtaceae	<i>Cyathostemon verrucosus</i>	P3 (DBCA list)
Myrtaceae	<i>Darwinia</i> sp. Karonie (K. Newbey 8503)	
Myrtaceae	<i>Eucalyptus aspratilis</i>	
Myrtaceae	<i>Eucalyptus burracoppinensis</i>	
Myrtaceae	<i>Eucalyptus calycogona</i> subsp. <i>miraculum</i>	
Myrtaceae	<i>Eucalyptus capillosa</i>	
Myrtaceae	<i>Eucalyptus celastroides</i> subsp. <i>celastroides</i>	
Myrtaceae	<i>Eucalyptus concinna</i>	
Myrtaceae	<i>Eucalyptus cylindriflora</i>	

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Family	Species	Status
Myrtaceae	<i>Eucalyptus cylindrocarpa</i>	
Myrtaceae	<i>Eucalyptus flocktoniae</i>	
Myrtaceae	<i>Eucalyptus griffithsii</i>	
Myrtaceae	<i>Eucalyptus incrassata</i>	
Myrtaceae	<i>Eucalyptus leptopoda</i> subsp. <i>leptopoda</i>	
Myrtaceae	<i>Eucalyptus leptopoda</i> subsp. <i>subluta</i>	
Myrtaceae	<i>Eucalyptus longicornis</i>	
Myrtaceae	<i>Eucalyptus longissima</i>	
Myrtaceae	<i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i>	
Myrtaceae	<i>Eucalyptus moderata</i>	
Myrtaceae	<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>	
Myrtaceae	<i>Eucalyptus pileata</i>	
Myrtaceae	<i>Eucalyptus polita</i>	
Myrtaceae	<i>Eucalyptus rigidula</i>	
Myrtaceae	<i>Eucalyptus salicola</i>	
Myrtaceae	<i>Eucalyptus salmonophloia</i>	
Myrtaceae	<i>Eucalyptus salubris</i>	
Myrtaceae	<i>Eucalyptus sheathiana</i>	
Myrtaceae	<i>Eucalyptus</i> sp.	
Myrtaceae	<i>Eucalyptus tenera</i>	
Myrtaceae	<i>Eucalyptus transcontinentalis</i>	
Myrtaceae	<i>Eucalyptus vittata</i>	
Myrtaceae	<i>Eucalyptus yilgarnensis</i>	
Myrtaceae	<i>Euryomyrtus leptospermoides</i>	
Myrtaceae	<i>Euryomyrtus maidenii</i>	
Myrtaceae	<i>Homalocalyx pulcherrimus</i>	
Myrtaceae	<i>Homalocalyx thryptomenoides</i>	
Myrtaceae	<i>Leptospermum fastigiatum</i>	
Myrtaceae	<i>Malleostemon roseus</i>	
Myrtaceae	<i>Melaleuca acuminata</i> subsp. <i>acuminata</i>	
Myrtaceae	<i>Melaleuca calyptroides</i>	
Myrtaceae	<i>Melaleuca cordata</i>	
Myrtaceae	<i>Melaleuca ctenoides</i>	
Myrtaceae	<i>Melaleuca eleuterostachya</i>	
Myrtaceae	<i>Melaleuca hamata</i>	
Myrtaceae	<i>Melaleuca johnsonii</i>	
Myrtaceae	<i>Melaleuca lateriflora</i>	
Myrtaceae	<i>Melaleuca laxiflora</i>	
Myrtaceae	<i>Melaleuca leiocarpa</i>	
Myrtaceae	<i>Melaleuca pauperiflora</i> subsp. <i>fastigiata</i>	
Myrtaceae	<i>Melaleuca vinnula</i>	
Myrtaceae	<i>Micromyrtus ?racemosa</i>	
Myrtaceae	<i>Micromyrtus erichsenii</i>	

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<b>Family</b>	<b>Species</b>	<b>Status</b>
Myrtaceae	<i>Micromyrtus racemosa</i>	
Myrtaceae	<i>Rinzia ?torquata</i>	P3 (DBC list)
Myrtaceae	<i>Rinzia sp.</i>	
Myrtaceae	<i>Rinzia torquata</i>	P3 (DBC list)
Myrtaceae	<i>Tetrapora tenuiramea</i>	
Myrtaceae	<i>Thryptomene kochii</i>	
Myrtaceae	<i>Verticordia chrysantha</i>	
Myrtaceae	<i>Verticordia eriocephala</i>	
Myrtaceae	<i>Verticordia gracilis</i>	P3 (DBC list)
Myrtaceae	<i>Verticordia helmsii</i>	
Myrtaceae	<i>Verticordia inclusa</i>	
Myrtaceae	<i>Verticordia insignis</i> subsp. <i>compta</i>	
Myrtaceae	<i>Verticordia mitodes</i>	P3 (DBC list)
Myrtaceae	<i>Verticordia multiflora</i> subsp. <i>solox</i>	P2 (DBC list)
Myrtaceae	<i>Verticordia picta</i>	
Myrtaceae	<i>Verticordia pritzelii</i>	
Myrtaceae	<i>Verticordia rennieana</i>	
Myrtaceae	<i>Verticordia roei</i> subsp. <i>meiogona</i>	P1 (DBC list)
Myrtaceae	<i>Verticordia stenopetala</i>	P3 (DBC list)
Orchidaceae	<i>Caladenia paradoxa</i>	
Orchidaceae	<i>Cyanicula amplexans</i>	
Orchidaceae	<i>Diuris hazeliae</i>	
Orchidaceae	<i>Pterostylis roensis</i>	
Orchidaceae	<i>Pterostylis sargentii</i>	
Orchidaceae	<i>Pterostylis setulosa</i>	
Orchidaceae	<i>Pterostylis sp.</i>	
Orchidaceae	<i>Thelymitra antennifera</i>	
Pittosporaceae	<i>Cheiranthra filifolia</i>	
Poaceae	<i>Amphipogon caricinus</i> var. <i>caricinus</i>	
Poaceae	<i>Aristida contorta</i>	
Poaceae	<i>Aristida sp.</i>	
Poaceae	<i>Austrostipa elegantissima</i>	
Poaceae	<i>Austrostipa nodosa</i>	
Poaceae	<i>Austrostipa platychaeta</i>	
Poaceae	<i>Austrostipa scabra</i>	
Poaceae	<i>Austrostipa sp.</i>	
Poaceae	<i>Eragrostis dielsii</i>	
Poaceae	<i>Lachnagrostis plebeia</i>	
Poaceae	<i>Monachather paradoxus</i>	
Poaceae	<i>Poaceae sp.</i>	
Poaceae	<i>Rytidosperma caespitosum</i>	
Poaceae	<i>Rytidosperma setaceum</i>	
Poaceae	<i>Spartochloa scirpoidea</i>	

