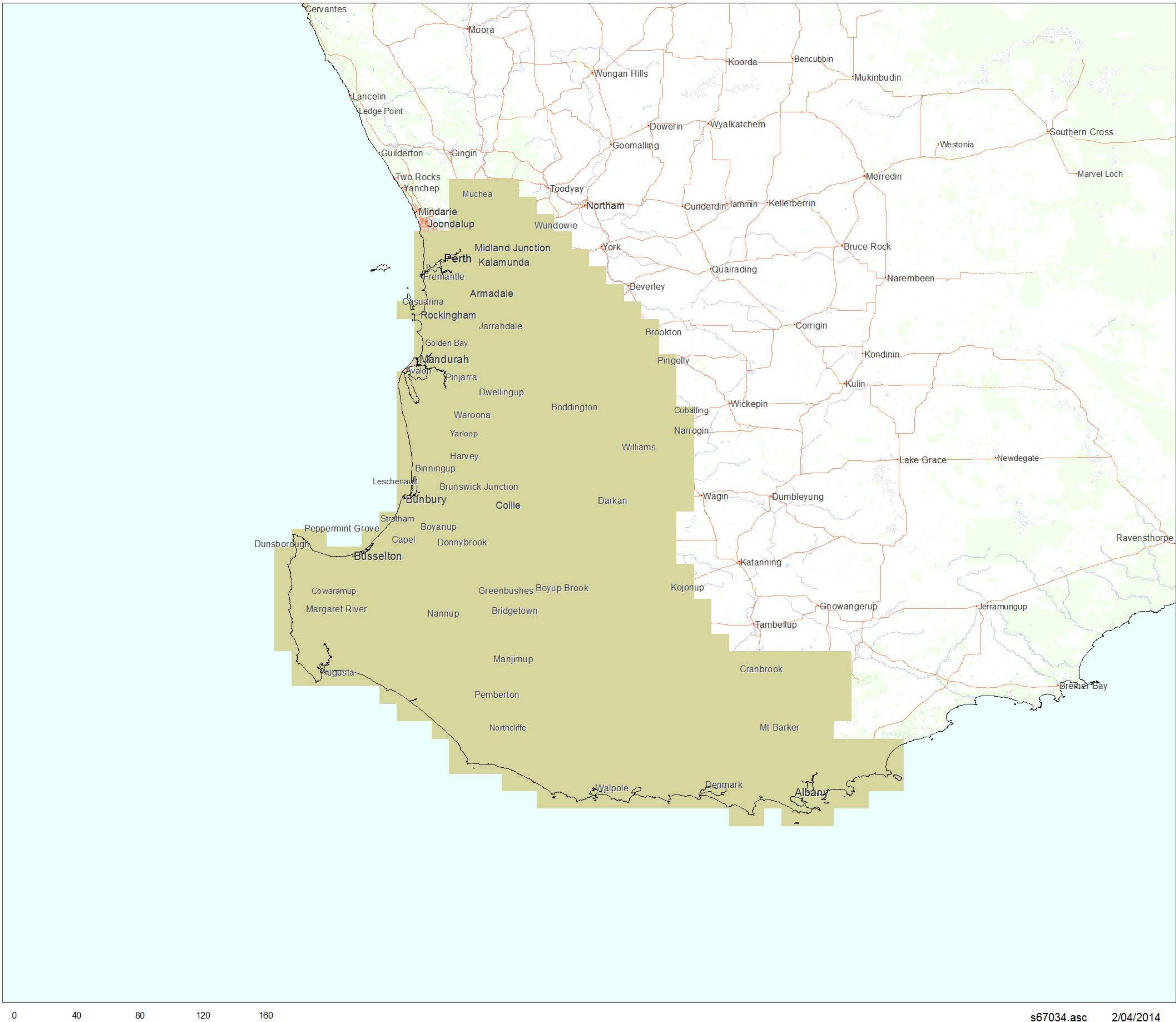


Calyptorhynchus banksii naso Forest Red-tailed Black-Cockatoo

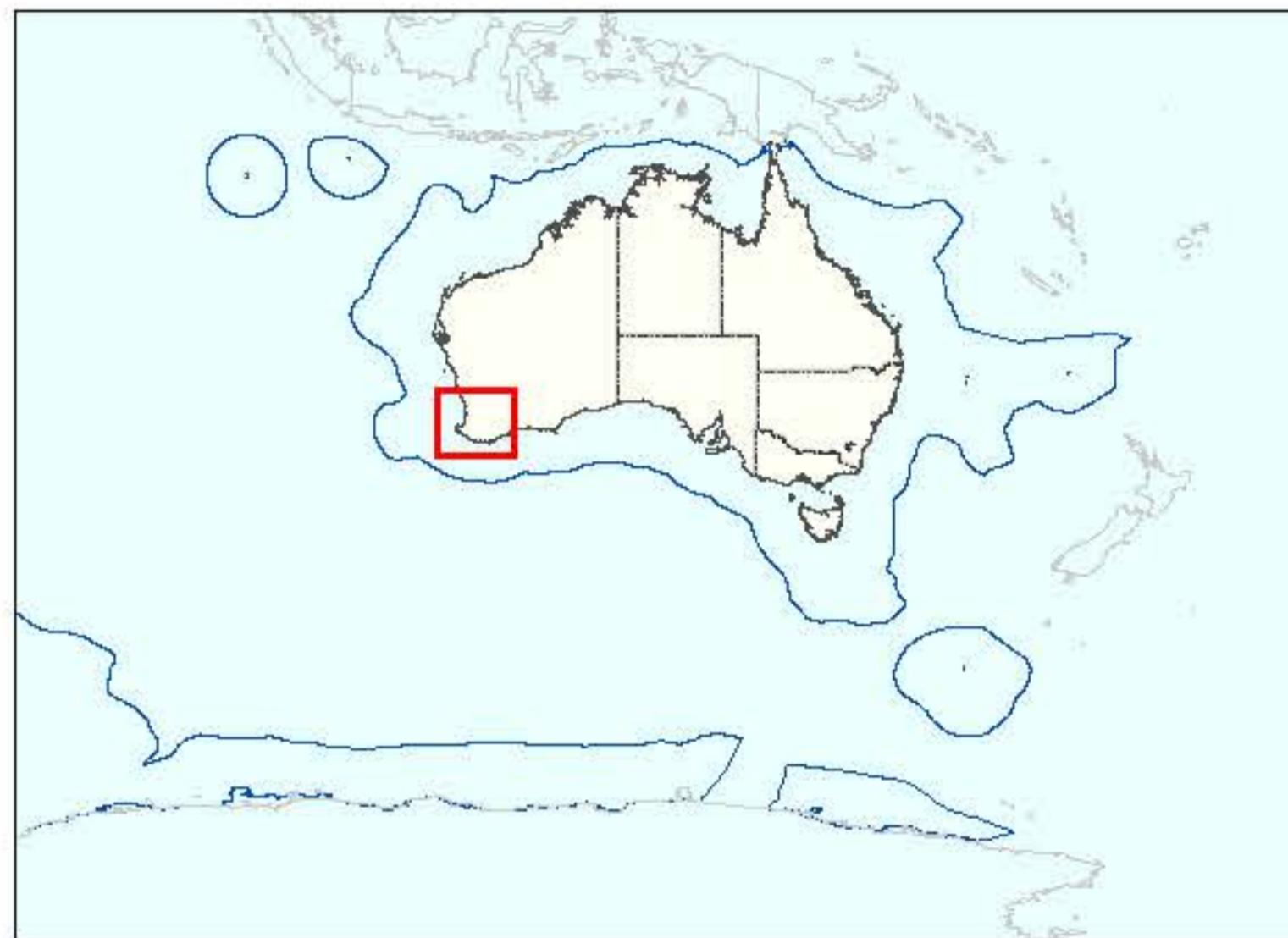


Species of National Environmental Significance, Map Summary Version 1 2014

Distribution

- Species or species habitat likely to occur
- Species or species habitat may occur

Commonwealth Marine Area



Produced by: Environmental Resources Information Network

Contextual data source: Geoscience Australia (2006), Geodata Topo 250K Topographic Data

Indicative Map Only: This map has been compiled from datasets with a range of geographic scales and quality. Species distributions are indicative only and not to be used for local assessment. Local knowledge and information should be sought to confirm the presence of the species, or its habitat, at the location of interest.



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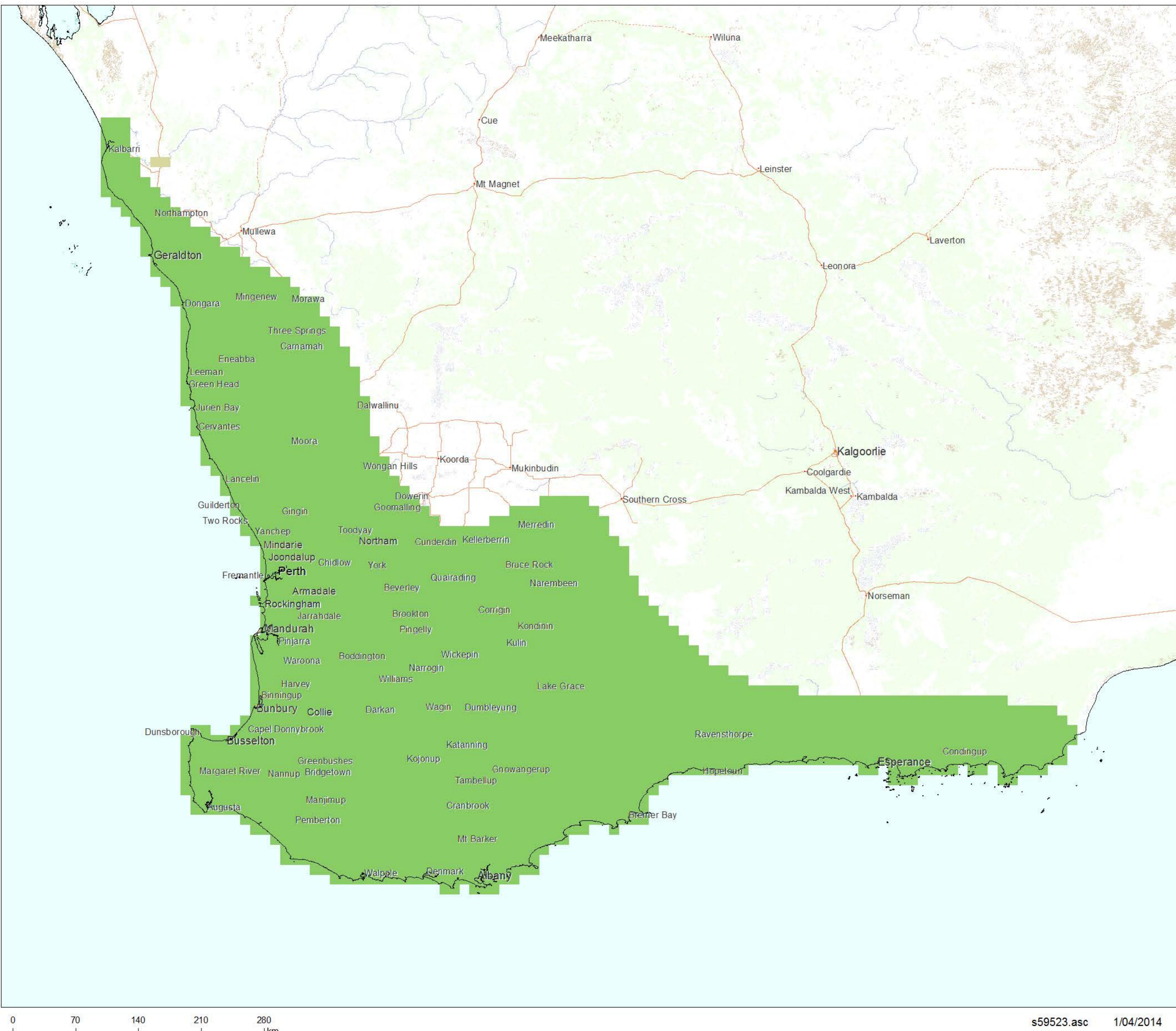
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Calyptorhynchus latirostris Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo

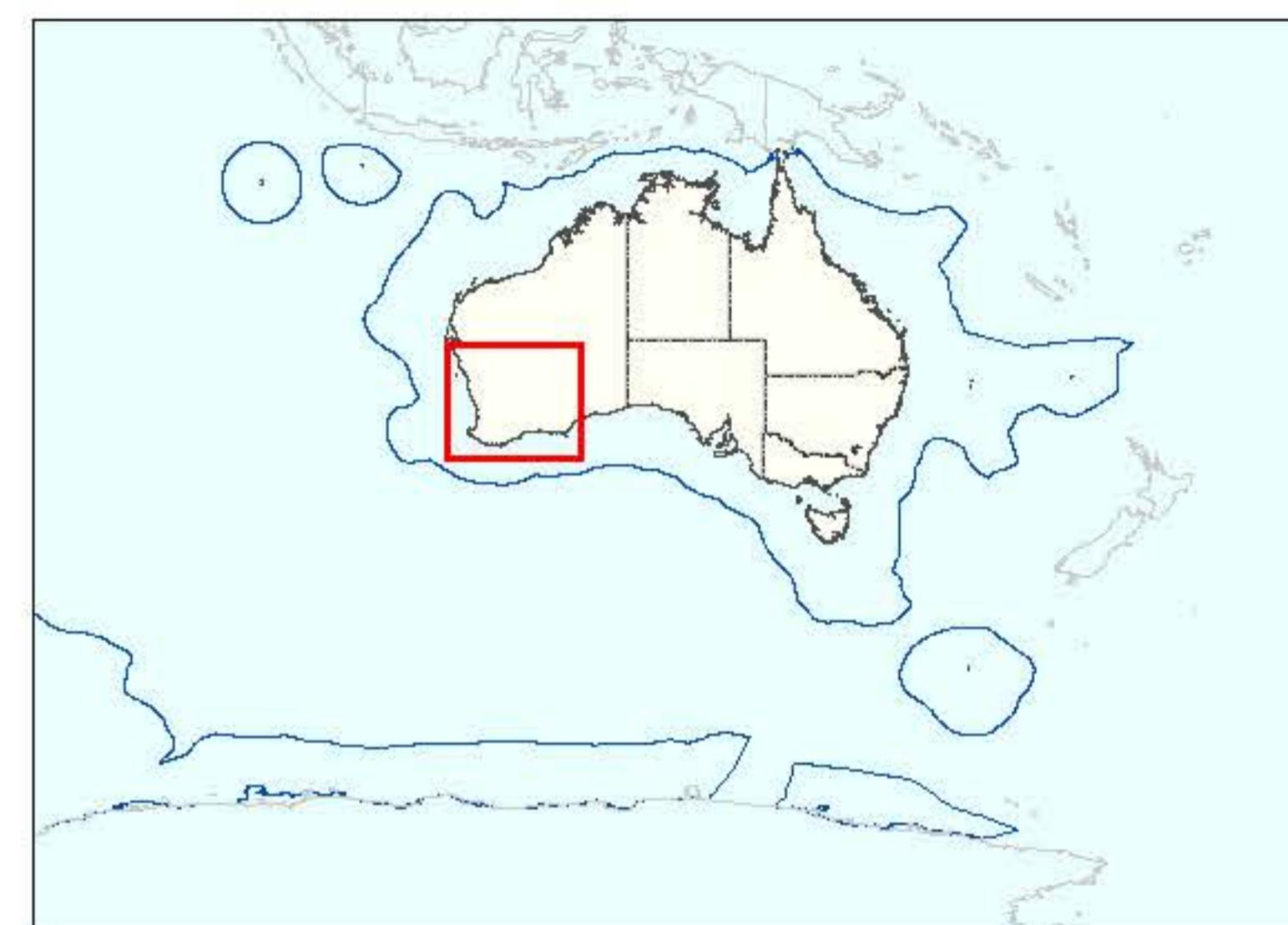


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Distribution

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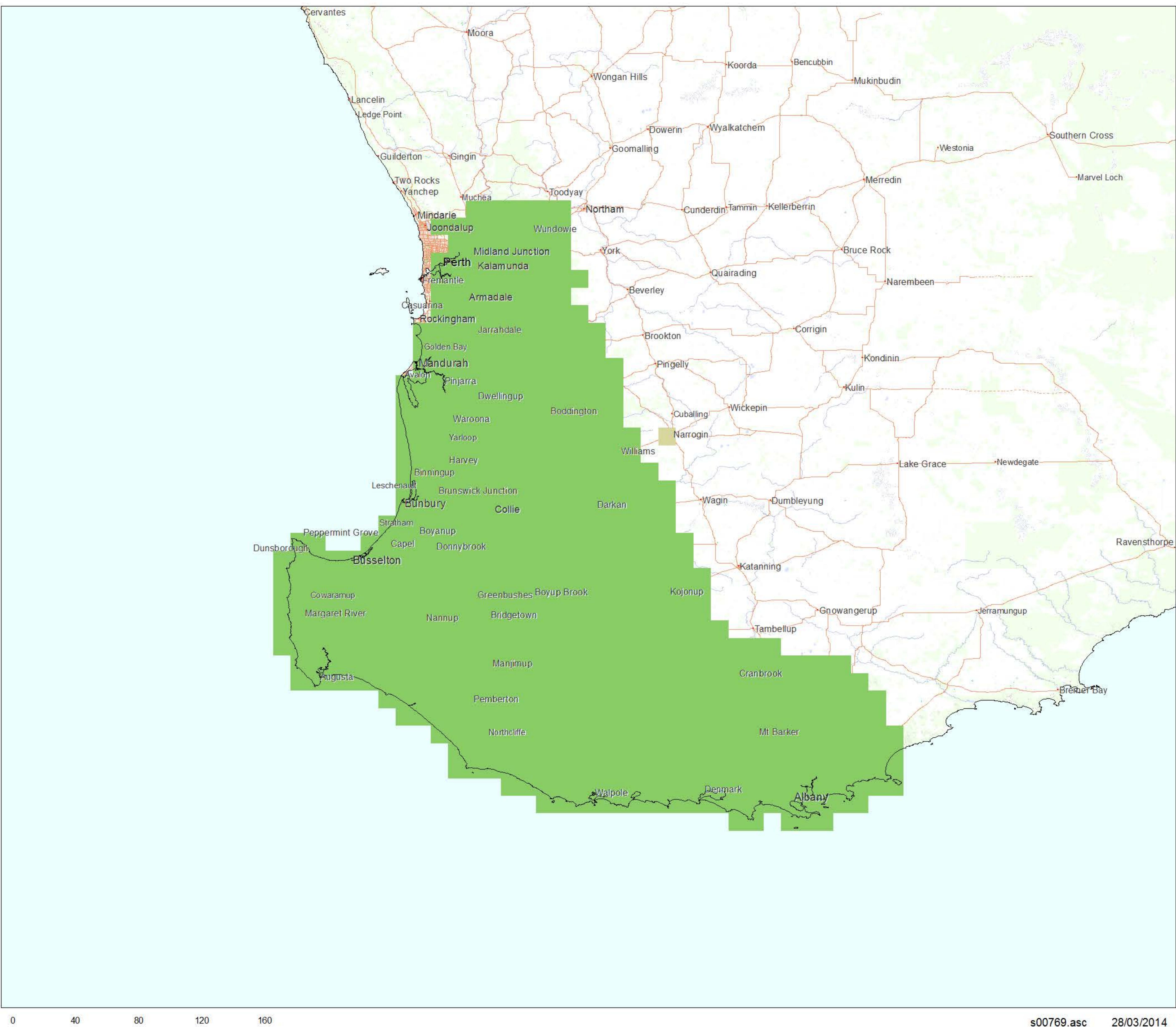
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Australian Government