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Family	Species	Status
Poaceae	<i>Thyridolepis mitchelliana</i>	
Poaceae	<i>Triodia desertorum</i>	
Poaceae	<i>Triodia rigidissima</i>	
Poaceae	<i>Triodia scariosa</i>	
Poaceae	<i>Triodia tomentosa</i>	
Polygalaceae	<i>Comesperma spinosum</i>	
Polygalaceae	<i>Comesperma volubile</i>	
Portulacaceae	<i>Calandrinia eremaea</i>	
Portulacaceae	<i>Calandrinia</i> sp.	
Proteaceae	<i>Adenanthos argyreus</i>	
Proteaceae	<i>Banksia audax</i>	
Proteaceae	<i>Banksia elderiana</i>	
Proteaceae	<i>Banksia shanklandiorum</i>	P4 (DBCA list)
Proteaceae	<i>Conospermum stoechadis</i>	
Proteaceae	<i>Grevillea acuaria</i>	
Proteaceae	<i>Grevillea didymobotrya</i> subsp. <i>didymobotrya</i>	
Proteaceae	<i>Grevillea eryngioides</i>	
Proteaceae	<i>Grevillea excelsior</i>	
Proteaceae	<i>Grevillea hookeriana</i> subsp. <i>apiciloba</i>	
Proteaceae	<i>Grevillea hookeriana</i> subsp. <i>hookeriana</i>	
Proteaceae	<i>Grevillea huegelii</i>	
Proteaceae	<i>Grevillea incrassata</i>	
Proteaceae	<i>Grevillea obliquistigma</i> subsp. <i>obliquistigma</i>	
Proteaceae	<i>Grevillea oncogyne</i>	
Proteaceae	<i>Grevillea paradoxa</i>	
Proteaceae	<i>Grevillea pterosperma</i>	
Proteaceae	<i>Grevillea stenobotrya</i>	
Proteaceae	<i>Grevillea teretifolia</i>	
Proteaceae	<i>Hakea erecta</i>	
Proteaceae	<i>Hakea francisiana</i>	
Proteaceae	<i>Hakea minyma</i>	
Proteaceae	<i>Hakea multilineata</i>	
Proteaceae	<i>Hakea pendens</i>	P3 (DBCA list)
Proteaceae	<i>Hakea platysperma</i>	
Proteaceae	<i>Hakea preissii</i>	
Proteaceae	<i>Hakea recurva</i> subsp. <i>arida</i>	
Proteaceae	<i>Hakea subsulcata</i>	
Proteaceae	<i>Isopogon scabriusculus</i> subsp. <i>pubifloris</i>	
Proteaceae	<i>Persoonia coriacea</i>	
Proteaceae	<i>Persoonia helix</i>	
Proteaceae	<i>Persoonia inconspicua</i>	
Proteaceae	<i>Persoonia saundersiana</i>	
Proteaceae	<i>Petrophile merrallii</i>	

**Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project  
Prepared for Mineral Resources Ltd**

<b>Family</b>	<b>Species</b>	<b>Status</b>
Proteaceae	<i>Stirlingia</i> sp.	
Proteaceae	<i>Synaphea spinulosa</i> subsp. <i>major</i>	
Pteridaceae	<i>Cheilanthes adiantoides</i>	
Restionaceae	<i>Lepidobolus preissianus</i>	
Rhamnaceae	<i>Cryptandra crispula</i>	P3 (DBC list)
Rhamnaceae	<i>Cryptandra distigma</i>	
Rhamnaceae	<i>Cryptandra granitica</i>	
Rhamnaceae	<i>Pomaderris forrestiana</i>	
Rhamnaceae	<i>Stenanthemum bremerense</i>	P4 (DBC list)
Rhamnaceae	<i>Stenanthemum stipulosum</i>	
Rutaceae	<i>Boronia ternata</i> var. <i>ternata</i>	
Rutaceae	<i>Drummondita hassellii</i>	
Rutaceae	<i>Microcybe multiflora</i> subsp. <i>multiflora</i>	
Rutaceae	<i>Phebalium ?drummondii</i>	P3 (DBC list)
Rutaceae	<i>Phebalium canaliculatum</i>	
Rutaceae	<i>Phebalium drummondii</i>	P3 (DBC list)
Rutaceae	<i>Phebalium filifolium</i>	
Rutaceae	<i>Phebalium lepidotum</i>	
Rutaceae	<i>Phebalium megaphyllum</i>	
Rutaceae	<i>Phebalium tuberosum</i>	
Rutaceae	<i>Philotheca brucei</i> subsp. <i>brucei</i>	
Rutaceae	<i>Philotheca coccinea</i>	
Santalaceae	<i>Exocarpos aphyllus</i>	
Santalaceae	<i>Leptomeria preissiana</i>	
Santalaceae	<i>Santalum acuminatum</i>	
Santalaceae	<i>Santalum lanceolatum</i>	
Santalaceae	<i>Santalum spicatum</i>	
Sapindaceae	<i>Dodonaea bursariifolia</i>	
Sapindaceae	<i>Dodonaea inaequifolia</i>	
Sapindaceae	<i>Dodonaea viscosa</i> subsp. <i>angustissima</i>	
Scrophulariaceae	<i>Eremophila caperata</i>	
Scrophulariaceae	<i>Eremophila decipiens</i> subsp. <i>decipiens</i>	
Scrophulariaceae	<i>Eremophila drummondii</i>	
Scrophulariaceae	<i>Eremophila granitica</i>	
Scrophulariaceae	<i>Eremophila ionantha</i>	
Scrophulariaceae	<i>Eremophila latrobei</i> subsp. <i>filiformis</i>	
Scrophulariaceae	<i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i>	
Scrophulariaceae	<i>Eremophila scoparia</i>	
Scrophulariaceae	<i>Eremophila</i> sp.	
Solanaceae	<i>Solanum orbiculatum</i> subsp. <i>orbiculatum</i>	
Stylidiaceae	<i>Stylidium limbatum</i>	
Stylidiaceae	<i>Stylidium validum</i>	P1 (DBC list)
Xanthorrhoeaceae	<i>Xanthorrhoea nana</i>	

# Interim Memo Report



**To:** Neil Smith  
Senior Environmental Advisor  
Mineral Resources Limited

**From:** David Leach  
Senior Botanist  
Phoenix Environmental Sciences

**Date:** 12/03/2020

**Scope:** Interim report summary of currently available biological data for the Parker Range North Haul Road Extension project.

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Dear Neil

Please find below a summary of currently available data associated with biological surveys being undertaken by Phoenix Environmental Sciences (Phoenix) for the Parker Range North Haul Road Extension (the Project). Phoenix is currently undertaking the following scope of work for the Project:

- detailed, two season flora and vegetation survey
- basic (Level 1) vertebrate fauna survey, targeted survey for significant terrestrial fauna species and SRE invertebrate fauna survey.

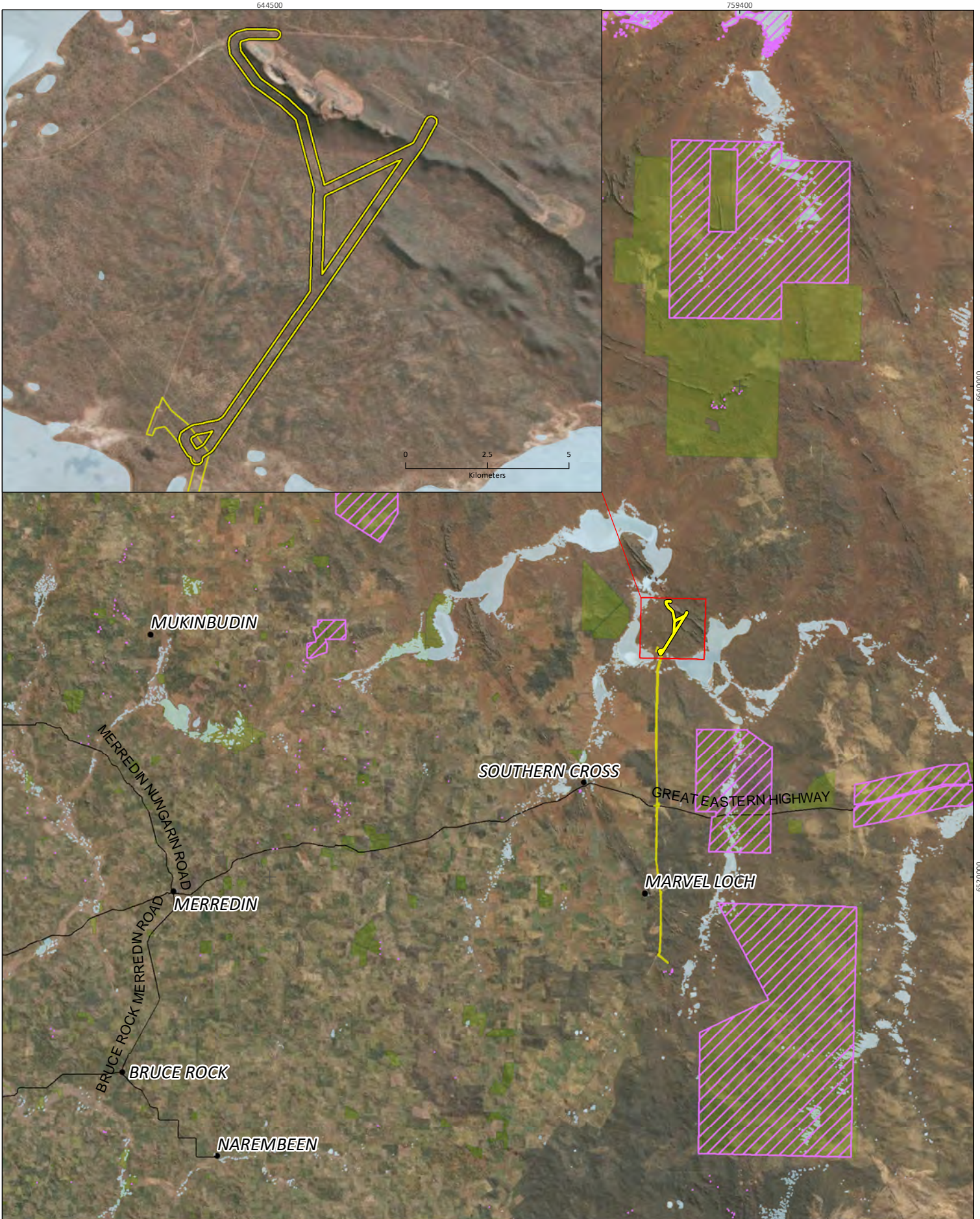
The study area for the surveys abuts the northern terminus of the southern section of the proposed Parker Range Haul Road and terminates in the north at Koolyanobbing mine site (Figure 1). Phoenix previously conducted baseline surveys for the southern haul road study area, which are reported in Phoenix (2021).

Surveys completed to date for the Project include the first season of the flora and vegetation survey, and the baseline fauna surveys, with post-field data analysis, identifications and mapping currently underway. A second season botanical survey (site revisit and targeted searching) and a systematic fauna survey for the Arid Bronze Azure Butterfly host ant *Camponotus* nr. *terebrans* are scheduled for mid to late March 2021.

As field surveys are not yet complete, the below summary of available biological data is considered preliminary. A full report inclusive of all survey findings, vegetation type mapping (at NVIS Level 5 resolution), vegetation condition mapping, and fauna habitat mapping is scheduled for delivery to Mineral Resources Limited (MRL) on the 19 May (eight weeks following supplementary survey).

The following associated datasets are provided alongside this interim report:

- Shapefiles of DBCA database search results for fauna, flora, and Threatened/Priority communities.
- Shapefiles of flora and fauna field site locations.
- Shapefile of significant flora records resulting from the first botanical season fieldwork.
- Shapefile of significant vertebrate fauna records resulting from fieldwork.
- Shapefiles of preliminary desktop vegetation mapping of the study area (not verified by fieldwork results or analysis) at approximately a NVIS Level 4 structural vegetation resolution.



Mineral Resources Ltd Parker Range Iron Ore Project		
Project No	1359	
Date	12/03/2021	
Drawn by	IN	
Map author	DL	
1:1,200,000 (at A4)		GDA 1994 MGA Zone 50

- Study area
- Southern haul road study area
- Environmentally sensitive areas
- Lakes
- Road
- DBCA managed land

**Figure 1**  
**Project location and study area**

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## Summary of available desktop data

Department of Biodiversity, Conservation and Attractions (DBCA) database searches for existing records of significant flora, fauna, and threatened or priority ecological communities have been conducted. A substantial number of additional significant flora records are also known from a previously supplied MRL composite dataset. Figure 2 summarises locations of desktop data of significant fauna, flora, and ecological communities relevant to the study area.