Department of the Environment

Calyptorhynchus baudinii Baudin's Black-Cockatoo, Long-billed Black-Cockatoo

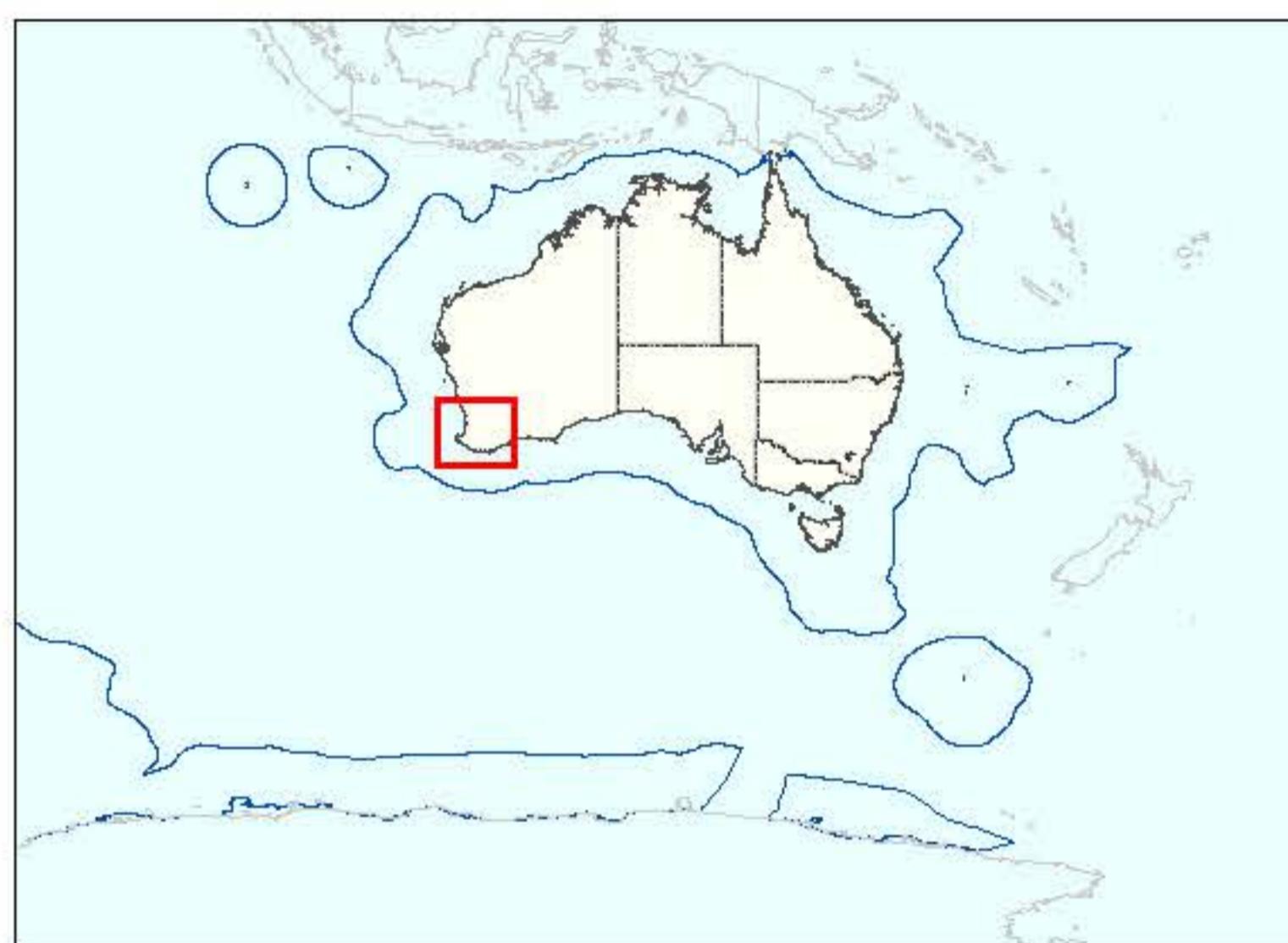


Species of National Environmental Significance, Map Summary Version 1 2014

Distribution

- Species or species habitat likely to occur
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APPENDIX E

Vegetation Condition Scale

CONDITION SCALE		CONDITION SCALE
CODE		
P	Pristine (1) Pristine or nearly so, no obvious signs of disturbance	
E	Excellent (2) Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.	
VG	Very Good (3) Vegetation structure altered obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.	
G	Good (4) Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and grazing.	
D	Degraded (5) Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.	
CD	Completely Degraded (6) The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.	

Source: Bush Forever Vegetation Condition Scale as developed by Keighery (1994) and summarized in Bush Forever (Government of Western Australia (2000b)

APPENDIX F

Flora Database Search Results

NatureMap Species Report

Created By Guest user on 15/04/2016

Kingdom Plantae
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 47' 23" E, 31° 45' 12" S
Buffer 5km

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
---------	--------------	-------------	-------------------	------------------------------------

1.	15466 <i>Acacia appanata</i>			
2.	3237 <i>Acacia benthamii</i>		P2	
3.	3262 <i>Acacia cochlearis</i> (<i>Rigid Wattle</i>)			
4.	3282 <i>Acacia cyclops</i> (<i>Coastal Wattle</i>)			
5.	11611 <i>Acacia lasiocarpa</i> var. <i>lasiocarpa</i>			
6.	15721 <i>Acacia lasiocarpa</i> var. <i>sedifolia</i>			
7.	17861 <i>Acacia longifolia</i>		Y	
8.	17464 <i>Acacia longifolia</i> subsp. <i>longifolia</i>		Y	
9.	15481 <i>Acacia pulchella</i> var. <i>glaberrima</i>			
10.	3525 <i>Acacia rostellifera</i> (<i>Summer-scented Wattle</i>)			
11.	3527 <i>Acacia saligna</i> (<i>Orange Wattle, Kudjong</i>)			
12.	30032 <i>Acacia saligna</i> subsp. <i>saligna</i>			
13.	3541 <i>Acacia sessilis</i>			
14.	3584 <i>Acacia truncata</i>			
15.	3602 <i>Acacia willdenowiana</i> (<i>Grass Wattle</i>)			
16.	17774 <i>Acetosella vulgaris</i>		Y	
17.	11837 <i>Adenantherus cygnorum</i> subsp. <i>cygnorum</i> (<i>Common Woollybush</i>)			
18.	1790 <i>Adenantherus meisneri</i>			
19.	184 <i>Aira caryophyllea</i> (<i>Silvery Hairgrass</i>)		Y	
20.	1056 <i>Alexgeorgea nitens</i>			
21.	1728 <i>Allocasuarina fraseriana</i> (<i>Sheoak, Kondil</i>)			
22.	2652 <i>Alternanthera nodiflora</i> (<i>Common Joyweed</i>)			
23.	2653 <i>Alternanthera pungens</i> (<i>Khaki Weed</i>)		Y	
24.	6565 <i>Alyxia buxifolia</i> (<i>Dysentery Bush</i>)			
25.	25840 <i>Amaranthus blitum</i>		Y	
26.	<i>Amaranthus</i> sp.			
27.	20184 <i>Amphipogon laguroides</i> subsp. <i>laguroides</i>			
28.	200 <i>Amphipogon turbinatus</i>			
29.	6311 <i>Andersonia heterophylla</i>			
30.	11471 <i>Andersonia lehmanniana</i> subsp. <i>lehmanniana</i>			
31.	1409 <i>Anigozanthos humilis</i> (<i>Catspaw</i>)			
32.	11434 <i>Anigozanthos humilis</i> subsp. <i>humilis</i>			
33.	1411 <i>Anigozanthos manglesii</i> (<i>Mangles Kangaroo Paw, Kurulbrang</i>)			
34.	11261 <i>Anigozanthos manglesii</i> subsp. <i>manglesii</i>			
35.	8595 <i>Apium graveolens</i> (<i>Wild Celery</i>)		Y	
36.	7838 <i>Arctotheca calendula</i> (<i>Cape Weed</i>)		Y	
37.	1264 <i>Arnocrinum preissii</i>			
38.	20283 <i>Astartea scoparia</i>			
39.	6323 <i>Astroloma ciliatum</i> (<i>Candle Cranberry</i>)			
40.	6334 <i>Astroloma pallidum</i> (<i>Kick Bush</i>)			
41.	6339 <i>Astroloma xerophyllum</i>			
42.	35317 <i>Austrostipa mundula</i>		P2	
43.	17246 <i>Austrostipa nitida</i>			
44.	17254 <i>Austrostipa tenuifolia</i>			
45.	16346 <i>Bacopa monnieri</i>		Y	
46.	34161 <i>Baeckea</i> sp. <i>Limestone</i> (N. Gibson & M.N. Lyons 1425)			P1
47.	1800 <i>Banksia attenuata</i> (<i>Slender Banksia, Piara</i>)			
48.	1822 <i>Banksia ilicifolia</i> (<i>Holly-leaved Banksia</i>)			
49.	1830 <i>Banksia littoralis</i> (<i>Swamp Banksia, Pungura</i>)			
50.	1834 <i>Banksia menziesii</i> (<i>Firewood Banksia</i>)			
51.	32077 <i>Banksia sessilis</i> var. <i>cygnorum</i>			
52.	32315 <i>Barbula calycina</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
53.	741 <i>Baumea articulata</i> (<i>Jointed Rush</i>)			
54.	743 <i>Baumea juncea</i> (<i>Bare Twigrush</i>)			
55.	744 <i>Baumea laxa</i>			
56.	745 <i>Baumea preissii</i>			
57.	5382 <i>Beaufortia elegans</i>			
58.	25788 <i>Billardiera fraseri</i> (<i>Elegant Pronaya</i>)			
59.	749 <i>Bolboschoenus caldwellii</i> (<i>Marsh Club-rush</i>)			
60.	17665 <i>Boronia purdieana</i> subsp. <i>purdieana</i>			
61.	11381 <i>Boronia ramosa</i> subsp. <i>anethifolia</i>			
62.	3710 <i>Bossiaea eriocarpa</i> (<i>Common Brown Pea</i>)			
63.	7867 <i>Brachyscome bellidifoloides</i>			
64.	7878 <i>Brachyscome iberidifolia</i>			
65.	11187 <i>Brassica barrelieri</i> subsp. <i>oxyrrhina</i> (<i>Smooth-stem Turnip</i>)	Y		
66.	2993 <i>Brassica fruticulosa</i> (<i>Twiggy Turnip</i>)	Y		
67.	3000 <i>Brassica tournefortii</i> (<i>Mediterranean Turnip</i>)	Y		
68.	244 <i>Briza maxima</i> (<i>Blowfly Grass</i>)	Y		
69.	245 <i>Briza minor</i> (<i>Shivery Grass</i>)	Y		
70.	249 <i>Bromus diandrus</i> (<i>Great Brome</i>)	Y		
71.	32331 <i>Bryum lanatum</i>			
72.	12770 <i>Burchardia congesta</i>			
73.	1385 <i>Burchardia multiflora</i> (<i>Dwarf Burchardia</i>)			
74.	1276 <i>Caesia micrantha</i> (<i>Pale Grass Lily</i>)			
75.	15330 <i>Caladenia arenicola</i>			
76.	1592 <i>Caladenia flava</i> (<i>Cowslip Orchid</i>)			
77.	15348 <i>Caladenia flava</i> subsp. <i>flava</i>			
78.	1596 <i>Caladenia huegelii</i> (<i>Grand Spider Orchid</i>)		T	
79.	1599 <i>Caladenia latifolia</i> (<i>Pink Fairy Orchid</i>)			
80.	15360 <i>Caladenia longicauda</i> subsp. <i>borealis</i>			
81.	15361 <i>Caladenia longicauda</i> subsp. <i>calcigena</i>			
82.	15377 <i>Caladenia reptans</i> subsp. <i>reptans</i>			
83.	19309 <i>Calectasia narragara</i>			
84.	10861 <i>Callistachys lanceolata</i> (<i>Wonrich</i>)			
85.	96 <i>Callitris preissii</i> (<i>Rottnest Island Pine, Maro</i>)			
86.	5415 <i>Calothamnus lateralis</i>			
87.	35816 <i>Calothamnus quadrifidus</i> subsp. <i>quadrifidus</i>			
88.	5429 <i>Calothamnus sanguineus</i> (<i>Silky-leaved Blood flower, Pindak</i>)			
89.	5460 <i>Calytrix fraseri</i> (<i>Pink Summer Calytrix</i>)			
90.	5476 <i>Calytrix sapphirina</i>			
91.	32338 <i>Campylopus introflexus</i>	Y		
92.	3005 <i>Cardamine hirsuta</i> (<i>Common Bittercress</i>)	Y		
93.	<i>Cardamine</i> sp.			
94.	18555 <i>Cardamine</i> sp. <i>Jandakot</i> (P. Luff s.n. 4/7/1969)	Y		
95.	753 <i>Carex appressa</i> (<i>Tall Sedge</i>)			
96.	754 <i>Carex divisa</i> (<i>Divided Sedge</i>)	Y		
97.	755 <i>Carex fascicularis</i> (<i>Tassel Sedge</i>)			
98.	43241 <i>Carex thecata</i>			
99.	1162 <i>Cartonema philydroides</i>			
100.	18314 <i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i>	Y		
101.	13685 <i>Catapodium rigidum</i> (<i>Rigid Fescue</i>)	Y		
102.	258 <i>Cenchrus ciliaris</i> (<i>Buffel Grass</i>)	Y		
103.	6214 <i>Centella asiatica</i>			
104.	1125 <i>Centrolepis drummondiana</i>			
105.	2889 <i>Cerastium glomeratum</i> (<i>Mouse Ear Chickweed</i>)	Y		
106.	32462 <i>Ceratodon purpureus</i> subsp. <i>convolutus</i>			
107.	18156 <i>Chamaecytisus palmensis</i> (<i>Tagasaste</i>)	Y		
108.	<i>Chamelaeicum</i> sp.			
109.	5498 <i>Chamelaeicum uncinatum</i> (<i>Geraldton Wax</i>)			
110.	1513 <i>Chasmanthe floribunda</i> (<i>African Cornflag</i>)	Y		
111.	2490 <i>Chenopodium glaucum</i> (<i>Glaucous Goosefoot</i>)	Y		
112.	2491 <i>Chenopodium macrospermum</i>	Y		
113.	17833 <i>Chordifex microcodon</i>			
114.	<i>Chrysopogon melanorrhinus</i>			
115.	2929 <i>Clematis pubescens</i> (<i>Common Clematis</i>)			
116.	4550 <i>Comesperma calymega</i> (<i>Blue-spike Milkwort</i>)			
117.	15607 <i>Conospermum acerosum</i> subsp. <i>acerosum</i>			
118.	15516 <i>Conospermum canaliculatum</i> subsp. <i>canaliculatum</i>			
119.	1876 <i>Conospermum incurvum</i> (<i>Plume Smokebush</i>)			
120.	6347 <i>Conostephium minus</i> (<i>Pink-tipped Pearl flower</i>)			
121.	6348 <i>Conostephium pendulum</i> (<i>Pearl Flower</i>)			
122.	6349 <i>Conostephium preissii</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
123.	<i>Conostylis aculeata</i> (Prickly Conostylis)			
124.	<i>Conostylis aurea</i> (Golden Conostylis)			
125.	<i>Conostylis bracteata</i>		P3	
126.	<i>Conostylis juncea</i>			
127.	<i>Conostylis setigera</i> subsp. <i>setigera</i>			
128.	<i>Conyza bonariensis</i> (Flaxleaf Fleabane)	Y		
129.	<i>Conyza sumatrensis</i>	Y		
130.	<i>Cortaderia selloana</i> (Pampas Grass)	Y		
131.	<i>Corymbia calophylla</i> (Marri)			
132.	<i>Cotula coronopifolia</i> (Waterbuttons)	Y		
133.	<i>Crassula alata</i>	Y		
134.	<i>Crassula colorata</i> (Dense Stonecrop)			
135.	<i>Crassula glomerata</i>	Y		
136.	<i>Crassula thunbergiana</i>	Y		
137.	<i>Cyanicula gemmata</i>			
138.	<i>Cynodon dactylon</i> (Couch)	Y		
139.	<i>Cyperus involucratus</i>	Y		
140.	<i>Cyperus tenuiflorus</i> (Scaly Sedge)	Y		
141.	<i>Cyrtostylis huegelli</i>			
142.	<i>Dampiera linearis</i> (Common Dampiera)			
143.	<i>Dasygordon bromeliifolius</i> (Pineapple Bush)			
144.	<i>Daucus glochidiatus</i> (Australian Carrot)			
145.	<i>Daviesia decurrens</i> (Prickly Bitter-pea)			
146.	<i>Daviesia divaricata</i> (Marno)			
147.	<i>Daviesia divaricata</i> subsp. <i>divaricata</i>			
148.	<i>Daviesia hakeoides</i> subsp. <i>hakeoides</i>			
149.	<i>Daviesia nudiflora</i>			
150.	<i>Daviesia nudiflora</i> subsp. <i>nudiflora</i>			
151.	<i>Daviesia physodes</i>			
152.	<i>Daviesia</i> sp.			
153.	<i>Daviesia triflora</i>			
154.	<i>Dianella revoluta</i> (Blueberry Lily)			
155.	<i>Dichondra micrantha</i>	Y		Y
156.	<i>Digitaria sanguinalis</i> (Crab Grass)	Y		
157.	<i>Diplolaena angustifolia</i> (Yançep Rose)			
158.	<i>Diuris corymbosa</i>			
159.	<i>Diuris magnifica</i>			
160.	<i>Drakaea glyptodon</i> (King-in-his-carriage)			
161.	<i>Drosera erythrorhiza</i> (Red Ink Sundew)			
162.	<i>Drosera macrantha</i> (Bridal Rainbow)			
163.	<i>Drosera macrantha</i> subsp. <i>macrantha</i>			
164.	<i>Drosera menziesii</i> (Pink Rainbow)			
165.	<i>Drosera menziesii</i> subsp. <i>menziesii</i>			
166.	<i>Drosera menziesii</i> subsp. <i>penicillaris</i>			
167.	<i>Drosera omissa</i> (Bright Sundew)			
168.	<i>Eccremidium pulchellum</i>			
169.	<i>Ehrharta brevifolia</i> var. <i>cuspidata</i>	Y		
170.	<i>Ehrharta calycina</i> (Perennial Veldt Grass)	Y		
171.	<i>Ehrharta longiflora</i> (Annual Veldt Grass)	Y		
172.	<i>Elythranthera brunonis</i> (Purple Enamel Orchid)			
173.	<i>Epilobium ciliatum</i>	Y		
174.	<i>Epilobium hirtigerum</i> (Hairy Willow Herb)			
175.	<i>Epilobium tetragonum</i> subsp. <i>tetragonum</i>	Y		
176.	<i>Eragrostis curvula</i> (African Lovegrass)	Y		
177.	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>			
178.	<i>Erodium cicutarium</i> (Common Storksbill)	Y		
179.	<i>Eryngium pinnatifidum</i> subsp. <i>pinnatifidum</i>			
180.	<i>Eucalyptus gomphocephala</i> (Tuart, Duart)			
181.	<i>Eucalyptus marginata</i> (Jarrah, Djara)			
182.	<i>Eucalyptus marginata</i> subsp. <i>marginata</i> (Jarrah)			
183.	<i>Eucalyptus rupestris</i> (Flooded Gum, Kularda)			
184.	<i>Eucalyptus todtiana</i> (Coastal Blackbutt)			
185.	<i>Euchiloglossis linearis</i> (Swamp Pea)			
186.	<i>Euphorbia peplus</i> (Petty Spurge)	Y		
187.	<i>Euphorbia terracina</i> (Geraldton Carnation Weed)	Y		
188.	<i>Fissidens tenellus</i>			
189.	<i>Galenia pubescens</i> var. <i>pubescens</i>	Y		
190.	<i>Galinsoga parviflora</i> (Potato Weed)	Y		
191.	<i>Gastrolobium capitatum</i>			
192.	<i>Gastrolobium linearifolium</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
193.	<i>Gastrolobium nervosum</i>			
194.	<i>Gazania linearis</i>	Y		
195.	<i>Gemmabryum pachythecum</i>			
196.	<i>Gemmabryum preissianum</i>			
197.	<i>Geranium solanderi</i> (Native Geranium)			
198.	<i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)	Y		
199.	<i>Gladiolus</i> sp.			
200.	<i>Glossy-caryon angustifolium</i>			
201.	<i>Gomphocarpus physocarpus</i>	Y		
202.	<i>Gompholobium scabrum</i>			
203.	<i>Gompholobium tomentosum</i> (Hairy Yellow Pea)			
204.	<i>Gonocarpus pithyoides</i>			
205.	<i>Grevillea crithmifolia</i>			
206.	<i>Grevillea preissii</i> subsp. <i>preissii</i>			
207.	<i>Grevillea vestita</i> subsp. <i>vestita</i>			
208.	<i>Guichenotia ledifolia</i>			
209.	<i>Haemodorum laxum</i>			
210.	<i>Haemodorum paniculatum</i> (Mardja)			
211.	<i>Hakea costata</i> (Ribbed Hakea)			
212.	<i>Hakea lissocarpha</i> (Honey Bush)			
213.	<i>Hakea prostrata</i> (Harsh Hakea)			
214.	<i>Hakea trifurcata</i> (Two-leaf Hakea)			
215.	<i> Hardenbergia comptoniana</i> (Native Wisteria)			
216.	<i>Helichrysum luteoalbum</i> (Jersey Cudweed)			
217.	<i>Helminthotheca echioides</i>	Y		
218.	<i>Hemarthria uncinata</i> (Matgrass)			
219.	<i>Hemiandra incana</i>			
220.	<i>Hemiandra pungens</i> (Snakebush)			
221.	<i>Hensmania turbinata</i>			
222.	<i>Heteropogon contortus</i> (Bunch Speargrass)			
223.	<i>Hibbertia aurea</i>			
224.	<i>Hibbertia cuneiformis</i> (Cutleaf Hibbertia)			
225.	<i>Hibbertia huegelii</i>			
226.	<i>Hibbertia hypericoides</i> (Yellow Buttercups)			
227.	<i>Hibbertia perfoliata</i>			
228.	<i>Hibbertia racemosa</i> (Stalked Guinea Flower)			
229.	<i>Hibbertia sericeopala</i>			
230.	<i>Hibbertia subvaginata</i>			
231.	<i>Holcus lanatus</i> (Yorkshire Fog)	Y		
232.	<i>Homalosciadium homalocarpum</i>			
233.	<i>Hordeum leporinum</i> (Barley Grass)	Y		
234.	<i>Hovea trisperma</i> (Common Hovea)			
235.	<i>Hybanthus calycinus</i> (Wild Violet)			
236.	<i>Hypocalymma angustifolium</i> (White Myrtle, Kudjid)			
237.	<i>Hypocalymma robustum</i> (Swan River Myrtle)			
238.	<i>Hypochaeris glabra</i> (Smooth Catsear)	Y		
239.	<i>Isolepis cernua</i> var. <i>setiformis</i>			
240.	<i>Isolepis marginata</i> (Coarse Club-rush)			
241.	<i>Isolepis producta</i>			
242.	<i>Isopogon sphaerocephalus</i> (Drumstick Isopogon)			
243.	<i>Isotropis cuneifolia</i> (Granny Bonnets)			
244.	<i>Jacksonia floribunda</i> (Holly Pea)			
245.	<i>Jacksonia furcellata</i> (Grey Stinkwood)			
246.	<i>Jacksonia sericea</i> (Waldjumi)	P4		
247.	<i>Jacksonia sternbergiana</i> (Stinkwood, Kapur)			
248.	<i>Juncus pallidus</i> (Pale Rush)			
249.	<i>Kennedia coccinea</i> (Coral Vine)			
250.	<i>Kennedia prostrata</i> (Scarlet Runner)			
251.	<i>Lachenalia reflexa</i>	Y		
252.	<i>Lachnagrostis filiformis</i>			
253.	<i>Lactuca serriola</i> (Prickly Lettuce)	Y		
254.	<i>Lagenophora huegelii</i>			
255.	<i>Lagurus ovatus</i> (Hare's Tail Grass)	Y		
256.	<i>Lasiopteratum membranaceum</i>		P3	
257.	<i>Latrobea tenella</i>			
258.	<i>Laxmannia ramosa</i> subsp. <i>ramosa</i>			
259.	<i>Laxmannia squarrosa</i>			
260.	<i>Lechenaultia biloba</i> (Blue Leschenaultia)			
261.	<i>Lechenaultia floribunda</i> (Free-flowering Leschenaultia)			
262.	<i>Lechenaultia linarioides</i> (Yellow Leschenaultia)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
263.	6880 <i>Leonotis leonurus</i> (Lion's Ear)			
264.	937 <i>Lepidosperma longitudinale</i> (Pithy Sword-sedge)			
265.	938 <i>Lepidosperma persecans</i>			
266.	944 <i>Lepidosperma scabrum</i>			
267.	15418 <i>Leptoceras menziesii</i>			
268.	2344 <i>Leptomeria empetriformis</i>			
269.	2350 <i>Leptomeria pauciflora</i> (Sparse-flowered Currant Bush)			
270.	19821 <i>Lessertia frutescens</i>	Y		
271.	6360 <i>Leucopogon australis</i> (Spiked Beard-heath)			
272.	6405 <i>Leucopogon insularis</i>			
273.	6425 <i>Leucopogon oxycedrus</i>			
274.	6434 <i>Leucopogon polymorphus</i>			
275.	6436 <i>Leucopogon propinquus</i>			
276.	<i>Leucopogon</i> sp.			
277.	19579 <i>Leucopogon</i> sp. Murdoch (M. Hislop 1037)			
278.	40803 <i>Leucopogon squarrosum</i> subsp. <i>squarrosum</i>			
279.	6489 <i>Limonium sinuatum</i> (Perennial Sea Lavender)	Y		
280.	36160 <i>Liparophyllum capitatum</i>			
281.	7408 <i>Lobelia tenuior</i> (Slender Lobelia)			
282.	36860 <i>Lobelia tenuior</i> subsp. <i>dictyosperma</i>			
283.	475 <i>Lolium multiflorum</i> (Italian Ryegrass)	Y		
284.	1232 <i>Lomandra micrantha</i> (Small-flower Mat-rush)			
285.	1234 <i>Lomandra nigricans</i>			
286.	1239 <i>Lomandra preissii</i>			
287.	1246 <i>Lomandra suaveolens</i>			
288.	10900 <i>Lycopersicon esculentum</i>	Y		
289.	6456 <i>Lysinema ciliatum</i> (Curry Flower)			
290.	34736 <i>Lysinema pentapetalum</i>			
291.	5281 <i>Lythrum hyssopifolia</i> (Lesser Loosestrife)	Y		
292.	2838 <i>Macarthuria apetala</i>			
293.	2839 <i>Macarthuria australis</i>			
294.	25819 <i>Marianthus paralius</i>		T	
295.	4079 <i>Medicago polymorpha</i> (Burr Medic)	Y		
296.	34676 <i>Meionectes brownii</i> (Swamp Raspwort)			
297.	13271 <i>Melaleuca huegelii</i> subsp. <i>huegelii</i>			
298.	5921 <i>Melaleuca incana</i> (Grey Honey-myrtle)			
299.	5952 <i>Melaleuca preissiana</i> (Moonah)			
300.	5959 <i>Melaleuca rhamphophylla</i> (Swamp Paperbark)			
301.	5964 <i>Melaleuca serata</i>			
302.	18598 <i>Melaleuca systena</i>			
303.	5978 <i>Melaleuca teretifolia</i> (Banbar)			
304.	5983 <i>Melaleuca trichophylla</i>			
305.	4516 <i>Melia azedarach</i> (White Cedar)			
306.	4085 <i>Melilotus indicus</i>	Y		
307.	953 <i>Mesomelaena graciliceps</i>			
308.	955 <i>Mesomelaena pseudostygia</i>			
309.	485 <i>Microlaena stipoides</i> (Weeping Grass)			
310.	15419 <i>Microtis media</i> subsp. <i>media</i>			
311.	8105 <i>Millotia myosotidifolia</i>			
312.	4100 <i>Mirbelia spinosa</i>			
313.	29418 <i>Monoculus monstrosus</i>	Y		
314.	19179 <i>Morea flaccida</i> (One-leaf Cape Tulip)	Y		
315.	2415 <i>Muehlenbeckia polystachya</i>			
316.	7289 <i>Myoporum caprariooides</i> (Slender Myoporum)			
317.	7291 <i>Myoporum insulare</i> (Blueberry Tree, boobiaalla)			
318.	6199 <i>Myriophyllum tillaeoides</i>			
319.	19161 <i>Nemesia strumosa</i>	Y		
320.	2401 <i>Nuytsia floribunda</i> (Christmas Tree, Mudja)			
321.	16390 <i>Oenothera drummondii</i> subsp. <i>drummondii</i>	Y		
322.	6503 <i>Olea europaea</i> (Olive)	Y		
323.	8149 <i>Olearia rufidis</i> (Rough Daisybush)			
324.	18255 <i>Opercularia vaginata</i> (Dog Weed)			
325.	7122 <i>Orobanche minor</i> (Lesser Broomrape)	Y		
326.	11749 <i>Orthrosanthus laxus</i> var. <i>laxus</i> (Morning Iris)			
327.	532 <i>Paspalum urvillei</i> (Vasey Grass)	Y		
328.	1550 <i>Patersonia occidentalis</i> (Purple Flag, Koma)			
329.	30472 <i>Patersonia occidentalis</i> var. <i>occidentalis</i>			
330.	4343 <i>Pelargonium capitatum</i> (Rose Pelargonium)	Y		
331.	40423 <i>Pentameris airoides</i> (False Hairgrass)	Y		
332.	16477 <i>Pericalymma ellipticum</i> var. <i>ellipticum</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
333.	<i>Persicaria decipiens</i>			
334.	<i>Persicaria lapathifolia</i>	Y		
335.	<i>Persoonia saccata</i> (<i>Snottygobble</i>)			
336.	<i>Petrophile axillaris</i>			
337.	<i>Petrophile brevifolia</i>			
338.	<i>Petrophile serruriae</i>			
339.	<i>Philoteca spicata</i> (<i>Pepper and Salt</i>)			
340.	<i>Phlebocarya ciliata</i>			
341.	<i>Phyla nodiflora</i> var. <i>nodiflora</i>	Y		
342.	<i>Phyllanthus calycinus</i> (<i>False Boronia</i>)			
343.	<i>Phyllanthus tenellus</i>	Y		
344.	<i>Phytolacca octandra</i> (<i>Red Ink Plant</i>)	Y		
345.	<i>Pimelea argentea</i> (<i>Silvery Leaved Pimelea</i>)			
346.	<i>Pimelea calcicola</i>		P3	
347.	<i>Pimelea floribunda</i>			
348.	<i>Pimelea leucantha</i>			
349.	<i>Pimelea sulphurea</i> (<i>Yellow Banjine</i>)			
350.	<i>Pithocarpa pulchella</i> var. <i>melanostigma</i>			
351.	<i>Pithocarpa pulchella</i> var. <i>pulchella</i>			
352.	<i>Pittosporum ligustrifolium</i>			
353.	<i>Pittosporum multiflorum</i>			
354.	<i>Plantago major</i> (<i>Greater Plantain</i>)	Y		
355.	<i>Poa annua</i> (<i>Winter Grass</i>)	Y		
356.	<i>Podolepis gracilis</i> (<i>Slender Podolepis</i>)			
357.	<i>Podolepis nutans</i> (<i>Nodding Podolepis</i>)			
358.	<i>Podotheca chrysanthia</i> (<i>Yellow Podotheca</i>)			
359.	<i>Podotheca gnaphaloides</i> (<i>Golden Long-heads</i>)			
360.	<i>Polygonum monspeliacum</i> (<i>Annual Beardgrass</i>)	Y		
361.	<i>Poranthera ericoides</i> (<i>Heath Poranthera</i>)			
362.	<i>Poranthera microphylla</i> (<i>Small Poranthera</i>)			
363.	<i>Prasophyllum fimbria</i> (<i>Fringed Leek Orchid</i>)			
364.	<i>Prasophyllum hians</i> (<i>Yawning Leek Orchid</i>)			
365.	<i>Pteridium esculentum</i> subsp. <i>esculentum</i>			
366.	<i>Pterostylis aff. nana</i>			
367.	<i>Ptilotus drummondii</i> (<i>Narrowleaf Mulla Mulla</i>)			
368.	<i>Ptilotus drummondii</i> var. <i>drummondii</i> (<i>Pussytail</i>)			
369.	<i>Ptilotus manglesii</i> (<i>Pom Poms, Mulamula</i>)			
370.	<i>Ptilotus sericostachys</i> subsp. <i>sericostachys</i>			
371.	<i>Pultenaea reticulata</i>			
372.	<i>Pyrorchis nigricans</i> (<i>Red beaks, Elephants ears</i>)			
373.	<i>Racopilum cuspidigerum</i> var. <i>convolutaceum</i>			
374.	<i>Ranunculus sceleratus</i>	Y		Y
375.	<i>Raphanus raphanistrum</i> (<i>Wild Radish</i>)	Y		
376.	<i>Regelia ciliata</i>			
377.	<i>Regelia inops</i>			
378.	<i>Rhadinothamnus anceps</i>			
379.	<i>Ricinocarpus tuberculatus</i>			
380.	<i>Ricinocarpus undulatus</i>			
381.	<i>Romulea rosea</i> (<i>Guildford Grass</i>)	Y		
382.	<i>Rosulabryum billardieri</i>			
383.	<i>Rytidosperma occidentale</i>			
384.	<i>Sagina apetala</i> (<i>Annual Pearlwort</i>)	Y		
385.	<i>Scaevola canescens</i> (<i>Grey Scaevola</i>)			
386.	<i>Scaevola repens</i>			
387.	<i>Scaevola repens</i> var. <i>angustifolia</i>			
388.	<i>Scaevola thesioides</i> subsp. <i>thesioides</i>			
389.	<i>Schinus terebinthifolius</i>			
390.	<i>Schoenoplectus validus</i> (<i>Lake Club-rush</i>)			
391.	<i>Schoenus curvifolius</i>			
392.	<i>Schoenus grandiflorus</i> (<i>Large Flowered Bogrush</i>)			
393.	<i>Schoenus subbarbatus</i> (<i>Bearded Bog-rush</i>)			
394.	<i>Schoenus subfuscularis</i>			
395.	<i>Senecio vulgaris</i> (<i>Common Groundsel</i>)	Y		
396.	<i>Silene gallica</i> (<i>French Catchfly</i>)	Y		
397.	<i>Siloxerus humifusus</i> (<i>Procumbent Siloxerus</i>)			
398.	<i>Solanum lycopersicum</i>			
399.	<i>Solanum nigrum</i> (<i>Black Berry Nightshade</i>)	Y		
400.	<i>Solanum physalifolium</i> var. <i>nitidibaccatum</i>			
401.	<i>Solanum symonii</i>			
402.	<i>Sonchus oleraceus</i> (<i>Common Sowthistle</i>)	Y		