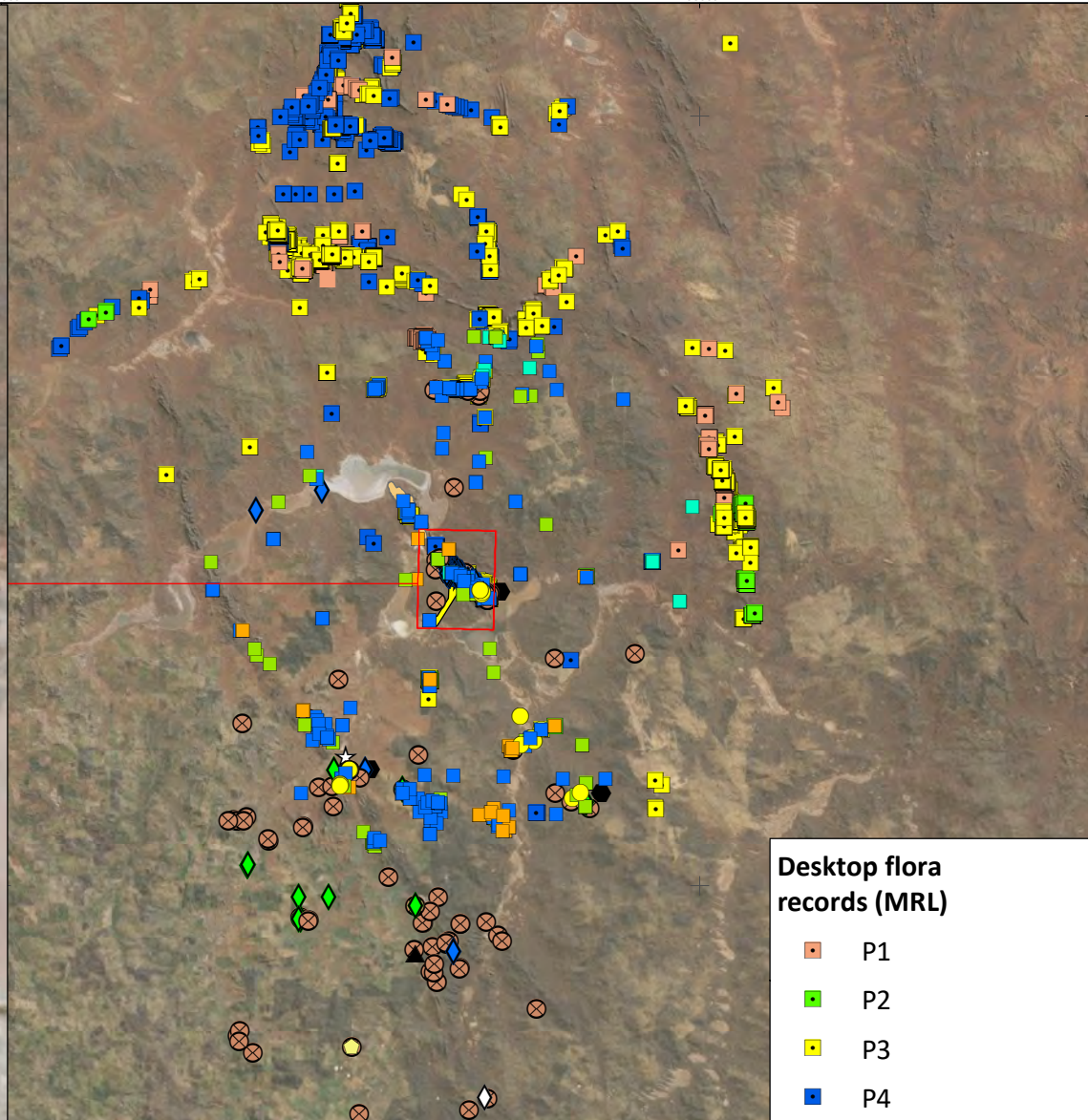
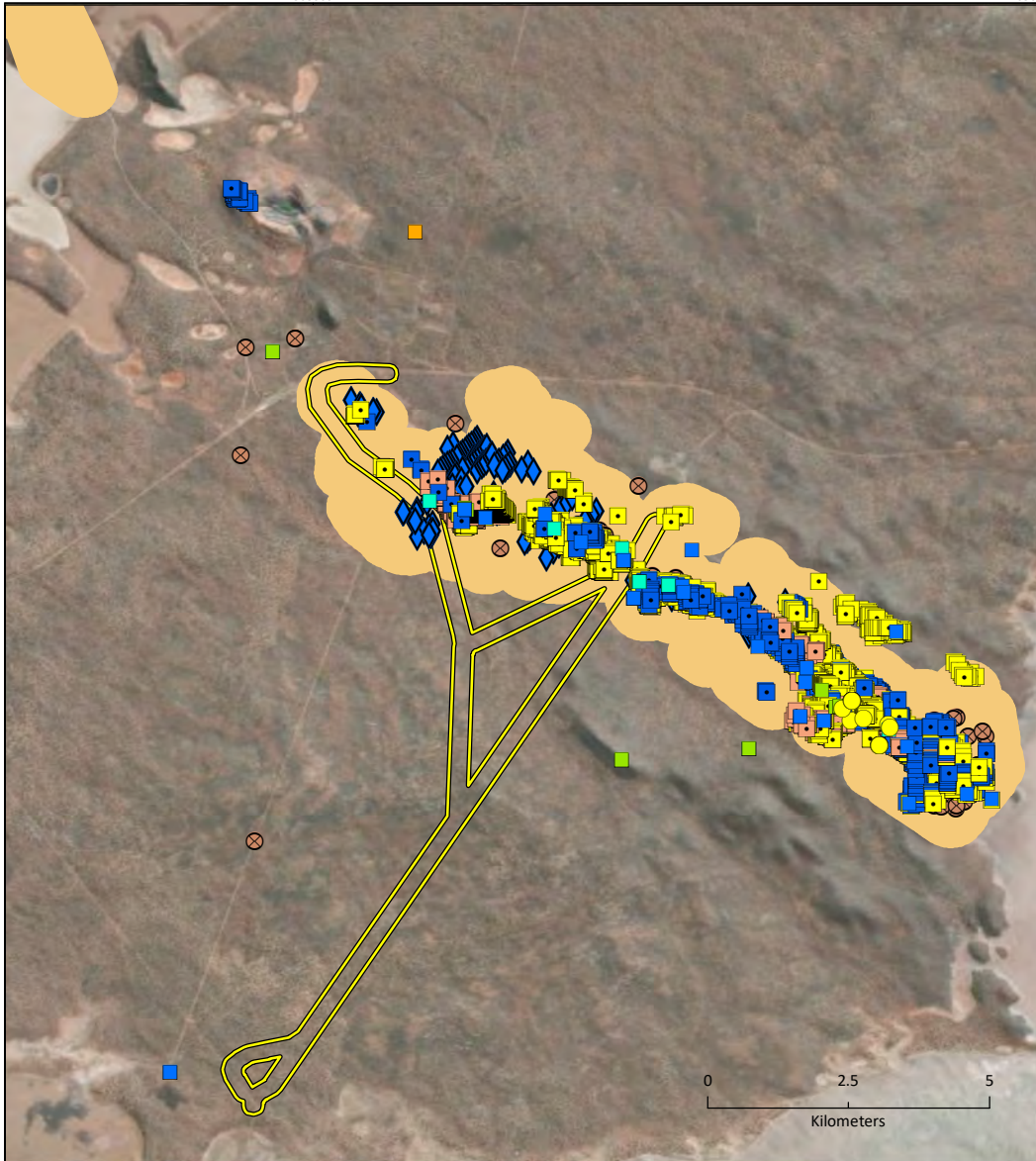
Most pre-existing records of significant flora in the local region are concentrated on and around banded ironstone formation (BIF) hills in the northern portion of the study area, with some scattered records occurring on plains to the east (Figure 2). Table 1 lists significant flora in close proximity (~2.5 km) that have a higher likelihood of occurring within the study area.