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
403.	<i>Sowerbaea laxiflora</i> (<i>Purple Tassels</i>)			
404.	<i>Stackhousia huegelii</i>			
405.	<i>Stellaria media</i> (<i>Chickweed</i>)			
406.	<i>Stenanthesum notiale</i> subsp. <i>chamelum</i>			
407.	<i>Stenopetalum gracile</i>			
408.	<i>Stirlingia latifolia</i> (<i>Blueboy</i>)			
409.	<i>Stylidium adpressum</i> (<i>Trigger-on-stilts</i>)			
410.	<i>Stylidium araeophyllum</i> (<i>Stilt Walker</i>)			
411.	<i>Stylidium brunonianum</i> (<i>Pink Fountain Triggerplant</i>)			
412.	<i>Stylidium cygnorum</i>			
413.	<i>Stylidium diuroides</i> subsp. <i>diuroides</i>			
414.	<i>Stylidium neurophyllum</i> (<i>Coastal Plain Triggerplant</i>)			
415.	<i>Stylidium paludicola</i>		P3	
416.	<i>Stylidium piliferum</i> (<i>Common Butterfly Triggerplant</i>)			
417.	<i>Synaphea spinulosa</i> subsp. <i>spinulosa</i>			
418.	<i>Syntrichia antarctica</i>			
419.	<i>Syntrichia pagorum</i>			
420.	<i>Taraxacum khatoonae</i>			
421.	<i>Templetonia retusa</i> (<i>Cockies Tongues</i>)			
422.	<i>Tersonia cyathiflora</i> (<i>Button Creeper</i>)			
423.	<i>Tetragonia decumbens</i> (<i>Sea Spinach</i>)			
424.	<i>Tetragonia tetragonoides</i> (<i>New Zealand Spinach</i>)			
425.	<i>Tetrapanax papyrifer</i>			
426.	<i>Tetraena octandra</i>			
427.	<i>Tetraparia</i> sp. <i>Chandala</i> (G.J. Keighery 17055)		P2	
428.	<i>Tetratheca hirsuta</i> (<i>Black Eyed Susan</i>)			
429.	<i>Thelymitra campanulata</i> (<i>Shirt Orchid</i>)			
430.	<i>Thelymitra fusculotea</i> (<i>Chestnut Sun Orchid</i>)			
431.	<i>Thelymitra variegata</i> (<i>Queen of Sheba</i>)		P2	
432.	<i>Thomasia triphylla</i>			
433.	<i>Trachymene pilosa</i> (<i>Native Parsnip</i>)			
434.	<i>Trichostomum eckelianum</i>			
435.	<i>Trifolium arvense</i> (<i>Hare's Foot Clover</i>)			
436.	<i>Trifolium hirtum</i> (<i>Rose Clover</i>)			
437.	<i>Trifolium resupinatum</i> var. <i>resupinatum</i>			
438.	<i>Trymalium ledifolium</i> var. <i>ledifolium</i>			
439.	<i>Ursinia anthemoides</i> (<i>Ursinia</i>)			
440.	<i>Utricularia australis</i>			
441.	<i>Utricularia dichotoma</i> (<i>Fairy Aprons</i>)			
442.	<i>Utricularia gibba</i>			
443.	<i>Utricularia volubilis</i> (<i>Twining Bladderwort</i>)			
444.	<i>Vellereophyton dealbatum</i> (<i>White Cudweed</i>)			
445.	<i>Verticordia drummondii</i> (<i>Drummond's Featherflower</i>)			
446.	<i>Verticordia nitens</i> (<i>Morrison Featherflower, Kodjeningara</i>)			
447.	<i>Verticordia ovalifolia</i>			
448.	<i>Vicia sativa</i> (<i>Common Vetch</i>)			
449.	<i>Vicia sativa</i> subsp. <i>nigra</i>			
450.	<i>Vulpia fasciculata</i>			
451.	<i>Wahlenbergia capensis</i> (<i>Cape Bluebell</i>)			
452.	<i>Wahlenbergia gracilenta</i> (<i>Annual Bluebell</i>)			
453.	<i>Wahlenbergia multicaulis</i>			
454.	<i>Wahlenbergia</i> sp.			
455.	<i>Waitzia suaveolens</i> (<i>Fragrant Waitzia</i>)			
456.	<i>Washingtonia filifera</i>			
457.	<i>Wurmbea pygmaea</i>			
458.	<i>Xanthorrhoea preissii</i> (<i>Grass tree, Palga</i>)			
459.	<i>Xanthosia huegelii</i>			
460.	<i>Xerochrysum bracteatum</i>			
461.	<i>Xylomelum occidentale</i> (<i>Woody Pear, Djandin</i>)			
462.	<i>Zygodon menziesii</i>			

Conservation Codes

- 1 - Rare or likely to become extinct
- X - Presumed extinct
- IA - Protected under international agreement
- S - Other specially protected fauna
- 1 - Priority 1
- 2 - Priority 2
- 3 - Priority 3
- 4 - Priority 4
- 5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/04/16 14:54:05

[Summary](#)

[Details](#)