**Table 1 Desktop significant flora records within 2.5 km of study area**

Species	Conservation status
<i>Acacia dissona</i> var. <i>indolaria</i>	Priority 3
<i>Acacia haematites</i>	Priority 1
<i>Austrostipa blackii</i>	Priority 3
<i>Banksia arborea</i>	Priority 4
<i>Beyeria rostellata</i>	Priority 1
<i>Gompholobium cinereum</i>	Priority 3
<i>Hibbertia lepidocalyx</i> subsp. <i>tuberculata</i>	Priority 3
<i>Lepidium merrallii</i>	Priority 2
<i>Lepidosperma ferricola</i>	Priority 3
<i>Stenanthemum newbeyi</i>	Priority 3
<i>Verticordia mitodes</i>	Priority 3
<i>Verticordia</i> sp. Koolyanobbing (B.H. Smith 1457)	Priority 1

Existing fauna records returned by the DBCA database search found two significant fauna species in close proximity (~2.5 km) to the study area; 20 records of Malleefowl (*Leipoa ocellata*) and 133 records of Tree-stem trapdoor spider (*Idiosomic (Aganippe) castellum*). Both fauna species records are concentrated on and around the BIF hills in the northern portion of the study area (Figure 2). One pre-existing record of Malleefowl occurs on the plains west of the study area.

DBCA database searches revealed a Priority Ecological Community (PEC), the Priority 1 'Koolyanobbing vegetation complex (banded ironstone formation) intersecting the northern portion of the study area (Figure 2) and another occurrence 6.5 km to the northwest.



**Desktop flora records (MRL)**

- P1
- P2
- P3
- P4



Mineral Resources Ltd Parker Range Iron Ore Project		
Project No	1359	
Date	12/03/2021	
Drawn by	IN	
Map author	DL	
1:1,500,000 (at A4)		GDA 1994 MGA Zone 50

<span style="border: 2px solid yellow; padding: 2px;"> </span> Study area	<span style="color: green;">◆</span> P1
<span style="background-color: lightorange; border: 1px solid orange; padding: 2px;"> </span> PEC boundary	<span style="color: blue;">◇</span> P3
<span style="color: green;">■</span> P1	<span style="color: blue;">◆</span> P4
<span style="color: orange;">■</span> P2	<span style="border: 1px solid brown; border-radius: 50%; padding: 2px;">×</span> VU
<span style="color: blue;">■</span> P3	<span style="color: black;">▲</span> CD
<span style="color: cyan;">■</span> P4	<span style="color: black;">◆</span> EN
<span style="color: yellow;">■</span> T	<span style="color: black;">☆</span> IA
	<span style="color: black;">●</span> OS

**Figure 2**

**Desktop records of significant flora, fauna and ecological communities**

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## Summary of available flora and vegetation field data

The first season botanical survey was conducted 9-15 October 2020. Forty-seven botanical sites (40 quadrats and seven relevés) were conducted in addition to targeted searches for significant flora and opportunistic flora collections. All flora specimens collected during the first season survey have been identified, allowing the below summary of significant flora.

### Significant flora

Significant flora targeted searches to date have focused on verifying existing records and population boundaries, amending them where necessary, and searching similar nearby vegetation for those same species.

Generally pre-existing records of significant flora within the study area boundaries remain current. However, new additional records for existing populations of *Hibbertia lepidocalyx* subsp. *tuberculata* (P3), *Lepidosperma ferricola* (P3), and *Stenanthemum newbeyi* (P3) were encountered on lower hillslopes in the northeast corridor of the study area (Figure 3). These new records straddle the study area boundary with some occurring inside and others outside of the study area. One previously recorded population of *Lepidosperma ferricola* (78 plants) within the study area located ~385 m north of the airstrip and adjacent to clearing was found to be no longer present.

Four new scattered populations of *Lepidosperma ferricola* (P3) were opportunistically encountered around the central area of the study area. These new populations appear to be associated with a discontinuous east-west band of soils that may relate to what appears to be a past breakaway system that has since weathered/decayed. Additional targeted searching of this area is planned as part of the second season botanical survey.

Overall, the prominence of significant flora recorded so far is noticeably reduced compared to results of the Parker Range southern haul road survey (Phoenix 2021).

### Preliminary vegetation mapping

Final vegetation and condition mapping of the study area has not yet been produced (pending second season botanical survey and final analysis of vegetation data).

To assist field surveys, preliminary desktop vegetation mapping was prepared using aerial imagery to determine structural vegetation types (at a NVIS Level 4 resolution) for most of the study area (Figure 4; Table 2). For the northern portion of the study area associated with the Koolynobbing Range, previous vegetation mapping by Woodman Environmental Consulting (WEC 2014) (supplied by MRL) has been temporarily incorporated into the preliminary vegetation map to assist Phoenix field survey (Figure 4; Table 2). The resulting composite preliminary vegetation map has not been verified by vegetation analysis and final vegetation types (units) have not yet been determined.

While preliminary, it is worth noting that preliminary vegetation units within the study area are generally dissimilar from vegetation types of the Parker Range southern haul road survey (as presented in Phoenix 2021). This dissimilarity in vegetation is likely due to differing geology and/or soils between the two areas, particularly the lack of yellow sandplain vegetation within the North Haul Road Extension study area and proximity to the Koolyanobbing range.

In its current state, the preliminary mapping is not compliant with the required Technical Guidance for flora and vegetation surveys for environmental impact assessment (as per EPA 2016).

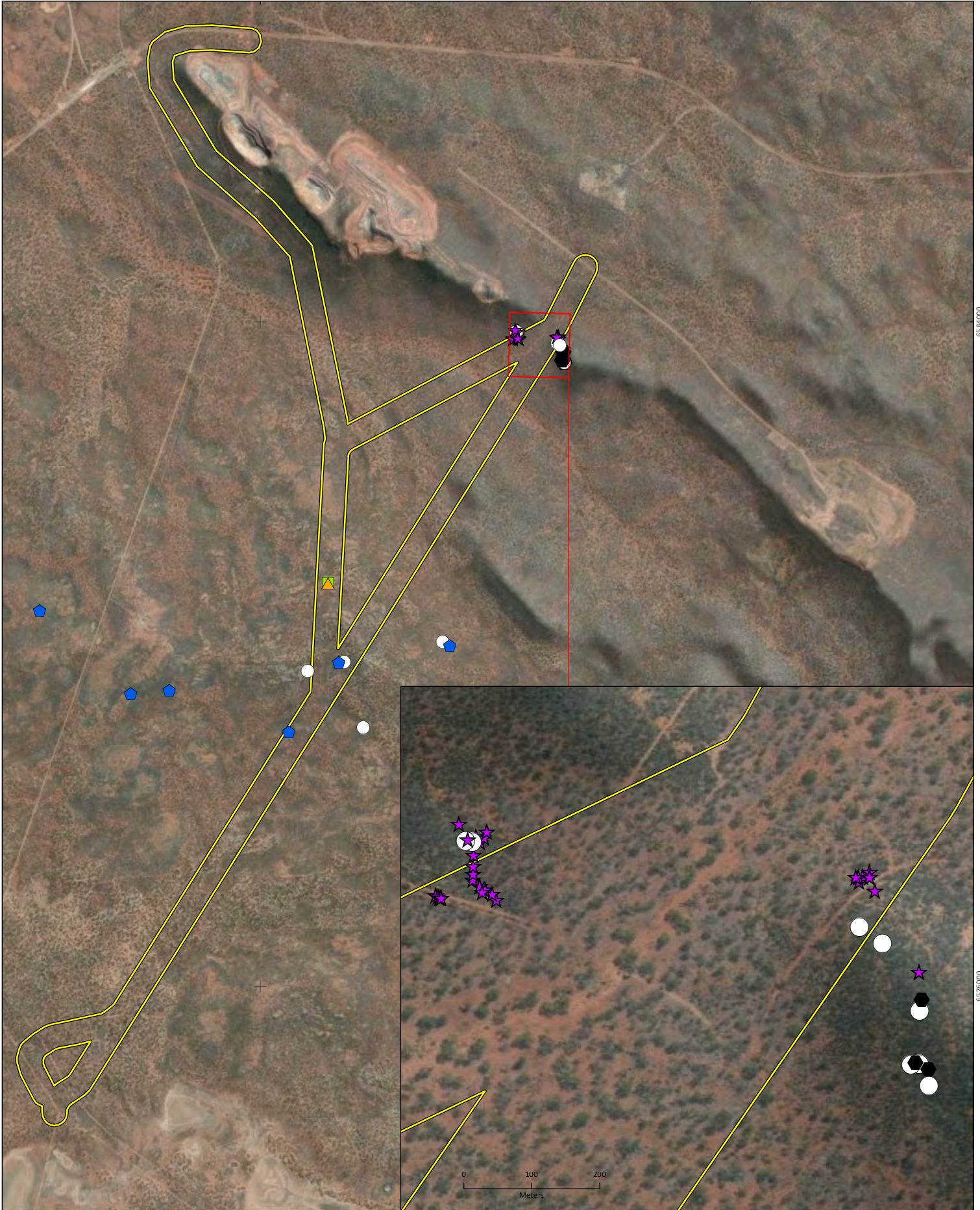
### Threatened and Priority Ecological Communities


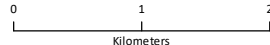
No new occurrences of Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) were found during the first botanical season survey beyond those known from desktop








# Interim Memo Report



assessment. However, once vegetation types are defined following analysis, vegetation types will be compared to known lists of TECs/PECs to confirm or rule out new occurrences of TECs/PECs.




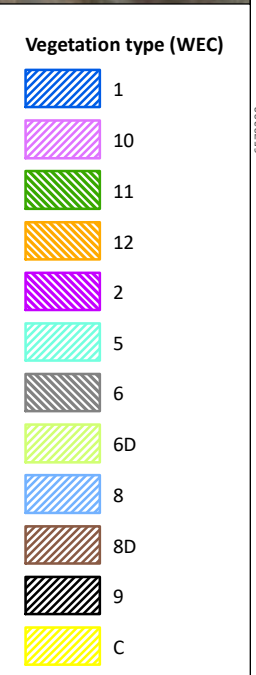
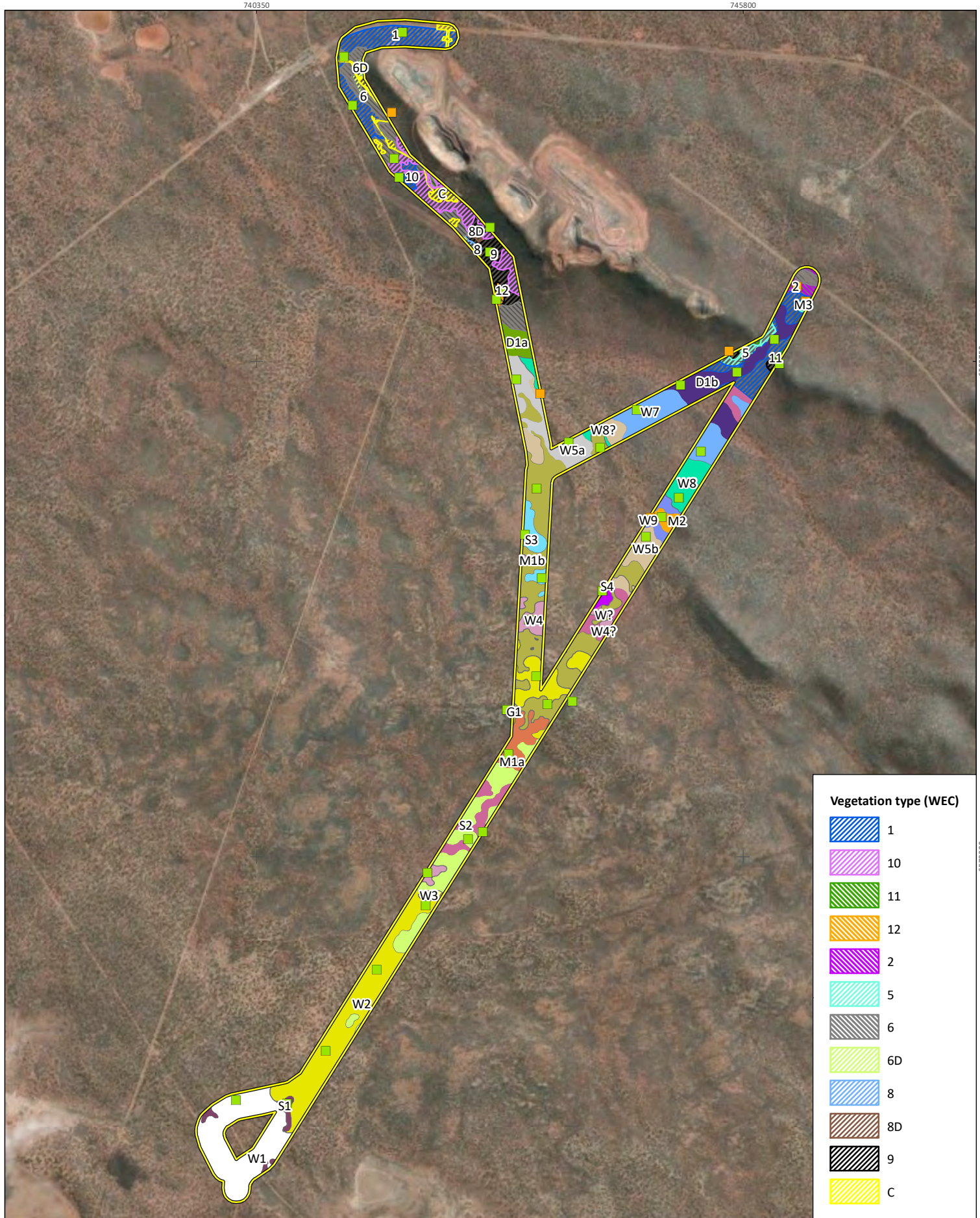
Mineral Resources Ltd Parker Range Iron Ore Project	
Project No 1359	Date 12/03/2021
Drawn by IN	Map author DL
	
	
1:59,100 (at A4)      GDA 1994 MGA Zone 50	

-  Study area
- Significant fauna**
-  *Dasyurus geoffroi*, VU (EPBC, BC Acts)
-  *Falco peregrinus*, OS (BC Act)
-  *Leipoa ocellata*, VU (EPBC, BC Acts)
- Significant flora**
-  *Hibbertia lepidocalyx* subsp. *tuberculata*, P3 (DBC list)
-  *Lepidosperma ferricola*, P3 (DBC list)
-  *Stenanthemum newbeyi*, P3 (DBC list)

**Figure 3**

**Significant flora and fauna field survey records**





Western Australia

PERTH

**Mineral Resources Ltd**  
**Parker Range Iron Ore Project**

Project No	1359
Date	12/03/2021
Drawn by	IN
Map author	DL

Kilometers

1:55,000 (at A4)      GDA 1994 MGA Zone 50

**Study area**

Study area

**Flora site**

Quadrat

Relieve

**Vegetation type (Phoenix)**

	D1a		D1b		G1		M1a
	S2		S3		S4		W1
	W2		W3		W4		W5a
	M2		W5b		W7		W8
	M3		W8		W9		W?