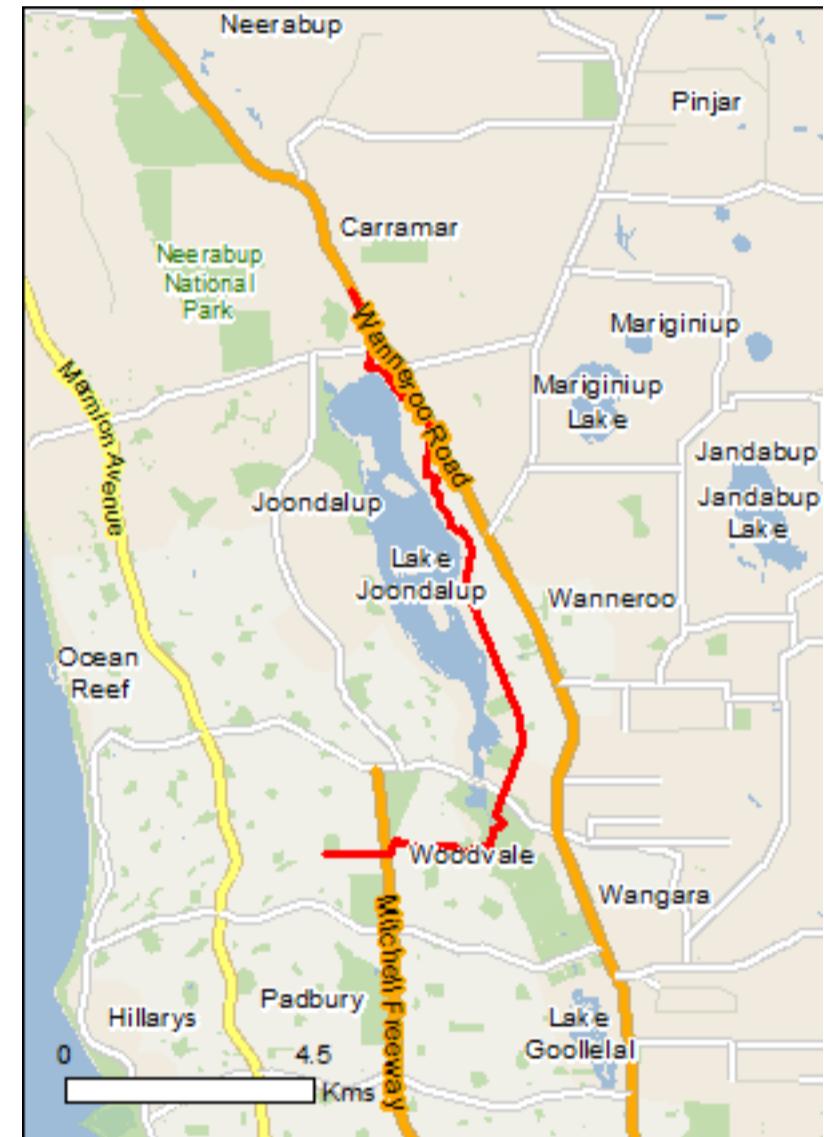
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



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Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	11
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	3
Regional Forest Agreements:	None
Invasive Species:	41
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species	[Resource Information]	
Name	Status	Type of Presence
Birds		
<u>Calyptorhynchus latirostris</u>		
Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
<u>Leipoa ocellata</u>		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<u>Rostratula australis</u>		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
<u>Dasyurus geoffroii</u>		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Plants		
<u>Anigozanthos viridis subsp. terraspectans</u>		
Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
<u>Caladenia huegelii</u>		
King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
<u>Darwinia foetida</u>		
Muchea Bell [83190]	Critically Endangered	Species or species habitat may occur within area
<u>Diuris micrantha</u>		
Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<u>Diuris purdiei</u>		
Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<u>Drakaea elastica</u>		
Glossy-leaved Hammer-orchid, Praying Virgin [16753]	Endangered	Species or species habitat likely to occur within area
<u>Drakaea micrantha</u>		
Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species	[Resource Information]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence

Name	Threatened	Type of Presence
Migratory Marine Birds		
<i>Apus pacificus</i>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<i>Merops ornatus</i>		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
<i>Motacilla cinerea</i>		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
<i>Ardea alba</i>		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<i>Ardea ibis</i>		
Cattle Egret [59542]		Species or species habitat may occur within area
<i>Calidris acuminata</i>		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<i>Calidris ruficollis</i>		
Red-necked Stint [860]		Species or species habitat known to occur within area
<i>Pandion haliaetus</i>		
Osprey [952]		Species or species habitat likely to occur within area
<i>Tringa nebularia</i>		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
<i>Apus pacificus</i>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<i>Ardea alba</i>		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<i>Ardea ibis</i>		
Cattle Egret [59542]		Species or species habitat may occur within area
<i>Calidris acuminata</i>		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<i>Calidris ruficollis</i>		
Red-necked Stint [860]		Species or species habitat known to occur within area
<i>Haliaeetus leucogaster</i>		
White-bellied Sea-Eagle [943]		Species or species

Name	Threatened	Type of Presence
<u>Himantopus himantopus</u> Black-winged Stilt [870]		habitat known to occur within area
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat known to occur within area
<u>Motacilla cinerea</u> Grey Wagtail [642]		Species or species habitat may occur within area
<u>Pandion haliaetus</u> Osprey [952]		Species or species habitat likely to occur within area
<u>Recurvirostra novaehollandiae</u> Red-necked Avocet [871]		Species or species habitat known to occur within area
<u>Rostratula benghalensis (sensu lato)</u> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<u>Thinornis rubricollis</u> Hooded Plover [59510]		Species or species habitat may occur within area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Lake Joondalup	WA
Unnamed WA21176	WA
Woodvale Nature Reserve	WA

Invasive Species	[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis		
European Goldfinch [403]		Species or species

Name	Status	Type of Presence
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Asparagus asparagoides</i> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
<i>Asparagus declinatus</i> Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
<i>Asparagus plumosus</i> Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
<i>Brachiaria mutica</i> Para Grass [5879]		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> Boneseed [16905]		Species or species habitat likely to occur within area
<i>Genista</i> sp. X <i>Genista monspessulana</i> Broom [67538]		Species or species habitat may occur within area
<i>Lantana camara</i> Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
<i>Lycium ferocissimum</i> African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
<i>Olea europaea</i> Olive, Common Olive [9160]		Species or species habitat may occur within area
<i>Opuntia</i> spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
<i>Pinus radiata</i> Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
<i>Protasparagus densiflorus</i> Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
<i>Protasparagus plumosus</i> Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
<i>Rubus fruticosus aggregate</i> Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
<i>Salix</i> spp. except <i>S.babylonica</i> , <i>S.x calodendron</i> & <i>S.x reichardtii</i> Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
<i>Salvinia molesta</i> Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]	Species or species habitat likely to occur within area
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Nationally Important Wetlands	[Resource Information]
Name	State
Joondalup Lake	WA

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-31.786693 115.771205,-31.786693 115.781848,-31.784796 115.782449,-31.785817 115.786912,-31.785525 115.79232,-31.786984 115.793264,-31.785671 115.79601,-31.785598 115.798242,-31.783336 115.798414,-31.782607 115.800216,-31.781002 115.798929,-31.771443 115.80322,-31.767868 115.802619,-31.75028 115.794036,-31.748528 115.794208,-31.746922 115.794551,-31.745024 115.795066,-31.743638 115.794637,-31.741813 115.793436,-31.741959 115.792835,-31.741229 115.791719,-31.740499 115.791633,-31.739623 115.791204,-31.738674 115.790431,-31.738163 115.789916,-31.736849 115.790002,-31.736703 115.788801,-31.736265 115.789058,-31.734805 115.789401,-31.734075 115.787857,-31.73298 115.787685,-31.732615 115.787857,-31.728819 115.788715,-31.724293 115.78614,-31.723636 115.783565,-31.719474 115.780303,-31.719547 115.778243,-31.715459 115.779273,-31.708814 115.775325,-31.708814 115.775325

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Parks and Wildlife Commission NT, Northern Territory Government](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Atherton and Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

APPENDIX G

Fauna Database Search Results

NatureMap Species Report

Created By Guest user on 10/06/2016

Kingdom Animalia
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 115° 47' 23" E, 31° 45' 12" S
Buffer 5km
Group By Family

Family	Species	Records
Acanthizidae	7	506
Accipitridae	12	367
Actinopodidae	1	9
Aeshnidae	1	1
Agamidae	2	7
Amphisopodidae	1	2
Anatidae	18	2113
Anhingidae	2	66
Aphelinidae	3	3
Apodidae	1	1
Araneidae	2	3
Ardeidae	11	528
Artamidae	2	3
Barychelidae	1	13
Boidae	1	2
Bothriuridae	1	1
Buprestidae	10	20
Burramyidae	1	1
Buthidae	1	1
Cacatuidae	1	292
Campephagidae	1	52
Canidae	1	1
Carabidae	2	2
Castniidae	1	17
Cerambycidae	1	1
Charadriidae	5	95
Cheloniidae	1	3
Chelidae	2	5
Chrysomelidae	1	1
Cicadidae	1	1
Climacteridae	1	2
Coenagrionidae	3	8
Columbidae	5	603
Corixidae	1	1
Corvidae	3	351
Cracticidae	4	642
Cuculidae	4	13
Curculionidae	4	4
Cyprinidae	1	1
Dasyuridae	1	1
Dicaeidae	1	2
Dicruridae	5	554
Diplodactylidae	5	11
Elapidae	13	61
Falconidae	6	69
Felidae	1	2
Formicidae	1	1
Gekkonidae	2	6
Gobiidae	1	1
Halcyonidae	2	272
Helicidae	1	1
Henicopidae	1	1
Hirundinidae	3	185
Hylidae	2	21
Kalotermithidae	1	2
Lamponidae	1	2
Laridae	6	232
Leporidae	1	2
Leptoceridae	1	2
Lestidae	1	3
Libellulidae	2	8
Limnodynastidae	2	21
Lycosidae	3	5
Macropodidae	1	3
Maeridae	1	1
Maluridae	2	151
Meliphagidae	10	570
Meropidae	1	19
Muridae	4	7
Myobatrachidae	3	8
Nemesiidae	2	12
Neostittidae	1	7
Nephilidae	1	1
Noctuidae	1	1
Notonectidae	1	1

Pachycephalidae	7	110
Pachygronthidae	1	2
Paradoxosomatidae	1	5
Pardalotidae	2	161
Passeridae	2	42
Pelecanidae	1	160
Peramelidae	2	19
Petroicidae	3	4
Phalacrocoracidae	5	370
Phalangeridae	2	6
Phasianidae	1	3
Physidae	1	2
Plagiorchiidae	1	1
Platycephalidae	2	2
Podargidae	2	7
Podicipedidae	5	367
Poeciliidae	1	1
Procellariidae	2	3
Psittacidae	21	1174
Pygopodidae	5	30
Rallidae	11	651
Recurvirostridae	3	331
Rhinotermitidae	2	2
Salticidae	1	1
Scincidae	17	131
Scolopacidae	9	50
Scolopendridae	2	7
Sparassidae	2	4
Strigidae	1	6
Succineidae	1	1
Sylviidae	2	126
Synthemistidae	2	3
Tachyglossidae	1	2
Tenebrionidae	3	3
Tettigoniidae	1	1
Theridiidae	1	2
Threskiornithidae	5	594
Tytonidae	1	1
Urodacidae	1	8
Varanidae	2	2
Zosteropidae	2	233
TOTAL	349	12616

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
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Acanthizidae

1. *Acanthiza (Acanthiza) apicalis subsp. apicalis*
2. 24260 *Acanthiza apicalis (Broad-tailed Thornbill, Inland Thornbill)*
3. 24261 *Acanthiza chrysorrhoa (Yellow-rumped Thornbill)*
4. 24262 *Acanthiza inornata (Western Thornbill)*
5. 25530 *Gerygone fusca (Western Gerygone)*
6. 25534 *Sericornis frontalis (White-browed Scrubwren)*
7. 30948 *Smicromys brevirostris (Weebill)*

Accipitridae

8. 25535 *Accipiter cirrocephalus (Collared Sparrowhawk)*
9. 24281 *Accipiter cirrocephalus subsp. cirrocephalus (Collared Sparrowhawk)*
10. 25536 *Accipiter fasciatus (Brown Goshawk)*
11. 24285 *Aquila audax (Wedge-tailed Eagle)*
12. 25538 *Aquila morphnoides (Little Eagle)*
13. 24288 *Circus approximans (Swamp Harrier)*
14. *Elanus axillaris*
15. 24290 *Elanus caeruleus subsp. axillaris (Australian Black-shouldered Kite)*
16. 24293 *Haliaeetus leucogaster (White-bellied Sea-Eagle)*
17. 24295 *Haliastur sphenurus (Whistling Kite)*
18. *Lophoictinia isura*
19. *Pandion cristatus*

IA

Actinopodidae

20. *Missulena granulosa*

Aeshnidae

21. *Adversaeschna brevistyla*

Agamidae

22. 30899 *Ctenophorus adelaidensis (Southern Heath Dragon, Western Heath Dragon)*
23. 24907 *Pogona minor subsp. minor (Dwarf Bearded Dragon)*

Amphisopodidae

24. *Paramphisopus sp.*

Anatidae

25. 24310 *Anas castanea (Chestnut Teal)*
26. 24312 *Anas gracilis (Grey Teal)*
27. 24313 *Anas platyrhynchos (Mallard)*
28. 24315 *Anas rhynchos (Australasian Shoveler)*
29. *Anas sp.*
30. 24316 *Anas superciliosa (Pacific Black Duck)*
31. *Anser anser*
32. *Anser sp.*
33. 24318 *Aythya australis (Hardhead)*
34. 24319 *Biziura lobata (Musk Duck)*
35. *Cairina moschata*
36. 24321 *Chenonetta jubata (Australian Wood Duck, Wood Duck)*
37. 24322 *Cygnus atratus (Black Swan)*
38. 24325 *Dendrocygna eytoni (Plumed Whistling Duck)*
39. 24326 *Malacorhynchus membranaceus (Pink-eared Duck)*
40. 24328 *Oxyura australis (Blue-billed Duck)*
41. 24329 *Stictonetta naevosa (Freckled Duck)*
42. 24331 *Tadorna tadornoides (Australian Shelduck, Mountain Duck)*