**Figure 4**  
**Preliminary vegetation types in the study area**

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**Table 2 Preliminary vegetation descriptions**

Vegetation type code	Description
<b>Phoenix preliminary vegetation types</b>	
D1a	Broad shallow drainage of mid open woodland of <i>Eucalyptus salubris</i> , over low shrubland of <i>Ptilotus obovatus</i> , <i>Atriplex nummularia</i> , <i>A. vesicaria</i> , and <i>Maireana sp.</i>
D1b	Broad shallow drainage of mid open woodland of <i>Eucalyptus salmonophloia</i> , over mid open shrubland of <i>Eremophila spp.</i> , over low open shrubland of <i>Atriplex vesicaria</i> and/or <i>A. nummularia</i> .
G1	Granite outcrop with sparse vegetation.
M1a	Low woodland of <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> , over mixed shrubland, over sparse tussock grassland of <i>Eriachne mucronata</i> .
M1b	Low mallee of <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> , over tall shrubland of <i>Acacia acuminata</i> .
M2	Mallee <i>Eucalyptus ewartiana</i> over <i>Acacia acuminata</i> .
M3	Low open mallee woodland dominated by <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> over tall open to sparse shrubland of mixed species dominated by <i>Acacia sp.</i> Mt Jackson (B. Ryan 176), <i>Acacia acuminata</i> , and <i>Acacia tetragonophylla</i> .
S1	Tall open shrubland of <i>Dodonaea sp.</i> and <i>Acacia tetragonophylla</i> over mid open shrubland of <i>Senna artemisioides</i> subsp. <i>filifolia</i> .
S2	Tall open shrubland of <i>Acacia burkittii</i> , <i>Melaleuca hamata</i> , and <i>A. ramulosa</i> .
S3	Tall sparse shrubland of <i>Acacia quadrimarginea</i> , over mid open shrubland of <i>Thryptomene ?kochi</i> , over variably present forbland of <i>Borya constricta</i> .
S4	Tall shrubland of <i>Melaleuca hamata</i> .
W?	Woodland (description pending).
W1	Mid open woodland of <i>Eucalyptus salubris</i> , <i>E. longicornis</i> , <i>E. yilgarnensis</i> , over mid sparse shrubland of <i>Eremophila scoparia</i> , <i>E. ionantha</i> , over low open shrubland of <i>Atriplex vesicaria</i> , <i>Atriplex nummularia</i> , and <i>Olearia muelleri</i> .
W2	Mid open woodland of <i>Eucalyptus salubris</i> , over tall open shrubland of <i>Eremophila scoparia</i> and <i>Exocarpus aphyllus</i> , over low scattered shrubs of <i>Rhagodia drummondii</i> and <i>Olearia muelleri</i> .
W3	Mid open woodland of <i>Eucalyptus salubris</i> and <i>E. yilgarnensis</i> , over mid open shrubland of <i>Eremophila scoparia</i> , over low shrubland of <i>Atriplex vesicaria</i> .
W4	Mid open woodland of <i>Eucalyptus salubris</i> and <i>E. yilgarnensis</i> , over mid isolated shrubs of <i>Exocarpus aphyllus</i> , over low open shrubland of <i>Atriplex vesicaria</i> and <i>Cryptandra sp.</i>
W5a	Tall open woodland of <i>Eucalyptus salmonophloia</i> , over tall sparse shrubland, over low chenopod shrubland.
W5b	Tall open woodland of <i>Eucalyptus salmonophloia</i> , over tall sparse shrubland, over low chenopod shrubland (shrublands may differ from W5a).
W7	Mid open woodland of <i>Eucalyptus salmonophloia</i> (presence of <i>E. longicornis</i> , <i>E. transcontinentalis</i> , <i>E. celastroides</i> subsp. <i>celastroides</i> ).
W8	Mid to tall open woodland of <i>Eucalyptus longicornis</i> .
W9	Low open mallee of <i>Eucalyptus corrugata</i> .
<b>Woodman Environmental Consulting vegetation types (WEC 2014)</b>	
1	Mid to low mallee woodland of <i>Eucalyptus corrugata</i> and/or <i>Eucalyptus vittata</i> over tall to mid open shrubland dominated by <i>Exocarpus aphyllus</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila interstans</i> subsp. <i>interstans</i> over low sparse shrubland.

10	Tall open shrubland dominated by <i>Acacia</i> sp. Mt Jackson (B. Ryan 176), <i>Acacia tetragonophylla</i> and occasionally <i>Santalum spicatum</i> over mid open shrubland dominated by <i>Dodonaea inaequifolia</i> , <i>Scaevola spinescens</i> , <i>Philotheca brucei</i> subsp. <i>brucei</i> and <i>Eremophila clarkei</i> .
11	Low isolated trees and mallees of <i>Eucalyptus longissima</i> , <i>Banksia arborea</i> and <i>Brachychiton gregorii</i> over tall shrubland to open shrubland dominated by <i>Acacia</i> sp. Mt Jackson (B. Ryan 176) and <i>Allocasuarina eriochlamys</i> subsp. <i>eriochlamys</i> or <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> .
12	Tall shrubland dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) and occasionally <i>Acacia caesaneura</i> (narrow phyllodes variant) over mid to low open shrubland dominated by <i>Leucopogon</i> sp. Clyde Hill (M.A. Burgman 1207), <i>Prostanthera semiteres</i> subsp. <i>semiteres</i> , <i>Mirbelia microphylla</i> and occasionally <i>Philotheca brucei</i> subsp. <i>brucei</i> .
2	Mid to low woodland dominated by <i>Eucalyptus ravida</i> and <i>Eucalyptus celastroides</i> subsp. <i>celastroides</i> over tall to mid sparse shrubland dominated by <i>Atriplex nummularia</i> and <i>Eremophila scoparia</i> over low sparse shrubland dominated by <i>Atriplex vesicaria</i> , <i>Sclerolaena diacantha</i> , <i>Maireana trichopteran</i> , <i>Maireana georgei</i> and <i>Rhagodia drummondii</i> .
5	Mid to low woodland of <i>Eucalyptus vittata</i> over mid sparse shrubland dominated by <i>Atriplex nummularia</i> , <i>Eremophila oppositifolia</i> subsp. <i>angustifolia</i> and <i>Eremophila caperata</i> over low sparse shrubland of mixed species including <i>Olearia muelleri</i> , <i>Acacia erinacea</i> , <i>Maireana georgei</i> and <i>Ptilotus obovatus</i> var. <i>obovatus</i> .
6	Mid to low mallee woodland of <i>Eucalyptus corrugata</i> and/or <i>Eucalyptus vittata</i> over tall to mid open shrubland dominated by <i>Exocarpos aphyllus</i> , <i>Senna artemisioides</i> subsp. <i>filifolia</i> and <i>Eremophila interstans</i> subsp. <i>interstans</i> .
6D	Degraded area of 6.
8	Low isolated mallees of <i>Eucalyptus longissima</i> or <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> over tall shrubland dominated by <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831) and occasionally <i>Acacia tetragonophylla</i> over mid open shrubland dominated by <i>Dodonaea inaequifolia</i> and <i>Scaevola spinescens</i> .
8D	Degraded area of 8.
9	Low open mallee woodland dominated by <i>Eucalyptus loxophleba</i> subsp. <i>lissophloia</i> over tall open to sparse shrubland of mixed species dominated by <i>Acacia</i> sp. Mt Jackson (B. Ryan 176), <i>Acacia</i> sp. narrow phyllode (B.R. Maslin 7831), <i>Acacia tetragonophylla</i> and <i>Allocasuarina acutivalvis</i> subsp. <i>acutivalvis</i> .
C	Cleared.

## Summary of available fauna results data

The fauna survey was conducted over two field trips, 6-11 December 2020 and 17-21 January 2021. Fauna survey activities performed to date include active searches, Malleefowl searches, motion camera trapping, and SRE litter sieving and wet pitfall trapping (as summarised in Table 3).

**Table 3 Summary of terrestrial fauna survey effort**

Site	Camera trap (nights)	Vertebrate foraging (hrs)	SRE litter sieve	SRE foraging (hrs)	SRE wet pitfall trap (nights)
CAM01	124	1.5			
CAM02	118	4.1			
CAM03	79	0.9	3	1.7	199
CAM04	128	3.0	3	1.6	220
CAM05	128	0.8	3	2.0	213
CAM06	121	1.3	3	0.9	203
CAM07	122	3.0			
DAM		1.3			
FOR01		1.1			
FOR02		1.1			
FOR03		1.9			
FOR04		1.5			
SRE01		0.9	3	1.3	203
<b>Total</b>	<b>820</b>	<b>22.5</b>	<b>15</b>	<b>7.5</b>	<b>1,038</b>

## Vertebrate fauna

Three significant vertebrate fauna species were recorded during the surveys: Chuditch (*Dasyurus geoffroyi*, VU, EPBC & BC Acts); Peregrine Falcon (*Falco peregrinus*, OS, BC Act); and Malleefowl (*Leipoa ocellata*, VU, EPBC & BC Acts). Locations of these significant fauna records are mapped in Figure 3.

Chuditch was recorded once in the study area at site CAM06 from a single scat. Chuditch foraging habitat (woodland) was common throughout the study area. While some denning may occur within the study area where large fallen logs are present, the best denning habitat in the area occurs in rocky hills to the north and east of the study area.

Peregrine Falcon was recorded once in the study area at site CAM06. A single individual was observed flying over the study area. Most of the study area constitutes foraging habitat for Peregrine Falcon. Nesting is possible in some areas of the study area where tall Salmon Gums occur but is more likely in rocky hills to the north and east of the study area.

Fifteen potential Malleefowl mounds previously identified using LiDAR were investigated. Of these, five are Malleefowl mounds. Only one of these mounds (Figure 5, top) was within the study area at site PRHRM002. The mound was not active at the time of observation, but eggshell fragments were present. An additional mound not detected by LiDAR was observed within the study area during botanical surveys (Figure 5, bottom). This mound was also inactive but had recent Malleefowl tracks on its surface. Dense shrublands with sufficient leaf litter to facilitate Malleefowl nesting occur within the study area but (pending habitat mapping) appear less common in the study area compared to previously surveyed southern Parker Range haul road (Phoenix 2021).

Terrestrial vertebrate fauna habitat assessments were undertaken throughout the study area to define and delineate broad fauna habitats present. These assessments will be used to develop fauna habitat mapping of the study area once vegetation mapping is finalised following the second season botanical survey.



**Figure 5** Mallefowl mounds found within the study area

## **SRE Invertebrates**

Short-range endemic (SRE) invertebrate survey results are summarised in Table 4.

All snail records were from empty shells and are not identifiable. The remainder of the potential SRE invertebrate samples have been sent to external taxonomists for morphological identification or genetic analysis. Morphological identification of slaters, scorpions and pseudoscorpions is expected

to be complete by 19 March. Mygalomorph spider sequences have been received and cleaned. Preliminary analysis suggests that analysis against WA Museum sequences may be required to identify samples to species level.

The ant *Camponotus* nr. *terebrans* acts as a host for the Arid Bronze Azure Butterfly (*Ogyris subterrestris* subsp. *petrina*; CR EPBC & BC Acts). Ants of the genus *Camponotus* were collected opportunistically in the field and from wet pit traps. A total of 96 individuals were collected and sent to the WA Museum for identification. The majority of *Camponotus* ants collected belonged to the species *Camponotus nigriceps*. No individuals of *Camponotus* nr. *terebrans* were collected. Systematic surveys for *Camponotus* nr. *terebrans* in both the northern and southern portions of the proposed haul road are currently planned for March 17-22.

**Table 4** Summary of SRE invertebrate results

Group	No. Samples	No. Individuals
Slaters (Isopoda)	4	23
Scorpions (Scorpiones)	3	5
Land snails (Gastropoda)	4	8
Trapdoor spiders (Mygalomorphae)	16	28
Pseudoscorpions (Pseudoscorpiones)	7	22
<b>Total</b>	<b>34</b>	<b>86</b>

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Phoenix Environmental Sciences looks forward to completing fieldworks and providing final technical report for the Project. We are happy to provide clarification for this interim report's content and continue to provide results as they become available.

Yours Sincerely,

David Leach (Senior Botanist)

Phoenix Environmental Sciences

# Interim Memo Report



## References

- EPA. 2016. *Technical Guidance: Flora and vegetation surveys for Environmental Impact Assessment*. Environmental Protection Authority, Perth, WA. Available at: [http://www.epa.wa.gov.au/sites/default/files/Policies\\_and\\_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey\\_Dec13.pdf](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA%20Technical%20Guidance%20-%20Flora%20and%20Vegetation%20survey_Dec13.pdf)
- Phoenix. 2021. *Baseline flora, vegetation and fauna surveys for the Parker Range Haul Road Project*. Phoenix Environmental Sciences Pty Ltd, Osborne Park, WA. Unpublished report prepared for Mineral Resources Ltd.
- WEC. 2014. *Southern Koolyanobbing Range flora and vegetation assessment*. Woodman Environmental Consulting Pty Ltd. Unpublished report prepared for Cliffs Asia Pacific Iron Ore Pty Ltd.