P4

Anhingidae

43. 25553 *Anhinga melanogaster (Darter)*
44. *Anhinga novaehollandiae*

Aphelinidae

45. *Encarsia formosa*
46. *Encarsia sophia*
47. *Eretmocerus warrae*

Apodidae

48. 25554 *Apus pacificus (Fork-tailed Swift)*

IA

Araneidae

49. *Austracantha minax*
50. *Eriophora biapicata*

Ardeidae

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
51.	<i>Ardea ibis</i> (<i>Cattle Egret</i>)			IA
52.	<i>Ardea modesta</i> (<i>Eastern Great Egret</i>)			IA
53.	<i>Ardea novaehollandiae</i> (<i>White-faced Heron</i>)			
54.	<i>Ardea pacifica</i> (<i>White-necked Heron</i>)			
55.	<i>Botaurus poiciloptilus</i> (<i>Australasian Bittern</i>)			T
56.	<i>Egretta garzetta</i>			
57.	<i>Egretta novaehollandiae</i>			
58.	<i>Ixobrychus dubius</i>			
59.	<i>Ixobrychus flavicollis</i> subsp. <i>australis</i> (<i>Australian Black Bittern</i>)		P1	
60.	<i>Ixobrychus minutus</i> (<i>Little Bittern</i>)		P4	
61.	<i>Nycticorax caledonicus</i> (<i>Rufous Night Heron</i>)			
Artamidae				
62.	<i>Artamus cinereus</i> (<i>Black-faced Woodswallow</i>)			
63.	<i>Artamus cyanopterus</i> (<i>Dusky Woodswallow</i>)			
Barychelidae				
64.	<i>Idiomma blackwalli</i>			
Boidae				
65.	<i>Morelia spilota</i> subsp. <i>imbricata</i> (<i>Carpet Python</i>)		S	
Bothriuridae				
66.	<i>Cercophonius sulcatus</i>			
Buprestidae				
67.	<i>Calotemognatha varicollis</i>			
68.	<i>Calotemognatha yarelli</i> subsp. <i>yarelli</i>			
69.	<i>Castiarina aureola</i>			
70.	<i>Castiarina basilisca</i>			
71.	<i>Castiarina flaviceps</i>			
72.	<i>Castiarina pallidiventris</i>			
73.	<i>Melobasis gloriosa</i>			
74.	<i>Melobasis wannerua</i>			
75.	<i>Temognatha mitchellii</i>			
76.	<i>Temognatha</i> sp.			
Burramyidae				
77.	<i>Cercartetus concinnus</i> (<i>Western Pygmy-possum, Mundarda</i>)			
Buthidae				
78.	<i>Isometrodes vescus</i>			
Cacatuidae				
79.	<i>Eolophus roseicapillus</i>			
Campephagidae				
80.	<i>Coracina novaehollandiae</i> (<i>Black-faced Cuckoo-shrike</i>)			
Canidae				
81.	<i>Canis lupus</i> subsp. <i>familiaris</i> (<i>Dog</i>)		Y	
Carabidae				
82.	<i>Catadromus</i> sp.			
83.	<i>Scaraphites</i> sp.			
Castniidae				
84.	<i>Synemon gratiosa</i> (<i>Graceful Sunmoth</i>)		P4	
Cerambycidae				
85.	<i>Phoracantha semipunctatus</i>			
Charadriidae				
86.	<i>Charadrius leschenaultii</i> (<i>Greater Sand Plover</i>)			IA
87.	<i>Charadrius melanops</i> (<i>Black-fronted Dotterel</i>)			
88.	<i>Charadrius ruficollis</i> (<i>Red-capped Plover</i>)			
89.	<i>Elseya melanops</i>			
90.	<i>Erythrogenys cinctus</i> (<i>Red-kneed Dotterel</i>)			
Cheloniidae				
91.	<i>Caretta caretta</i> (<i>Loggerhead Turtle</i>)		T	
Chelidae				
92.	<i>Chelodina</i> (<i>Macrodipteryx</i>) <i>colliei</i>			
93.	<i>Chelodina colliei</i> (<i>Oblong Turtle</i>)			
Chrysomelidae				
94.	<i>Strumatophyma verrucosa</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Cicadidae				
95.	<i>Arenopsaltria fullo</i>			
Climacteridae				
96.	24396 <i>Climacteris rufa</i> (<i>Rufous Treecreeper</i>)			
Coenagrionidae				
97.	<i>Austroagrion cyane</i>			
98.	<i>Ischnura aurora</i>			
99.	<i>Xanthagrion erythroneurum</i>			
Columbidae				
100.	24399 <i>Columba livia</i> (<i>Domestic Pigeon</i>)			Y
101.	24407 <i>Ocyphaps lophotes</i> (<i>Crested Pigeon</i>)			
102.	24409 <i>Phaps chalcoptera</i> (<i>Common Bronzewing</i>)			
103.	25589 <i>Streptopelia chinensis</i> (<i>Spotted Turtle-Dove</i>)			Y
104.	25590 <i>Streptopelia senegalensis</i> (<i>Laughing Turtle-Dove</i>)			Y
Corixidae				
105.	<i>Agraptocorixa eurynome</i>			
Corvidae				
106.	24416 <i>Corvus bennetti</i> (<i>Little Crow</i>)			
107.	25592 <i>Corvus coronoides</i> (<i>Australian Raven</i>)			
108.	<i>Corvus sp.</i>			
Cracticidae				
109.	24420 <i>Cracticus nigrogularis</i> (<i>Pied Butcherbird</i>)			
110.	25595 <i>Cracticus tibicen</i> (<i>Australian Magpie</i>)			
111.	25596 <i>Cracticus torquatus</i> (<i>Grey Butcherbird</i>)			
112.	25597 <i>Strepera versicolor</i> (<i>Grey Currawong</i>)			
Cuculidae				
113.	25598 <i>Cacomantis flabelliformis</i> (<i>Fan-tailed Cuckoo</i>)			
114.	24427 <i>Cacomantis flabelliformis</i> subsp. <i>flabelliformis</i> (<i>Fan-tailed Cuckoo</i>)			
115.	42307 <i>Cacomantis pallidus</i> (<i>Pallid Cuckoo</i>)			
116.	24432 <i>Chrysococcyx lucidus</i> subsp. <i>plagiosus</i> (<i>Shining Bronze Cuckoo</i>)			
Curculionidae				
117.	<i>Acantholophus amycterooides</i>			
118.	<i>Acantholophus humeralis</i>			
119.	<i>Euomus insculptus</i>			
120.	<i>Psaldus sp.</i>			Y
Cyprinidae				
121.	<i>Carassius auratus</i>			
Dasyuridae				
122.	24098 <i>Phascogale calura</i> (<i>Red-tailed Phascogale, Kenngoor</i>)			T
Dicaeidae				
123.	25607 <i>Dicaeum hirundinaceum</i> (<i>Mistletoebird</i>)			
Dicruridae				
124.	24443 <i>Grallina cyanoleuca</i> (<i>Magpie-lark</i>)			
125.	25610 <i>Myiagra inquieta</i> (<i>Restless Flycatcher</i>)			
126.	25613 <i>Rhipidura fuliginosa</i> (<i>Grey Fantail</i>)			
127.	25614 <i>Rhipidura leucophrys</i> (<i>Willie Wagtail</i>)			
128.	24454 <i>Rhipidura leucophrys</i> subsp. <i>leucophrys</i> (<i>Willie Wagtail</i>)			
Diplodactylidae				
129.	24918 <i>Crenadactylus ocellatus</i> subsp. <i>ocellatus</i> (<i>Clawless Gecko</i>)			
130.	24929 <i>Diplodactylus granariensis</i> subsp. <i>granariensis</i>			
131.	24939 <i>Diplodactylus polyophthalmus</i>			
132.	24943 <i>Strophurus spinigerus</i> subsp. <i>inornatus</i>			
133.	24942 <i>Strophurus spinigerus</i> subsp. <i>spinigerus</i>			
Elapidae				
134.	42381 <i>Brachyurophis semifasciatus</i> (<i>Southern Shovel-nosed Snake</i>)			
135.	25296 <i>Demansia psammophis</i> subsp. <i>reticulata</i> (<i>Yellow-faced Whipsnake</i>)			
136.	25251 <i>Echiopsis curta</i> (<i>Bardick</i>)			
137.	25250 <i>Elapognathus coronatus</i> (<i>Crowned Snake</i>)			
138.	25248 <i>Neelaps bimaculatus</i> (<i>Black-naped Snake</i>)			
139.	25249 <i>Neelaps calonotos</i> (<i>Black-striped Snake</i>)			P3
140.	25252 <i>Notechis scutatus</i> (<i>Tiger Snake</i>)			
141.	25253 <i>Parasuta gouldii</i>			
142.	25255 <i>Parasuta nigriceps</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
143.	<i>Pseudonaja affinis (Dugite)</i>			
144.	<i>Pseudonaja affinis subsp. affinis (Dugite)</i>			
145.	<i>Simoselaps bertholdi (Jan's Banded Snake)</i>			
146.	<i>Simoselaps semifasciatus</i>			
Falconidae				
147.	<i>Falco berigora (Brown Falcon)</i>			
148.	<i>Falco cenchroides (Australian Kestrel)</i>			
149.	<i>Falco cenchroides subsp. cenchroides (Australian Kestrel)</i>			
150.	<i>Falco longipennis (Australian Hobby)</i>			
151.	<i>Falco peregrinus (Peregrine Falcon)</i>	S		
152.	<i>Falco peregrinus subsp. macropus (Australian Peregrine Falcon)</i>	S		
Felidae				
153.	<i>Felis catus (Cat)</i>	Y		
Formicidae				
154.	<i>Aphaenogaster poultoni</i>			
Gekkonidae				
155.	<i>Christinus marmoratus (Marbled Gecko)</i>			
156.	<i>Underwoodisaurus milii (Barking Gecko)</i>			
Gobiidae				
157.	<i>Pseudogobius olorum</i>			
Halcyonidae				
158.	<i>Dacelo novaeguineae (Laughing Kookaburra)</i>	Y		
159.	<i>Todiramphus sanctus (Sacred Kingfisher)</i>			
Helicidae				
160.	<i>Cantareus apertus</i>			
Henicopidae				
161.	<i>Henicops dentatus</i>			
Hirundinidae				
162.	<i>Cheramoeca leucosterna</i>			
163.	<i>Hirundo neoxena (Welcome Swallow)</i>			
164.	<i>Hirundo nigricans (Tree Martin)</i>			
Hylidae				
165.	<i>Litoria adelaidensis (Slender Tree Frog)</i>			
166.	<i>Litoria moorei (Motorbike Frog)</i>			
Kalotermittidae				
167.	<i>Kalotermes aemulus</i>			
Lamponidae				
168.	<i>Lampona cylindrata</i>			
Laridae				
169.	<i>Chroicocephalus novaehollandiae</i>			
170.	<i>Hydroprogne caspia</i>			
171.	<i>Larus novaehollandiae (Silver Gull)</i>			
172.	<i>Larus novaehollandiae subsp. novaehollandiae (Silver Gull)</i>			
173.	<i>Larus pacificus (Pacific Gull)</i>			
174.	<i>Sterna nereis subsp. nereis (Fairy Tern)</i>	T		
Leporidae				
175.	<i>Oryctolagus cuniculus (Rabbit)</i>	Y		
Leptoceridae				
176.	<i>Tripectides australis</i>			
Lestidae				
177.	<i>Austrolestes analis</i>			
Libellulidae				
178.	<i>Diplacodes bipunctata</i>			
179.	<i>Orthetrum caledonicum</i>			
Limnodynastidae				
180.	<i>Heleioporus eyrei (Moaning Frog)</i>			
181.	<i>Limnodynastes dorsalis (Western Banjo Frog)</i>			
Lycosidae				
182.	<i>Dingosa serrata</i>			
183.	<i>Hogna crispipes</i>			
184.	<i>Venatrix pullastra</i>			

Name ID	Species Name	Naturalised	Conservation Code	¹Endemic To Query Area
Macropodidae				
185.	<i>Macropus fuliginosus</i> (Western Grey Kangaroo)			
Maeridae				
186.	<i>Parelasmopus</i> sp.			
Maluridae				
187.	<i>Malurus lamberti</i> (Variegated Fairy-wren)			
188.	<i>Malurus splendens</i> (Splendid Fairy-wren)			
Meliphagidae				
189.	<i>Acanthagenys rufogularis</i> (Spiny-cheeked Honeyeater)			
190.	<i>Acanthorhynchus superciliosus</i> (Western Spinebill)			
191.	<i>Anthochaera carunculata</i> (Red Wattlebird)			
192.	<i>Anthochaera lunulata</i> (Western Little Wattlebird)			
193.	<i>Epthianura albifrons</i> (White-fronted Chat)			
194.	<i>Lichmera indistincta</i> (Brown Honeyeater)			
195.	<i>Manorina flavigula</i> (Yellow-throated Miner)			
196.	<i>Melithreptus brevirostris</i> (Brown-headed Honeyeater)			
197.	<i>Phylidonyris novaehollandiae</i> (New Holland Honeyeater)			
198.	<i>Ptilotula ornata</i> (Yellow-plumed Honeyeater)			
Meropidae				
199.	<i>Merops ornatus</i> (Rainbow Bee-eater)		IA	
Muridae				
200.	<i>Hydromys chrysogaster</i> (Water-rat)		P4	
201.	<i>Mus musculus</i> (House Mouse)		Y	
202.	<i>Rattus fuscipes</i> (Western Bush Rat)			
203.	<i>Rattus rattus</i> (Black Rat)		Y	
Myobatrachidae				
204.	<i>Crinia insignifera</i> (Squelching Froglet)			
205.	<i>Myobatrachus gouldii</i> (Turtle Frog)			
206.	<i>Pseudophryne guentheri</i> (Crawling Toadlet)			
Nemesiidae				
207.	<i>Aname mainae</i>			
208.	<i>Aname tepperi</i>			
Neosittidae				
209.	<i>Daphoenositta chrysoptera</i> (Varied Sittella)			
Nephilidae				
210.	<i>Nephila edulis</i>			
Noctuidae				
211.	<i>Helicoverpa armigera</i>			
Notonectidae				
212.	<i>Anisops thienemanni</i>			
Pachycephalidae				
213.	<i>Colluricincla harmonica</i> (Grey Shrike-thrush)			
214.	<i>Colluricincla harmonica</i> subsp. <i>rufiventris</i> (Grey Shrike-thrush)			
215.	<i>Falcunculus frontatus</i> subsp. <i>leucogaster</i> (Western Shrike-tit, Crested Shrike-tit)			
216.	<i>Pachycephala pectoralis</i> (Golden Whistler)			
217.	<i>Pachycephala pectoralis</i> subsp. <i>fuliginosa</i> (Golden Whistler)			
218.	<i>Pachycephala rufiventris</i> (Rufous Whistler)			
219.	<i>Pachycephala rufiventris</i> subsp. <i>rufiventris</i> (Rufous Whistler)			
Pachygronthidae				
220.	<i>Darwinocoris australicus</i>			
Paradoxosomatidae				
221.	<i>Antichiropus whistleri</i>			
Pardalotidae				
222.	<i>Pardalotus punctatus</i> (Spotted Pardalote)			
223.	<i>Pardalotus striatus</i> (Striated Pardalote)			
Passeridae				
224.	<i>Passer domesticus</i> (House Sparrow)		Y	
225.	<i>Passer domesticus</i> subsp. <i>domesticus</i> (House Sparrow)		Y	Y
Pelecanidae				
226.	<i>Pelecanus conspicillatus</i> (Australian Pelican)			

Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Peramelidae				
227.	<i>Isoodon obesulus</i> (<i>Southern Brown Bandicoot</i>)		P5	
228.	<i>Isoodon obesulus</i> subsp. <i>fusciventer</i> (<i>Quenda, Southern Brown Bandicoot</i>)		P5	
Petroicidae				
229.	<i>Microeca fascinans</i> (<i>Jacky Winter</i>)			
230.	<i>Petroica goodenovii</i> (<i>Red-capped Robin</i>)			
231.	<i>Petroica multicolor</i> subsp. <i>campbelli</i> (<i>Scarlet Robin</i>)			
Phalacrocoracidae				
232.	<i>Microcarbo melanoleucus</i>			
233.	<i>Phalacrocorax carbo</i> (<i>Great Cormorant</i>)			
234.	<i>Phalacrocorax melanoleucos</i> (<i>Little Pied Cormorant</i>)			
235.	<i>Phalacrocorax sulcirostris</i> (<i>Little Black Cormorant</i>)			
236.	<i>Phalacrocorax varius</i> (<i>Pied Cormorant</i>)			
Phalangeridae				
237.	<i>Trichosurus vulpecula</i> (<i>Common Brushtail Possum</i>)			
238.	<i>Trichosurus vulpecula</i> subsp. <i>vulpecula</i> (<i>Common Brushtail Possum</i>)			
Phasianidae				
239.	<i>Coturnix ypsilophora</i> (<i>Brown Quail</i>)			
Physidae				
240.	<i>Physa acuta</i>			
Plagiorchiidae				
241.	<i>Aptorchis</i> sp.			
Platycephalidae				
242.	<i>Platycephalus endrachtensis</i>			
243.	<i>Platycephalus</i> sp.			
Podargidae				
244.	<i>Podargus strigoides</i> (<i>Tawny Frogmouth</i>)			
245.	<i>Podargus strigoides</i> subsp. <i>brachypterus</i> (<i>Tawny Frogmouth</i>)			
Podicipedidae				
246.	<i>Podiceps cristatus</i> (<i>Great Crested Grebe</i>)			
247.	<i>Podiceps cristatus</i> subsp. <i>australis</i> (<i>Great Crested Grebe</i>)			
248.	<i>Poliocephalus poliocephalus</i> (<i>Hoary-headed Grebe</i>)			
249.	<i>Tachybaptus novaehollandiae</i> (<i>Australasian Grebe, Black-throated Grebe</i>)			
250.	<i>Tachybaptus novaehollandiae</i> subsp. <i>novaehollandiae</i> (<i>Australasian Grebe, Black-throated Grebe</i>)			
Poeciliidae				
251.	<i>Gambusia affinis</i>			
Procellariidae				
252.	<i>Macronectes giganteus</i> (<i>Southern Giant Petrel</i>)			
253.	<i>Pachyptila desolata</i> (<i>Antarctic Prion</i>)			
Psittacidae				
254.	<i>Barnardius zonarius</i>			
255.	<i>Cacatua galerita</i> (<i>Sulphur-crested Cockatoo</i>)			
256.	<i>Cacatua galerita</i> subsp. <i>galerita</i> (<i>Sulphur-crested Cockatoo</i>)		Y	
257.	<i>Cacatua pastinator</i> (<i>Western Long-billed Corella</i>)			
258.	<i>Cacatua roseicapilla</i> (<i>Galah</i>)			
259.	<i>Cacatua sanguinea</i> (<i>Little Corella</i>)			
260.	<i>Cacatua</i> sp.			
261.	<i>Cacatua tenuirostris</i> (<i>Eastern Long-billed Corella</i>)		Y	
262.	<i>Calyptorhynchus banksii</i> (<i>Red-tailed Black-Cockatoo</i>)			
263.	<i>Calyptorhynchus baudinii</i> (<i>Baudin's Cockatoo (long-billed black-cockatoo), Baudin's Cockatoo</i>)		T	
264.	<i>Calyptorhynchus latirostris</i> (<i>Carnaby's Cockatoo (short-billed black-cockatoo), Carnaby's Cockatoo</i>)		T	
265.	<i>Calyptorhynchus</i> sp.			
266.	<i>Glossopsitta porphyrocephala</i> (<i>Purple-crowned Lorikeet</i>)			
267.	<i>Neophema elegans</i> (<i>Elegant Parrot</i>)			
268.	<i>Platycercus icterotis</i> (<i>Western Rosella</i>)			
269.	<i>Platycercus spurius</i> (<i>Red-capped Parrot</i>)			
270.	<i>Platycercus zonarius</i> (<i>Australian Ringneck, Ring-necked Parrot</i>)			
271.	<i>Polytelis anthopeplus</i> (<i>Regent Parrot</i>)			
272.	<i>Purpureicephalus spurius</i>			
273.	<i>Trichoglossus haematodus</i> (<i>Rainbow Lorikeet</i>)			
274.	<i>Trichoglossus haematodus</i> subsp. <i>moluccanus</i> (<i>Rainbow Lorikeet</i>)		Y	

Name ID	Species Name	Naturalised	Conservation Code	¹Endemic To Query Area
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Pygopodidae

275.	Aprasia repens (<i>Sand-plain Worm-lizard</i>)
276.	Delma grayii
277.	Lialis burtonis
278.	Pletholax gracilis subsp. <i>gracilis</i> (<i>Keeled Legless Lizard</i>)
279.	Pygopus lepidopodus (<i>Common Scaly Foot</i>)

Rallidae

280.	Fulica atra (<i>Eurasian Coot</i>)
281.	Fulica atra subsp. <i>australis</i> (<i>Eurasian Coot</i>)
282.	Gallinula tenebrosa (<i>Dusky Moorhen</i>)
283.	Gallinula tenebrosa subsp. <i>tenebrosa</i> (<i>Dusky Moorhen</i>)
284.	Gallirallus philippensis (<i>Buff-banded Rail</i>)
285.	Porphyrio porphyrio (<i>Purple Swamphen</i>)
286.	Porphyrio porphyrio subsp. <i>bellus</i> (<i>Purple Swamphen</i>)
287.	Porzana fluminea (<i>Australian Spotted Crake</i>)
288.	Porzana pusilla (<i>Baillon's Crake</i>)
289.	Porzana tabuensis (<i>Spotless Crake</i>)
290.	Tribonyx ventralis

Recurvirostridae

291.	Cladorhynchus leucocephalus (<i>Banded Stilt</i>)
292.	Himantopus himantopus (<i>Black-winged Stilt</i>)
293.	Recurvirostra novaehollandiae (<i>Red-necked Avocet</i>)

Rhinotermitidae

294.	Coptotermes michaelsoni
295.	Schedorhinotermes reticulatus

Salticidae

296.	Ocrisiona leucocomis
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Scincidae

297.	Acritoscincus trilineatus (<i>Western Three-lined Skink</i>)
298.	Cryptoblepharus buchananii
299.	Cryptoblepharus plagicephalus
300.	Ctenotus australis
301.	Ctenotus fallens
302.	Ctenotus impar
303.	Cyclodomorphus celatus (<i>Western Slender Blue-tongue</i>)
304.	Egernia napoleonis
305.	Hemiergis quadrilineata
306.	Lerista elegans
307.	Lerista lineopunctulata
308.	Lerista praepedita
309.	Menetia greyii
310.	Morethia obscura
311.	Tiliqua occipitalis (<i>Western Bluetongue</i>)
312.	Tiliqua rugosa
313.	Tiliqua rugosa subsp. <i>rugosa</i>

Scolopacidae

314.	Actitis hypoleucus (<i>Common Sandpiper</i>)	IA
315.	Calidris acuminata (<i>Sharp-tailed Sandpiper</i>)	IA
316.	Calidris ferruginea (<i>Curlew Sandpiper</i>)	T
317.	Calidris melanotos (<i>Pectoral Sandpiper</i>)	IA
318.	Calidris ruficollis (<i>Red-necked Stint</i>)	IA
319.	Calidris subminuta (<i>Long-toed Stint</i>)	IA
320.	Limosa limosa (<i>Black-tailed Godwit</i>)	IA
321.	Tringa glareola (<i>Wood Sandpiper</i>)	IA
322.	Tringa nebularia (<i>Common Greenshank</i>)	IA

Scolopendridae

323.	Cormocephalus aurantiipes
324.	Ethmostigmus rubripes

Sparassidae

325.	Eodelena convexa
326.	Isopeda leishmanni

Strigidae

327.	Ninox novaeseelandiae (<i>Boobook Owl</i>)
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Succineidae

328.	Succinea (succinea)
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Name ID	Species Name	Naturalised	Conservation Code	¹ Endemic To Query Area
Sylviidae				
329.	25755 <i>Acrocephalus australis</i> (<i>Australian Reed Warbler</i>)			
330.	25758 <i>Megalurus gramineus</i> (<i>Little Grassbird</i>)			
Synthemistidae				
331.	Archaeosynthemis leachii			
332.	Archaeosynthemis occidentalis			
Tachyglossidae				
333.	24207 <i>Tachyglossus aculeatus</i> (<i>Short-beaked Echidna</i>)			
Tenebrionidae				
334.	<i>Helea perforata</i>			
335.	<i>Pterohelaeus guerini</i>			
336.	<i>Pterohelaeus parallelus</i>			
Tettigoniidae				
337.	<i>Pachysaga australis</i>			
Theridiidae				
338.	<i>Latrodectus hasseltii</i>			
Threskiornithidae				
339.	24841 <i>Platalea flavipes</i> (<i>Yellow-billed Spoonbill</i>)			
340.	24842 <i>Platalea regia</i> (<i>Royal Spoonbill</i>)			
341.	24843 <i>Plegadis falcinellus</i> (<i>Glossy Ibis</i>)			IA
342.	24844 <i>Threskiornis molucca</i> (<i>Australian White Ibis</i>)			
343.	24845 <i>Threskiornis spinicollis</i> (<i>Straw-necked Ibis</i>)			
Tytonidae				
344.	24852 <i>Tyto alba</i> subsp. <i>delicatula</i> (<i>Barn Owl</i>)			
Urodacidae				
345.	<i>Urodacus novaehollandiae</i>			
Varanidae				
346.	25218 <i>Varanus gouldii</i> (<i>Bungarra or Sand Monitor</i>)			
347.	25526 <i>Varanus tristis</i> (<i>Racehorse Monitor</i>)			
Zosteropidae				
348.	25765 <i>Zosterops lateralis</i> (<i>Grey-breasted White-eye, Silvereye</i>)			
349.	24856 <i>Zosterops lateralis</i> subsp. <i>gouldii</i> (<i>Grey-breasted White-eye</i>)			

Conservation Codes

T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

¹ For NatureMap's purposes, species flagged as endemic are those whose records are wholly contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.



EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/04/16 14:54:05

[Summary](#)

[Details](#)

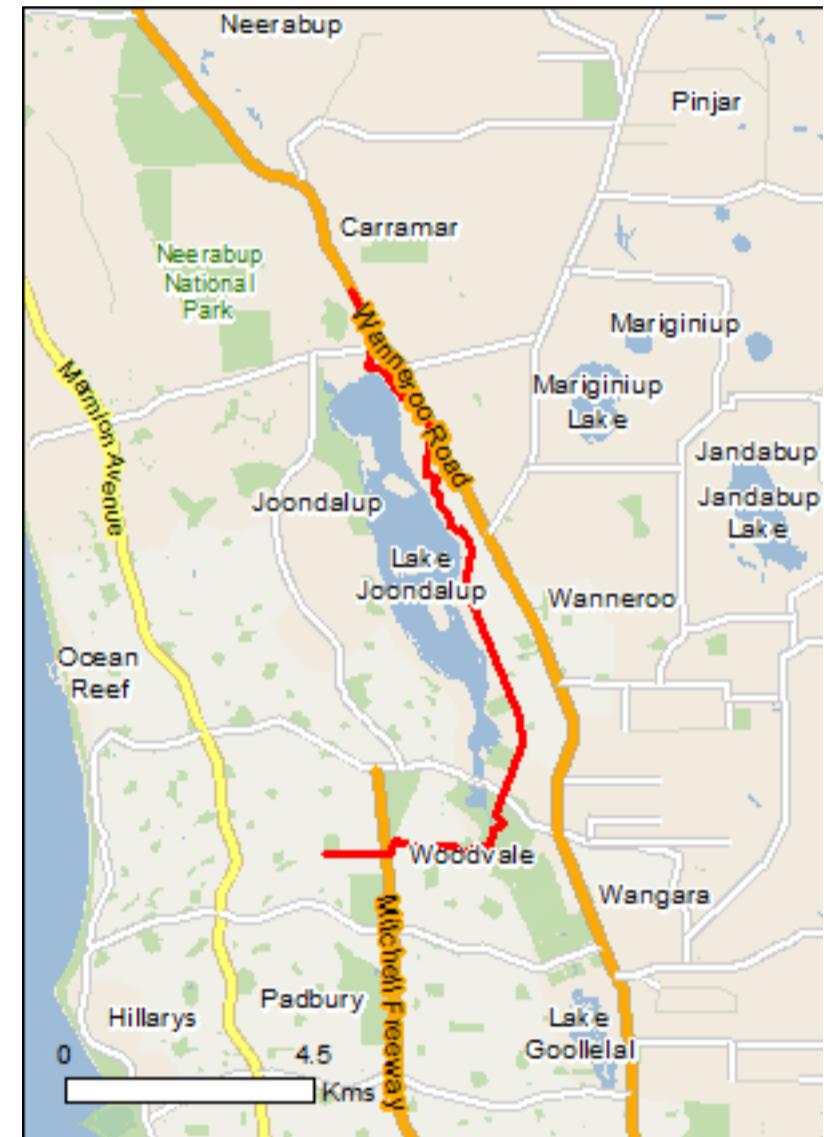
[Matters of NES](#)

[Other Matters Protected by the EPBC Act](#)

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)



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Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the [Administrative Guidelines on Significance](#).

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	11
Listed Migratory Species:	9

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at <http://www.environment.gov.au/heritage>

A [permit](#) may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	14
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	3
Regional Forest Agreements:	None
Invasive Species:	41
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Species	[Resource Information]	
Name	Status	Type of Presence
Birds		
<u>Calyptorhynchus latirostris</u>		
Carnaby's Black-Cockatoo, Short-billed Black-Cockatoo [59523]	Endangered	Species or species habitat likely to occur within area
<u>Leipoa ocellata</u>		
Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
<u>Rostratula australis</u>		
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
Mammals		
<u>Dasyurus geoffroii</u>		
Chuditch, Western Quoll [330]	Vulnerable	Species or species habitat likely to occur within area
Plants		
<u>Anigozanthos viridis subsp. terraspectans</u>		
Dwarf Green Kangaroo Paw [3435]	Vulnerable	Species or species habitat may occur within area
<u>Caladenia huegelii</u>		
King Spider-orchid, Grand Spider-orchid, Rusty Spider-orchid [7309]	Endangered	Species or species habitat likely to occur within area
<u>Darwinia foetida</u>		
Muchea Bell [83190]	Critically Endangered	Species or species habitat may occur within area
<u>Diuris micrantha</u>		
Dwarf Bee-orchid [55082]	Vulnerable	Species or species habitat likely to occur within area
<u>Diuris purdiei</u>		
Purdie's Donkey-orchid [12950]	Endangered	Species or species habitat may occur within area
<u>Drakaea elastica</u>		
Glossy-leaved Hammer-orchid, Praying Virgin [16753]	Endangered	Species or species habitat likely to occur within area
<u>Drakaea micrantha</u>		
Dwarf Hammer-orchid [56755]	Vulnerable	Species or species habitat may occur within area
Listed Migratory Species	[Resource Information]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence

Name	Threatened	Type of Presence
Migratory Marine Birds		
<u>Apus pacificus</u>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<u>Merops ornatus</u>		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
<u>Motacilla cinerea</u>		
Grey Wagtail [642]		Species or species habitat may occur within area
Migratory Wetlands Species		
<u>Ardea alba</u>		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<u>Ardea ibis</u>		
Cattle Egret [59542]		Species or species habitat may occur within area
<u>Calidris acuminata</u>		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<u>Calidris ruficollis</u>		
Red-necked Stint [860]		Species or species habitat known to occur within area
<u>Pandion haliaetus</u>		
Osprey [952]		Species or species habitat likely to occur within area
<u>Tringa nebularia</u>		
Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species	[Resource Information]	
* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.		
Name	Threatened	Type of Presence
Birds		
<u>Apus pacificus</u>		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
<u>Ardea alba</u>		
Great Egret, White Egret [59541]		Species or species habitat known to occur within area
<u>Ardea ibis</u>		
Cattle Egret [59542]		Species or species habitat may occur within area
<u>Calidris acuminata</u>		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
<u>Calidris ruficollis</u>		
Red-necked Stint [860]		Species or species habitat known to occur within area
<u>Haliaeetus leucogaster</u>		
White-bellied Sea-Eagle [943]		Species or species

Name	Threatened	Type of Presence
<u>Himantopus himantopus</u> Black-winged Stilt [870]		habitat known to occur within area
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat known to occur within area
<u>Motacilla cinerea</u> Grey Wagtail [642]		Species or species habitat may occur within area
<u>Pandion haliaetus</u> Osprey [952]		Species or species habitat likely to occur within area
<u>Recurvirostra novaehollandiae</u> Red-necked Avocet [871]		Species or species habitat known to occur within area
<u>Rostratula benghalensis (sensu lato)</u> Painted Snipe [889]	Endangered*	Species or species habitat may occur within area
<u>Thinornis rubricollis</u> Hooded Plover [59510]		Species or species habitat may occur within area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area

Extra Information

State and Territory Reserves	[Resource Information]
Name	State
Lake Joondalup	WA
Unnamed WA21176	WA
Woodvale Nature Reserve	WA

Invasive Species	[Resource Information]
Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.	

Name	Status	Type of Presence
Birds		
Acridotheres tristis		
Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos		
Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis		
European Goldfinch [403]		Species or species

Name	Status	Type of Presence
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Passer montanus Eurasian Tree Sparrow [406]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Streptopelia senegalensis Laughing Turtle-dove, Laughing Dove [781]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Funambulus pennantii Northern Palm Squirrel, Five-striped Palm Squirrel [129]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
<i>Asparagus asparagoides</i> Bridal Creeper, Bridal Veil Creeper, Smilax, Florist's Smilax, Smilax Asparagus [22473]		Species or species habitat likely to occur within area
<i>Asparagus declinatus</i> Bridal Veil, Bridal Veil Creeper, Pale Berry Asparagus Fern, Asparagus Fern, South African Creeper [66908]		Species or species habitat likely to occur within area
<i>Asparagus plumosus</i> Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
<i>Brachiaria mutica</i> Para Grass [5879]		Species or species habitat may occur within area
<i>Cenchrus ciliaris</i> Buffel-grass, Black Buffel-grass [20213]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> Bitou Bush, Boneseed [18983]		Species or species habitat may occur within area
<i>Chrysanthemoides monilifera</i> subsp. <i>monilifera</i> Boneseed [16905]		Species or species habitat likely to occur within area
<i>Genista</i> sp. X <i>Genista monspessulana</i> Broom [67538]		Species or species habitat may occur within area
<i>Lantana camara</i> Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
<i>Lycium ferocissimum</i> African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
<i>Olea europaea</i> Olive, Common Olive [9160]		Species or species habitat may occur within area
<i>Opuntia</i> spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
<i>Pinus radiata</i> Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
<i>Protasparagus densiflorus</i> Asparagus Fern, Plume Asparagus [5015]		Species or species habitat likely to occur within area
<i>Protasparagus plumosus</i> Climbing Asparagus-fern, Ferny Asparagus [11747]		Species or species habitat likely to occur within area
<i>Rubus fruticosus aggregate</i> Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
<i>Salix</i> spp. except <i>S.babylonica</i> , <i>S.x calodendron</i> & <i>S.x reichardtii</i> Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
<i>Salvinia molesta</i> Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Reptiles		
Hemidactylus frenatus Asian House Gecko [1708]		Species or species habitat likely to occur within area

Ramphotyphlops braminus Flowerpot Blind Snake, Brahminy Blind Snake, Cacing Besi [1258]	Species or species habitat likely to occur within area
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Nationally Important Wetlands	[Resource Information]
Name	State
Joondalup Lake	WA

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-31.786693 115.771205,-31.786693 115.781848,-31.784796 115.782449,-31.785817 115.786912,-31.785525 115.79232,-31.786984 115.793264,-31.785671 115.79601,-31.785598 115.798242,-31.783336 115.798414,-31.782607 115.800216,-31.781002 115.798929,-31.771443 115.80322,-31.767868 115.802619,-31.75028 115.794036,-31.748528 115.794208,-31.746922 115.794551,-31.745024 115.795066,-31.743638 115.794637,-31.741813 115.793436,-31.741959 115.792835,-31.741229 115.791719,-31.740499 115.791633,-31.739623 115.791204,-31.738674 115.790431,-31.738163 115.789916,-31.736849 115.790002,-31.736703 115.788801,-31.736265 115.789058,-31.734805 115.789401,-31.734075 115.787857,-31.73298 115.787685,-31.732615 115.787857,-31.728819 115.788715,-31.724293 115.78614,-31.723636 115.783565,-31.719474 115.780303,-31.719547 115.778243,-31.715459 115.779273,-31.708814 115.775325,-31.708814 115.775325

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

- [Office of Environment and Heritage, New South Wales](#)
- [Department of Environment and Primary Industries, Victoria](#)
- [Department of Primary Industries, Parks, Water and Environment, Tasmania](#)
- [Department of Environment, Water and Natural Resources, South Australia](#)
- [Parks and Wildlife Commission NT, Northern Territory Government](#)
- [Department of Environmental and Heritage Protection, Queensland](#)
- [Department of Parks and Wildlife, Western Australia](#)
- [Environment and Planning Directorate, ACT](#)
- [Birdlife Australia](#)
- [Australian Bird and Bat Banding Scheme](#)
- [Australian National Wildlife Collection](#)
- Natural history museums of Australia
- [Museum Victoria](#)
- [Australian Museum](#)
- [South Australian Museum](#)
- [Queensland Museum](#)
- [Online Zoological Collections of Australian Museums](#)
- [Queensland Herbarium](#)
- [National Herbarium of NSW](#)
- [Royal Botanic Gardens and National Herbarium of Victoria](#)
- [Tasmanian Herbarium](#)
- [State Herbarium of South Australia](#)
- [Northern Territory Herbarium](#)
- [Western Australian Herbarium](#)
- [Australian National Herbarium, Atherton and Canberra](#)
- [University of New England](#)
- [Ocean Biogeographic Information System](#)
- [Australian Government, Department of Defence](#)
- [Forestry Corporation, NSW](#)
- [Geoscience Australia](#)
- [CSIRO](#)
- Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the [Contact Us](#) page.

APPENDIX H

Flora Likelihood Table

Assessment of the Likely Occurrence of DRF and Priority Flora (as per DPaW and EPBC Database Searches) in the Survey Area

¹Closet record to Survey Area based on DPaW 2015. Likely = Suitable habitat present and records less than 5 km from the Survey Area, Possible = Suitable habitat present and records between 5 km and 10 km from the Survey Area, and Unlikely = No suitable habitat present and/or records greater than 10 km from the Survey Area. En = Listed as Endangered under the EBPC Act, Vu = Listed as Vulnerable under the EBPC, Ce= Critically Endangered under the EBPC Act, P = Listed as Priority by the DPaW DRF = Declared Rare Flora as listed by the State.

SOURCE	CONSERVATION STATUS		SPECIES	HABITAT INFORMATION	DISTANCE TO NEAREST RECORD	SUITABLE HABITAT PRESENT	LIKELIHOOD OF OCCURRENCE IN THE SURVEY AREA
	EPBC	DPAW					
EPBC PMST	Vulnerable	DRF/T	<i>Anigozanthos viridis</i> subsp. <i>terraspectans</i>	Grey sand, clay loam. Winter-wet depressions	72km	No	Unlikely
NatureMap EPBC PMST	Endangered	DRF/T	<i>Caladenia huegelii</i>	Grey or brown sand, clay loam.	6.93 km	Yes	Possible
EPBC PMST	Critically Endangered	DRF/T	<i>Darwinia foetida</i>	Unavailable	22.2 km	Unknown	Unlikely
DPaW	Critically Endangered	DRF/T	<i>Dasyrnalla axillaris</i>	Unavailable	125.9	Unknown	Unknown
EPBC PMST	Vulnerable	DRF/T	<i>Diuris micrantha</i>	Brown loamy clay. Winter-wet swamps, in shallow water.	50 km	No	Unlikely
EPBC PMST	Endangered	DRF/T	<i>Diuris purdiei</i>	Grey-black sand, moist. Winter-wet swamps.	30 km	No	Unlikely
EPBC PMST	Endangered	DRF/T	<i>Drakaea elastica</i>	White or grey sand. Low-lying situations adjoining winter-wet swamps.	33 km	No	Unlikely

Source	Conservation Status		Species	Habitat Information	Distance to Nearest Record	Suitable Habitat Present	Likelihood of Occurrence in the Survey Area
	EPBC	DPAW					
EPBC PMST	Vulnerable	DRF/T	<i>Drakaea micrantha</i>	White-grey sand.	40.7 km	Yes	Unlikely
DPaW NatureMap		DRF/T	<i>Marianthus paralius</i>	White sand over limestone. Low coastal cliffs	2.5 km	No	Unlikely
DPaW NatureMap	-	P1	<i>Baeckea sp. Limestone</i>	Unavailable	145m	Unknown	Unknown
DPaW	-	P1	<i>Drosera x sidjamesii</i>	Peaty sand. Along lake margins, close to winter high-water line	6.22 km	No	Unlikely
DPaW	-	P1	<i>Grevillea sp. Ocean Reef</i>	Unavailable	No data	Unknown	Unknown
DPaW		P1	<i>Melaleuca sp. Wanneroo</i>	Unavailable	No data	Unknown	Unknown
DPaW NatureMap	-	P2	<i>Acacia benthamii</i>	Typically on limestone breakaways	468m	No	Unlikely
DPaW NatureMap	-	P2	<i>Austrostipa mundula</i>	Unavailable	2.1km	Unknown	Unknown
DPaW	-	P2	<i>Calectasia elegans</i>	Unavailable	10.3 km	Unknown	Unknown
DPaW	-	P2	<i>Fabronia hampeana</i>	Unavailable	2.3 km	Unknown	Unknown

SOURCE	CONSERVATION STATUS		SPECIES	HABITAT INFORMATION	DISTANCE TO NEAREST RECORD	SUITABLE HABITAT PRESENT	LIKELIHOOD OF OCCURRENCE IN THE SURVEY AREA
	EPBC	DPAW					
DPaW NatureMap	-	P2	<i>Tetraria sp.</i> <i>Chandala</i>	Along edges of swamp. Black peaty sand	494 m	No	Unlikely
DPaW NatureMap	-	P2	<i>Thelymitra variegata</i>	Sandy clay, sand, laterite.	468m	No	Unlikely
DPaW NatureMap	-	P3	<i>Conostylis bracteata</i>	Sand, limestone. Consolidated sand dunes	33m	Yes	Found within Survey Area
DPaW	-	P3	<i>Cyathochæta teretifolia</i>	Grey sand, sandy clay. Swamps, creek edges.	6.6 km	No	Unlikely
NatureMap	-	P3	<i>Lasiopetalum membranaceum</i>	Sand over limestone	700 m	Yes	Likely
DPaW	-	P3	<i>Leucopogon sp.</i> Yançep	Light grey-yellow sand, brown loam, limestone, laterite, granite. Coastal plain, breakaways, valley slopes, low hills.	No data	Yes	Possible
DPaW NatureMap	-	P3	<i>Pimelea calcicola</i>	Coastal limestone ridges	468 m	No	Unlikely
DPaW	-	P3	<i>Sarcozona bicarinata</i>	White sand	6 km	No	Unlikely

SOURCE	CONSERVATION STATUS		SPECIES	HABITAT INFORMATION	DISTANCE TO NEAREST RECORD	SUITABLE HABITAT PRESENT	LIKELIHOOD OF OCCURRENCE IN THE SURVEY AREA
	EPBC	DPAW					
DPaW NatureMap	-	P3	<i>Stylium paludicola</i>	Peaty sand over clay. Winter-wet areas. Marri and <i>Melaleuca</i> woodland, <i>Melaleuca</i> shrubland.	2.5 km	No	Unlikely
DPaW NatureMap	-	P4	<i>Jacksonia sericea</i>	Calcareous and sandy soils	600m	Yes	Likely
DPaW	-	P4	<i>Schoenus griffinianus</i>	White sand	12.7	No	Unlikely

APPENDIX I

Flora Inventory

Family	Taxa	Indigenous name
Amaranthaceae	<i>Ptilotus drummondii</i>	
	<i>Ptilotus polystachyus</i>	
Anacardiaceae	* <i>Schinus terebinthifolius</i>	
Apiaceae	* <i>Eryngium pinnatifidum</i>	
Apocynaceae	* <i>Nerium oleander</i>	
Araliaceae	<i>Trachymene pilosa</i>	
Asteraceae	Asteraceae sp.	
Asparagaceae	<i>Chamaescilla corymbosa</i>	
	<i>Lomandra caespitosa</i>	
	<i>Lomandra hermaphrodita</i>	
	<i>Lomandra micrantha</i>	
	<i>Lomandra preissii</i>	
	<i>Sowerbaea laxiflora</i>	
	<i>Thysanotus manglesianus</i>	
	<i>Thysanotus dichotomus</i>	
	<i>Lagenophora huegelii</i>	
	<i>Podolepis</i> sp.	
	<i>Senecio</i> sp.	
	* <i>Arctotheca calendula</i>	
	* <i>Hypochaeris glabra</i>	
	* <i>Ursinia anthemoides</i>	
	<i>Olearia axillaris</i>	
	* <i>Conyza bonariensis</i>	
Caryophyllaceae	* <i>Cerastium glomeratum</i>	
	* <i>Polycarpon tetraphyllum</i>	
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Kwel
	<i>Allocasuarina humilis</i>	
Chenopodiaceae	<i>Rhagodia baccata</i> subsp. <i>baccata</i>	
Colchicaceae	<i>Burchardia congesta</i>	
Crassulaceae	<i>Crassula colorata</i> var. <i>acuminata</i>	
	* <i>Crassula thunbergiana</i>	
	<i>Baumea articulata</i>	
	* <i>Cyperus congestus</i>	
	* <i>Cyperus tenellus</i>	
	<i>Isolepis</i> sp.	
	<i>Lepidosperma leptostachyum</i>	
	<i>Lepidosperma longitudinale</i>	
	<i>Lepidosperma pubisquamatum</i>	
	<i>Lepidosperma</i> sp.	
	<i>Mesomelaena pseudostygia</i>	
Cyperaceae	<i>Schoenus curvifolius</i>	
	<i>Tetraria octandra</i>	
Dennstaedtiaceae	<i>Pteridium esculentum</i>	

Family	Taxa	Indigenous name
Dilleniaceae	<i>Hibbertia hibbertioides</i>	
	<i>Hibbertia hypericoides</i>	
	<i>Hibbertia racemosa</i>	
Droseraceae	<i>Drosera erythrogynne</i>	
	<i>Drosera macrantha</i>	
Ericaceae	<i>Conostephium pendulum</i>	
	<i>Leucopogon nutans</i>	
Euphorbiaceae	* <i>Ricinus communis</i>	
Fabaceae	<i>Acacia extensa</i>	
	<i>Acacia pulchella</i>	
	<i>Acacia rostellifera</i>	Koonart
	<i>Acacia saligna</i>	
	<i>Bossiaea eriocarpa</i>	
	<i>Daviesia angulata</i>	
	<i>Daviesia decurrents</i>	
	<i>Daviesia divaricata</i>	
	<i>Gastrolobium capitatum</i>	
	<i>Gompholobium tomentosum</i>	
	<i>Hardenbergia comptoniana</i>	
	<i>Hovea trisperma</i>	
	<i>Isotropis cuneifolia subsp. cuneifolia</i>	
	<i>Jacksonia furcellata</i>	
	<i>Jacksonia sternbergiana</i>	
	* <i>Lupinus</i> sp.	
	<i>Viminaria juncea</i>	
Geraniaceae	* <i>Pelargonium capitatum</i>	
Goodeniaceae	<i>Scaevola canescens</i>	
	<i>Scaevola repens</i>	
Haemodoraceae	<i>Conostylis aculeata</i>	
	<i>Conostylis bracteata</i> (P3)	
	<i>Haemodorum</i> sp.	
Hemerocallidaceae	<i>Dianella revoluta</i>	
	<i>Tricoryne tenella</i>	
Iridaceae	* <i>Ferraria crispa</i>	
	* <i>Freesia</i> sp.	
	* <i>Gladiolus caryophyllaceus</i>	
	* <i>Moraea flaccida</i>	
	<i>Orthrosanthus laxus</i>	
	* <i>Romulea rosea</i>	
Juncaceae	<i>Juncus pallidus</i>	

Family	Taxa	Indigenous name
	<i>Luzula meridionalis</i>	
Lamiaceae	<i>Hemiandra pungens</i>	
Meliaceae	* <i>Melia azedarach</i>	
Moraceae	<i>Ficus macrophylla</i>	
Myrtaceae	<i>Agonis flexuosa</i> (ne)	
	<i>Callistemon sp.</i> (ne)	
	<i>Calothamnus quadrifidus</i>	
	<i>Chamelaucium uncinatum</i>	
	<i>Corymbia calophylla</i>	
	<i>Eucalyptus accedens</i> (ne)	
	<i>Eucalyptus gomphocephala</i>	
	<i>Eucalyptus marginata</i>	Djarraly
	<i>Eucalyptus rudis</i>	
	<i>Hypocalymma robustum</i>	
	* <i>Leptospermum laevigatum</i>	
	<i>Melaleuca nesophila</i>	
	<i>Melaleuca rhaphiophylla</i>	Bibol/Yowarl
Oleaceae	* <i>Olea europaea</i>	
Orchidaceae	<i>Caladenia arenicola</i>	
	<i>Caladenia discoidea</i>	
	<i>Caladenia flava</i>	
	<i>Cyrtostylis huegelii</i>	
	<i>Elythranthera brunonis</i>	
	<i>Pterostylis pyramidalis</i>	
	<i>Pterostylis sp.</i>	
Oxalidaceae	* <i>Oxalis pes-caprae</i>	
Phyllanthaceae	<i>Phyllanthus calycinus</i>	
	<i>Phyllanthus calycinus</i>	
Pinaceae	* <i>Pinus pinaster</i>	
Poaceae	* <i>Aira caryophyllea</i>	
	* <i>Briza maxima</i>	
	* <i>Cynodon dactylon</i>	
	* <i>Ehrharta calycina</i>	
	* <i>Ehrharta longiflora</i>	
	* <i>Eragrostis curvula</i>	
	* <i>Cynodon dactylon</i>	
	<i>Microlaena stipoides</i>	
	* <i>Pennisetum clandestinum</i>	
	* <i>Poa annua</i>	Mindalong
Poaceae	* <i>Poaceae sp.</i>	
Primulaceae	<i>Lysimachia arvensis</i>	
Proteaceae	<i>Banksia attenuata</i>	Mandatj

Family	Taxa	Indigenous name
	<i>Banksia grandis</i>	Mandatj
	<i>Banksia ilicifolia</i>	
	<i>Banksia menziesii</i>	
	<i>Banksia prionotes</i>	
	<i>Grevillea vestita subsp. vestita</i>	
	<i>Hakea trifurcata</i>	
	<i>Hakea lissocarpha</i>	
	<i>Hakea prostrata</i>	
	<i>Petrophile linearis</i>	
	<i>Petrophile macrostachya</i>	
	<i>Alexgeorgea nitens</i>	
	<i>Desmocladus fasciculatus</i>	
	<i>Desmocladus flexuosus</i>	
Restionaceae	<i>Loxocarya cinerea</i>	
Rubiaceae	<i>Opercularia vaginata</i>	
Styliadiaceae	<i>Styliodium ? araeophyllum</i>	
	<i>Styliodium piliferum</i>	
Thymelaeaceae	<i>Pimelea sulphurea</i>	
Typhaceae	* <i>Typha orientalis</i>	
Violaceae	<i>Hybanthus calycinus</i>	
Xanthorrhoeaceae	<i>Xanthorrhoea gracilis</i>	Koaroop
	<i>Xanthorrhoea preissii</i>	
Zamiaceae	<i>Macrozamia riedlei</i>	

Note: (ne) = Non endemic species/planted

* = Weed species

APPENDIX J

Flora Survey Area Data Sheets

Opportunistic Species

Acacia rostellifera
Acacia saligna
Agonis flexuosa
Allocasuarina humilis
Banksia grandis
Caladenia arenicola
Callistemon sp.
Calothamnus quadrifidus
Chamelaucium uncinatum
Conostylis bracteata
Conyza bonariensis
Cynodon dactylon
Cyperus congestus
Cyrtostylis huegelii
Dianella revoluta
Drosera erythrorhiza
Elythranthera brunonis
Eragrostis curvula
Eucalyptus accedens
Eucalyptus gomphocephala
Eucalyptus rufa
Ficus macrophylla
Gladiolus caryophyllaceus
Grevillea vestita subsp. vestita
Hakea lissocarpha
Hakea prostrata
Hardenbergia comptoniana
Hovea trisperma
Hypocalymma robustum
Jacksonia furcellata
Jacksonia sternbergiana
Juncus pallidus
Leptospermum laevigatum
Lomandra preissii
Lupinus sp.
Melaleuca nesophila
Melaleuca raphiophylla
Moraea flaccida
Nerium oleander
Olea europaea
Olearia axillaris
Pennisetum clandestinum
Phyllanthus calycinus
Pinus pinaster
Pteridium esculentum
Ptilotus drummondii
Ricinus communis
Schinus terebinthifolius
Tetraria octandra
Thysanotus dichotomus

Site Q1

Described by NW
Date 6/09/2016
Type Q 10m x 10m
Location 150 m in from Cuvier Grove along the pipeline alignment
MGA Zone 50 385081mE 6488674mN
Habitat Gentle slope - Mid slope
Soil Brown/grey sand - yellow/orange at depth



Vegetation Woodland of *Eucalyptus marginata*, *Banksia attenuata*, *Banksia menziesii* over *Xanthorrhoea preissii*, *Hibbertia hypericoides*, *Hypocalymma robustum* over *Briza maxima*

Veg Condition VG - G

Fire Age >12

Notes Allocasuarina fraseriana just out of quadrat

Disturbance: Weeds

Ground Cover: 2% Bareground, 1.5% Logs, 4% Twigs, 7% Leaves

Name	Cover	Height
<i>Aira caryophyllea</i>	+	6
<i>Allocasuarina humilis</i>	1.5%	110
<i>Asteraceae sp.</i>	+	7
<i>Banksia attenuata</i>	4%	500
<i>Banksia menziesii</i>	5%	1000
<i>Briza maxima</i>	15%	5
<i>Burchardia congesta</i>	+	60
<i>Caladenia flava</i>	+	15
<i>Caladenia sp.</i>	+	15
<i>Chamaescilla corymbosa</i>	+	3
<i>Conostylis aculeata</i>	+	30
<i>Daviesia decurrents</i>	1	65
<i>Desmocladus fasciculatus</i>	+	6
<i>Desmocladus flexuosus</i>	+	10
<i>Dianella revoluta</i>	+	55
<i>Drosera erythrorhiza</i>	+	1
<i>Eryngium pinnatifidum</i>	+	50
<i>Eucalyptus marginata</i>	8%	600
<i>Freesia sp.</i>	+	15
<i>Gladiolus caryophyllaceus</i>	+	50
<i>Haemodorum sp.</i>	+	50
<i>Hardenbergia comptoniana</i>	+	C
<i>Hibbertia hypericoides</i>	20%	55
<i>Hibbertia racemosa</i>	+	40
<i>Hovea trisperma</i>	+	40
<i>Hypocalymma robustum</i>	1%	40
<i>Hypochaeris glabra</i>	6%	1

<i>Lagenophora huegelii</i>	+	10
<i>Lepidosperma sp.</i>	+	30
<i>Leucopogon nutans</i>	+	35
<i>Lomandra caespitosa</i>	+	35
<i>Mesomelaena pseudostygia</i>	+	50
<i>Microlaena stipoides</i>	+	5
<i>Opercularia vaginata</i>	+	25
<i>Pimelea sulphurea</i>	+	40
<i>Pterostylis pyramidalis</i>	+	6
<i>Sowerbaea laxiflora</i>	+	40
<i>Stylium ? araeophyllum</i>	+	7
<i>Thysanotus manglesianus</i>	+	T
<i>Trachymene pilosa</i>	+	3
<i>Ursinia anthemoides</i>	3%	15
<i>Xanthorrhoea preissii</i>	6%	150

Site Q2

Described by NW
Date 6/09/2016
Type Q 10 x 10m
MGA Zone 50 385025mE 6488884mN
Soil Grey yellow sand, organic matter at surface



Vegetation Low woodland of *Banksia menziesii*, *Banksia attenuata* and *Allocasuarina fraseriana* over *Xanthorrhoea preissii*, *Hibbertia hypericoides* over *Briza maxima*

Veg Condition VG - G

Fire Age >12

Disturbance: Weeds

Ground Cover: 1% Bareground, 2% Logs, 4% Twigs, 15% Leaves

Name	Cover	Height
<i>Allocasuarina fraseriana</i>	40	800
<i>Arctotheca calendula</i>	+	15
<i>Asteraceae sp.</i>	+	8
<i>Banksia attenuata</i>	1.5	400
<i>Banksia menziesii</i>	20	700
<i>Bossiaea eriocarpa</i>	1	40
<i>Briza maxima</i>	10	10
<i>Caladenia flava</i>	+	10
<i>Conostylis aculeata</i>	+	30
<i>Daviesia divaricata</i>	+	45
<i>Desmocladus flexuosus</i>	+	15
<i>Dianella revoluta</i>	+	40
<i>Drosera erythrorhiza</i>	+	10
<i>Gladiolus caryophyllaceus</i>	+	35
<i>Gompholobium tomentosum</i>	+	20
<i>Haemodorum sp.</i>	+	110
<i>Hemiandra pungens</i>	1	15
<i>Hibbertia hypericoides</i>	5	10
<i>Hybanthus calycinus</i>	+	20
<i>Hypocalymma robustum</i>	1	55
<i>Hypochaeris glabra</i>	2	1
<i>Isotropis cuneifolia</i> subsp. <i>cuneifolia</i>	+	35
<i>Lagenophora huegelii</i>	+	3
<i>Lepidosperma leptostachyum</i>	+	30
<i>Lepidosperma sp.</i>	+	35
<i>Lomandra hermaphrodita</i>	+	65
<i>Mesomelaena pseudostygia</i>	1	40

<i>Opercularia vaginata</i>	+	45
<i>Pimelea sulphurea</i>	+	40
<i>Schoenus curvifolius</i>	+	30
<i>Sowerbaea laxiflora</i>	+	50
<i>Trachymene pilosa</i>	+	2
<i>Tricoryne tenella</i>	+	35
<i>Ursinia anthemoides</i>	+	25
<i>Xanthorrhoea preissii</i>	25	80

Site Q3

Described by NW

Date 6/09/2016

Type Q 10 x 10 m

MGA Zone 50 384925 mE 6488739 mN

Habitat Gentle slope down towards lake

Soil Brown grey loamy sand



Vegetation Low open woodland of *Banksia attenuata*, *Banksia menziesii*, *Banksia ilicifolia* over *Xanthorrhoea preissii*, *Hibbertia hypericoides* over *Briza maxima*

Veg Condition G

Fire Age >12

Notes Some Banksia death

Disturbance: Weeds

Ground Cover: 2% Bareground, 2% Logs, 4% Twigs, 15% Leaves

Name	Cover	Height
<i>Acacia pulchella</i>	1	130
<i>Aira caryophyllea</i>	+	5
<i>Asteraceae sp.</i>	+	5
<i>Banksia attenuata</i>	5	400
<i>Banksia ilicifolia</i>	3	500
<i>Banksia menziesii</i>	5	400
<i>Bossiaea eriocarpa</i>	+	40
<i>Briza maxima</i>	35	15
<i>Burchardia congesta</i>	+	50
<i>Caladenia flava</i>	+	+
<i>Cerastium glomeratum</i>	+	10
<i>Cyperus tenellus</i>	+	4
<i>Daviesia divaricata</i>	+	20
<i>Desmocladus flexuosus</i>	1	15
<i>Dianella revoluta</i>	+	50
<i>Drosera erythrorhiza</i>	+	1
<i>Drosera macrantha</i>	+	15
<i>Ehrharta calycina</i>	+	80
<i>Gladiolus caryophyllaceus</i>	+	60
<i>Gompholobium tomentosum</i>	1	130
<i>Grevillea vestita</i> subsp. <i>vestita</i>	2	120
<i>Haemodorum sp.</i>	+	80
<i>Hibbertia hypericoides</i>	25	65
<i>Hybanthus calycinus</i>	+	20
<i>Hypocalymma robustum</i>	3.5	60
<i>Hypochaeris glabra</i>	1.5	1
<i>Jacksonia sternbergiana</i>	1.5	450
<i>Lagenophora huegelii</i>	+	2

<i>Lomandra caespitosa</i>	+	30
<i>Macrozamia riedlei</i>	1	160
<i>Mesomelaena pseudostygia</i>	1.5	70
<i>Petrophile linearis</i>	+	40
<i>Pterostylis pyramidalis</i>	+	10
<i>Thysanotus manglesianus</i>	+	+
<i>Trachymene pilosa</i>	+	2
<i>Ursinia anthemoides</i>	1	25
<i>Xanthorrhoea preissii</i>	7	120

Site Q4

Described by NW
Date 6/09/2016
Type Q 10m x 10m
Location Close to footpath (5m), and 10m from old building pad
MGA Zone 50 384866mE 6489097mN
Habitat Gentle slope towards lake, lower slope
Soil Grey sand



Vegetation Open woodland of *Banksia menziesii*, *Banksia attenuata* over *Jacksonia furcellata*, *Hibbertia hypericoides*, over *Loxocarya cinerea*

Veg Condition G - D

Fire Age >12

Disturbance: Weeds

Ground Cover: 5% Bareground, 0% Logs, 4% Twigs, 20% Leaves

Name	Cover	Height
<i>Acacia pulchella</i>	1	60
<i>Banksia attenuata</i>	25	1000
<i>Banksia menziesii</i>	40	1000
<i>Briza maxima</i>	8	20
<i>Burchardia congesta</i>	+	50
<i>Caladenia flava</i>	+	15
<i>Conostylis aculeata</i>	+	25
<i>Dianella revoluta</i>	+	40
<i>Drosera erythrogynne</i>	3	1
<i>Ehrharta longiflora</i>	+	20
<i>Ferraria crispa</i>	2	25
<i>Gladiolus caryophyllaceus</i>	+	40
<i>Hibbertia hypericoides</i>	3	50
<i>Hovea trisperma</i>	+	25
<i>Hypochaeris glabra</i>	+	10
<i>Jacksonia furcellata</i>	1.5	250
<i>Lepidosperma pubisquamum</i>	1.5	40
<i>Lomandra caespitosa</i>	2	30
<i>Lomandra hermaphrodita</i>	+	20
<i>Loxocarya cinerea</i>	8	20
<i>Mesomelaena pseudostygia</i>	+	60
<i>Gastrolobium capitatum</i>	+	30
<i>Pelargonium capitatum</i>	3	25
<i>Petrophile linearis</i>	+	25
<i>Phyllanthus calycinus</i>	1	50
<i>Poaceae sp.</i>	6	30
<i>Romulea rosea</i>	1	20
<i>Ursinia anthemoides</i>	+	20

Site Q5

Described by NW

Date 6/09/2016

Type Q 10m x 10m

Location South of Pines

MGA Zone 50 385174mE 6488870 m

Habitat Flat - Plain/flat

Soil Grey sand, yellow at depth



Vegetation Woodland of *Eucalyptus marginata*, *Banksia attenuata*, *Allocasuarina fraseriana* over *Xanthorrhoea preissii*, *Hibbertia hypericoides* and *Mesomelaena pseudostygia*

Veg Condition VG

Fire Age >12

Disturbance: Weeds

Ground Cover: 3% Bareground, 0% Logs, 5% Twigs, 15% Leaves

Name	Cover	Height
<i>Acacia pulchella</i>	+	35
<i>Alexgeorgea nitens</i>	+	6
<i>Allocasuarina fraseriana</i>	7	600
<i>Banksia attenuata</i>	4	600
<i>Bossiaea eriocarpa</i>	+	30
<i>Briza maxima</i>	3	15
<i>Caladenia flava</i>	+	20
<i>Cyperus tenellus</i>	+	3
<i>Daviesia divaricata</i>	+	40
<i>Desmocladus flexuosus</i>	1	15
<i>Drosera erythrorhiza</i>	2	1
<i>Drosera macrantha</i>	+	15
<i>Ehrharta calycina</i>	+	45
<i>Eryngium pinnatifidum</i>	1	15
<i>Eucalyptus marginata</i>	15	1300
<i>Freesia</i> sp.	+	20
<i>Haemodorum</i> sp.	+	65
<i>Hibbertia hypericoides</i>	15	55
<i>Hybanthus calycinus</i>	+	20
<i>Hypocalymma robustum</i>	1	60
<i>Hypochaeris glabra</i>	5	1
<i>Lagenophora huegelii</i>	+	10
<i>Leucopogon nutans</i>	+	20
<i>Luzula meridionalis</i>	+	20
<i>Mesomelaena pseudostygia</i>	1	60
<i>Opercularia vaginata</i>		
<i>Pimelea sulphurea</i>	+	30
<i>Podolepis</i> sp.	+	10
<i>Romulea rosea</i>	+	15

<i>Sowerbaea laxiflora</i>	+	45
<i>Trachymene pilosa</i>	+	3
<i>Ursinia anthemoides</i>	+	20
<i>Xanthorrhoea preissii</i>	8	120

Site Q6

Described by NW

Date 6/09/2016

Type Q 10 x 10 m

Location East of track

MGA Zone 50 385244mE 6488709mN

Habitat Flat/Very gentle slope (Plain/Flat)

Soil Grey sand - some organic matter



Vegetation Woodland of *Banksia menziesii*, *Banksia attenuata*, *Allocasuarina fraseriana* and *Eucalyptus marginata* over *Xanthorrhoea preissii*, *Hibbertia hypericoides* over *Briza maxima*

Veg Condition VG - G

Fire Age >12

Disturbance: Weeds

Ground Cover: 0% Bareground, 0% Logs, 3% Twigs, 35% Leaves

Name	Cover	Height
<i>Acacia pulchella</i>	1	130
<i>Allocasuarina fraseriana</i>	12	1000
<i>Banksia attenuata</i>	10	800
<i>Banksia menziesii</i>	20	1000
<i>Briza maxima</i>	10	15
<i>Burchardia congesta</i>	+	60
<i>Caladenia flava</i>	+	15
<i>Desmocladus flexuosus</i>	+	10
<i>Dianella revoluta</i>	+	40
<i>Drosera erythrorhiza</i>	+	1
<i>Eryngium pinnatifidum</i>	+	35
<i>Eucalyptus marginata</i>	15	900
<i>Gladiolus caryophyllaceus</i>	+	40
<i>Gompholobium tomentosum</i>	+	30
<i>Haemodorum sp.</i>	+	80
<i>Hibbertia hypericoides</i>	15	900
<i>Hypochaeris glabra</i>	6	1
<i>Isolepis sp.</i>	+	20
<i>Lagenophora huegelii</i>	+	5
<i>Lepidosperma leptostachyum</i>	+	60
<i>Lomandra hermaphrodita</i>	+	15
<i>Lomandra micrantha</i>	+	40
<i>Mesomelaena pseudostygia</i>	2	60
<i>Opercularia vaginata</i>	+	25
<i>Pterostylis pyramidalis</i>	+	10
<i>Schoenus curvifolius</i>	+	30
<i>Sowerbaea laxiflora</i>	+	40
<i>Trachymene pilosa</i>	+	2
<i>Xanthorrhoea preissii</i>	7	110

Site Q7

Described by NW

Date 6/09/2016

Type Q 10m x 10m

MGA Zone 50 384081 mE 6499037 mN

Habitat Gentle slope (Lower Slope)

Soil Grey brown sand



Vegetation Open woodland of *Banksia menziesii*, *Banksia attenuata*, *Eucalyptus marginata* over *Xanthorrhoea preissii*, *Hibertia hypericoides*

Veg Condition D

Fire Age >12

Disturbance: Weeds

Ground Cover: 1% Bareground, 0% Logs, 2% Twigs, 15% Leaves

Name	Cover	Height
<i>Banksia attenuata</i>	30	1000
<i>Banksia menziesii</i>	20	300
<i>Briza maxima</i>	60	10
<i>Desmocladus flexuosus</i>	3	10
<i>Drosera erythrorhiza</i>	1	1
<i>Ehrharta longiflora</i>	+	15
<i>Haemodorum sp.</i>	+	60
<i>Hardenbergia comptoniana</i>	10	20
<i>Hibbertia hypericoides</i>	2	150
<i>Hypochaeris glabra</i>	2	1
<i>Lysimachia arvensis</i>	+	5
<i>Mesomelaena pseudostygia</i>	1	20
<i>Olea europaea</i>	+	100
<i>Orthrosanthus laxus</i>	2	50
<i>Pimelea sulphurea</i>	2	50
<i>Poaceae sp.</i>	1	20
<i>Ptilotus polystachyus</i>	+	20
<i>Romulea rosea</i>	+	15
<i>Tetraria octandra</i>	1	45
<i>Trachymene pilosa</i>	+	3
<i>Ursinia anthemoides</i>	+	15
<i>Xanthorrhoea gracilis</i>	1	70
<i>Xanthorrhoea preissii</i>	10	1100

Site Q8

Described by NW

Date 6/09/2016
Type Q 10m x 10m
Location Off Wanneroo Road
MGA Zone 50 384065mE 6490954mN
Habitat Flat/gentle slope (Plain/Flat)
Soil Loamy sand



Vegetation Woodland of *Allocasuarina fraseriana*, *Banksia menziesii*, *Banksia attenuata* over *Hibbertia hypericoides*

Veg Condition VG

Fire Age >12

Disturbance: Weeds

Ground Cover: 2% Bareground, 3% Logs, 4% Twigs, 25% Leaves

Name	Cover	Height
<i>Allocasuarina fraseriana</i>	12	800
<i>Banksia attenuata</i>	1.5	400
<i>Briza maxima</i>	6	10
<i>Desmocladus fasciculatus</i>	+	5
<i>Desmocladus flexuosus</i>	+	5
<i>Ehrharta longiflora</i>	3	25
<i>Hibbertia hypericoides</i>	30	55
<i>Hybanthus calycinus</i>	+	15
<i>Hypocalymma robustum</i>	1	40
<i>Lomandra caespitosa</i>	+	30
<i>Moraea flaccida</i>	1.5	60
<i>Romulea rosea</i>	1	15
<i>Scaevola canescens</i>	1	15
<i>Senecio</i> sp.	1.5	10
<i>Sowerbaea laxiflora</i>	+	50
<i>Tetraria octandra</i>	1	30
<i>Ursinia anthemoides</i>	+	15

Site R1

Described by NW

Date 17/05/2016

Type R 10x10

MGA Zone 50 385165mE 6488604 mN

Soil grey sand



Vegetation Woodland of *Corymbia calophylla*, *Eucalyptus marginata*, *Allocasuarina fraseriana*, *Banksia menziesii*, *Banksia attenuata* over mixed shrubs.

Veg Condition G-VG

Fire Age 4-8

Name	Cover	Height
<i>Acacia pulchella</i>	4	80
<i>Allocasuarina fraseriana</i>	5	700
<i>Banksia attenuata</i>	5	500
<i>Banksia menziesii</i>	7	400
<i>Briza maxima</i>	4	30
<i>Corymbia calophylla</i>	15	1000
<i>Desmocladus flexuosus</i>	7	15
<i>Eucalyptus marginata</i>	10	1000
<i>Hibbertia hypericoides</i>	10	60
<i>Hibbertia racemosa</i>	+	40
<i>Hovea trisperma</i>	+	25
<i>Hypochaeris glabra</i>	3	1
<i>Lagenifera huegelii</i>	+	3
<i>Macrozamia riedlei</i>	7	230
<i>Mesomelaena pseudostygia</i>	2	70
<i>Phyllanthus calycinus</i>	+	40
<i>Pterostylis</i> sp.	+	20
<i>Xanthorrhoea preissii</i>	7	30

Site R2**Described by NW****Date** 17/05/2016**Type** R 10x10**MGA Zone** 50 385087mE 6488713 mN**Soil** Brown/grey sand with some organic matter

Vegetation Woodland of *Banksia menziesii*, *Banksia attenuata*, *Corymbia calophylla*, *Eucalyptus marginata* over *Macrozamia riedlei*, *Xanthorrhoea preissii*, *Mesomelaena pseudostygia* and *Hibbertia hypericoides*

Veg Condition VG**Fire Age** 4-8

Name	Cover	Height
<i>Acacia extensa</i>	+	50
<i>Banksia attenuata</i>	5	500
<i>Banksia menziesii</i>	20	550
<i>Conostephium pendulum</i>	1	45
<i>Corymbia calophylla</i>	8	1000
<i>Daviesia angulata</i>	1	60
<i>Drosera erythrorhiza</i>	+	1
<i>Eucalyptus marginata</i>	6	800
<i>Hibbertia hypericoides</i>	10	40
<i>Hibbertia racemosa</i>	+	35
<i>Jacksonia sternbergiana</i>	1	170
<i>Macrozamia riedlei</i>	5	200
<i>Mesomelaena pseudostygia</i>	15	70
<i>Petrophile macrostachya</i>	1.5	60
<i>Stylidium piliferum</i>	+	2
<i>Ursinia anthemoides</i>	3	15
<i>Xanthorrhoea preissii</i>	20	140

Site R3

Described by NW

Date 17/05/2016

Type R 10x10

MGA Zone 50 384987mE 6488869mN

Soil Sand- yellow at depth



Vegetation Low woodland of *Banksia attenuata*, *Banksia menziesii*, *Eucalyptus marginata* over *Xanthorrhoea preissii*, *Hibbertia hypericoides* and *Mesomelaena pseudostygia*

Veg Condition G-VG

Fire Age 4-8

Name	Cover	Height
<i>Banksia attenuata</i>	15	600
<i>Banksia menziesii</i>	3	500
<i>Bossiaea eriocarpa</i>	1	35
<i>Conostylis aculeata</i>	+	20
<i>Desmocladus flexuosus</i>	5	15
<i>Eucalyptus marginata</i>	15	800
<i>Gladiolus caryophyllaceus</i>	+	20
<i>Hibbertia hypericoides</i>	15	40
<i>Hibbertia racemosa</i>	1	45
<i>Hypochaeris glabra</i>	5	1
<i>Jacksonia furcellata</i>	2	250
<i>Lagenifera huegelii</i>	+	1
<i>Mesomelaena pseudostygia</i>	6	40
<i>Poa annua</i>	6	5
<i>Ursinia anthemoides</i>	3	10
<i>Xanthorrhoea preissii</i>	10	150

Site R4

Described by NW

Date 17/06/2016

Type R 10x10

MGA Zone 50 384867mE 6489009 mN

Habitat gentle slope down to the lake

Soil Sand



Vegetation Woodland of *Banksia attenuata*, *Banksia menziesii*, *Eucalyptus marginata* and *Corymbia calophylla* over *Hibbertia hypericoides*, *Xanthorrhoea preissii* and *Mesomelaena pseudostygia*

Veg Condition G

Fire Age 4-8

Name	Cover	Height
<i>Allocasuarina fraseriana</i>	3	1200
<i>Banksia attenuata</i>	10	600
<i>Banksia menziesii</i>	8	500
<i>Corymbia calophylla</i>	10	1600
<i>Desmocladus flexuosus</i>	6	10
<i>Dianella revoluta</i>	+	50
<i>Eucalyptus marginata</i>	6	1200
<i>Hibbertia hibbertioides</i>	8	40
<i>Hypochaeris glabra</i>	6	1
<i>Jacksonia furcellata</i>	+	130
<i>Leucopogon nutans</i>	+	35
<i>Macrozamia riedlei</i>	1	50
<i>Mesomelaena pseudostygia</i>	4	45
<i>Nemcia capitata</i>	2	60
<i>Phyllanthus calycinus</i>	+	50
<i>Poa annua</i>	10	10
<i>Ursinia anthemoides</i>	5	15
<i>Xanthorrhoea preissii</i>	6	170

Site R5**Described by NW****Date** 17/05/2016**Type** R 10x10**MGA Zone** 50 384107 mE 6490908 mN**Habitat** very gentle slope towards lake**Soil** Sand**Vegetation** Low Open Woodland of *Allocasuarina fraseriana*, *Banksia attenuata*, *Banksia menziesii* and *Banksia prionotes* over *Jacksonia sternbergiana* and *Hibbertia hypericoides***Veg Condition** D-G**Fire Age** 8-12

Name	Cover	Height
<i>Allocasuarina fraseriana</i>	6	800
<i>Banksia attenuata</i>	3	500
<i>Banksia menziesii</i>	5	500
<i>Banksia prionotes</i>	3	900
<i>Hibbertia hypericoides</i>	10	45
<i>Jacksonia sternbergiana</i>	6	350
<i>Scaevola repens</i>	+	6

Site R6

Described by NW

Date 18/06/2016

Type R 10x10

MGA Zone 50 386744 mE 6484406 mN

Soil grey brown sand



Vegetation Low Woodland of *Eucalyptus marginata*, *Allocasuarina fraseriana*, *Banksia attenuata*, *Banksia prionotes* over *Xanthorrhoea preissii*, *Macrozamia riedlei* and *Hibbertia hypercoides*

Veg Condition D

Fire Age 8-12

Name	Cover	Height
<i>Allocasuarina fraseriana</i>	8	700
<i>Banksia attenuata</i>	4	600
<i>Banksia prionotes</i>	6	600
<i>Briza maxima</i>	2	30
<i>Burchardia congesta</i>	+	45
<i>Desmocladus flexuosus</i>	1	15
<i>Ehrharta calycina</i>	80	50
<i>Eucalyptus marginata</i>	10	800
<i>Gompholobium tomentosum</i>	+	30
<i>Haemodorum</i> sp.	+	70
<i>Hibbertia hypericoides</i>	2	45
<i>Lepidosperma leptostachyum</i>	+	50
<i>Lomandra preissii</i>	+	40
<i>Macrozamia riedlei</i>	2	160
<i>Oxalis pes-caprae</i>	2	25
<i>Pelargonium capitatum</i>	1	30
<i>Ursinia anthemoides</i>	+	15
<i>Xanthorrhoea preissii</i>	4	120

Site R7

Described by NW

Date 6/09/2016

Type R 10m x 10m

Location On lakes edge

MGA Zone 50 384850mE 6488700mN

Habitat Edge of water

Soil Loam



Vegetation Woodland of *Melaleuca rhaphiophylla* and *Eucalyptus rufa* over sedges of *Baumea articulata* and *Lepidosperma longitudinale*

Veg Condition E - VG

Fire Age >12

Disturbance: Weeds

Ground Cover: 0% Bareground, 1% Logs, 2% Twigs, 1% Leaves

Name	Cover	Height
<i>Baumea articulata</i>	20	200
<i>Eucalyptus rufa</i>	10	800
<i>Lepidosperma longitudinale</i>	20	110
<i>Melaleuca rhaphiophylla</i>	15	700
<i>Rhagodia baccata</i> subsp. <i>baccata</i>	3	70
<i>Viminaria juncea</i>	1.5	170

Site R8

Described by NW

Date 6/09/2016

Type R 10m x 10m

Location Along fence line of wetland

MGA Zone 50 384182mE 6490506mN

Habitat Flat

Soil Yellow grey sand



Vegetation Tall shrubland of *Acacia saligna* and *Acacia rostellifera* over *Rhagodia bacata* subsp. *bacata*

Veg Condition D - CD

Fire Age >12

Ground Cover: 2% Bareground, 0% Logs, 2% Twigs, 80% Leaves

Name	Cover	Height
<i>Acacia rostellifera</i>	40	400
<i>Acacia saligna</i>	40	400
<i>Crassula colorata</i> var. <i>acuminata</i>	+	3
<i>Crassula thunbergiana</i>	+	2
<i>Hakea trifurcata</i>	+	50
<i>Opercularia vaginata</i>	+	4
<i>Polycarpon tetraphyllum</i>	+	1
<i>Rhagodia baccata</i> subsp. <i>baccata</i>	3	50

APPENDIX K

Fauna Species List

AMPHIBIAN SPECIES RECORDED IN THE REGION

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D= Current Survey;

Note: For Definitions of Conservation Codes see Appendix A.

Scientific Name	Common Name	Conservation Codes					
		EPBC	WC	DPaW	A	B	C
CHELONIIDAE							
<i>Caretta caretta</i>	Loggerhead Turtle	En	S2		X		
CHELUIDAE							
<i>Chelodina colliei</i>	Oblong Turtle				X		
LIMNODYNASTIDAE							
<i>Heleioporus eyrei</i>	Moaning Frog				X		
<i>Limnodynastes dorsalis</i>	Western Banjo Frog				X		
	Frog in Noongar: Kweeyar						
MYOBATRACHIDAE							
<i>Crinia insignifera</i>	Squelching Froglet				X		
<i>Myobatrachus gouldii</i>	Turtle Frog				X		
<i>Pseudophryne guentheri</i>	Crawling Toadlet				X		
HYLIDAE							
<i>Litoria adelaidensis</i>	Slender Tree Frog				X		
<i>Litoria moorei</i>	Motorbike Frog				X		

REPTILIAN SPECIES RECORDED IN THE REGION

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C = EPBC Protected Matters search, D= Current Survey:

Note: For Definitions of Conservation Codes see Appendix A.

Scientific Name	Common Name	Conservation Codes					
		EPBC	WC	DPaW	A	B	C
DIPLODACTYLIDAE							
<i>Crenadactylus ocellatus</i>	Clawless Gecko				X		
<i>Diplodactylus granariensis</i>	Wheat-belt Stone Gecko				X		
<i>Diplodactylus polyophthalmus</i>	Speckled Stone Gecko				X		
<i>Strophurus spinigerus inornatus</i>	South-western Spint-tailed Gecko				X		
<i>Strophurus spinigerus spinigerus</i>	South-western Spint-tailed Gecko				X		
PYGOPODIDAE							
<i>Aprasia rapens</i>	Sand-plain Worm-lizard				X		
<i>Delma grayii</i>	Side-barred Delma				X		
<i>Lialis burtonis</i>	Burtons Snake Lizard				X		
<i>Pletholax gracillis gracillis</i>	Keeled Legless Lizard				X		
<i>Pygopus lepidopodus</i>	Common Scaly Foot				X		
GEKKONIDAE							
<i>Christinus marmoratus</i>	Marbled Gecko				X		
<i>Underwoodisaurus milii</i>	Barking Gecko				X		
SCINCIDAE							
<i>Acritoscincus trilineatus</i>	Western Three-lined Skink				X		
<i>Cryptoblepharus buchananii</i>	Buchanans Snake-eyed Skink				X		
<i>Cryptoblepharus plagicephalus</i>	Perons Snake-eyed Skink				X		
<i>Ctenotus australis</i>	Western Limestone Ctenotus				X		
<i>Ctenotus fallens</i>	West-coast Laterite Ctenotus				X		
<i>Ctenotus impar</i>	Odd-striped Ctenotus				X		
<i>Cyclodomorphus celatus</i>	Western Slender Blue-tongue				X		
<i>Egernia napoleonis</i>	South-western Crevice Skink				X		
<i>Hemiergis quadrilineata</i>	Two-toed Earless Skink				X		
<i>Lerista elegans</i>	Elegant Slider				X		

Scientific Name	Common Name	Conservation Codes					
		EPBC	WC	DPaW	A	B	C
<i>Lerista lineopunctulata</i>	Dotted-line Robust Slider				X		
<i>Lerista praepedita</i>	Blunt-tailed West-coast Slider				X		
<i>Menetia greyii</i>	Common Dwarf Skink				X		
<i>Morethia obscura</i>	Shrubland Morethia Skink				X		
<i>Tiliqua occipitalis</i>	Western Bluetongue				X		
<i>Tiliqua rugosa</i>	Shingleback (Noongar: Yoorn)				X		
AGAMIDAE							
<i>Ctenophorus adelaiedensis</i>	Southern Heath Dragon				X		
<i>Pogona minor</i>	Dwarf Bearded Dragon				X		
VARANIDAE							
	Goanna in Noongar: Karda						
<i>Varanus gouldii</i>	Sand Monitor				X		
<i>Varanus tristis</i>	Racehorse Monitor				X		
BOIDAE							
<i>Morelia spilota imbricata</i>	Carpet Python				X		
ELAPIDAE							
<i>Brachyurophis semifasciatus</i>	Southern Shovel-nosed Snake				X		
<i>Demansia psammophis reticulata</i>	Yellow-faced Whipsnake				X		
<i>Echiopsis curta</i>	Barcick				X		
<i>Elapognathus coronatus</i>	Crowned Snake				X		
<i>Neelaps Bimaculatus</i>	Black-naped Snake				X		
<i>Neelaps calonotos</i>	Black-striped Snake			P3	X		
<i>Notechis scutatus</i>	Tiger Snake				X		
<i>Parasuta gouldii</i>	Gouds Snake				X		
<i>Parasuta nigriceps</i>	Black-backed Snake				X		
<i>Pseudonaja affinis affinis</i>	Dugite (Noongar: Dobitj)				X		
<i>Simoselaps bertholdi</i>	Jan's Banded Snake				X		

AVIAN (Birds in Noongar: Djert) SPECIES RECORDED IN THE REGION

Key: EPBC = Environmental Protection and Biodiversity Conservation Act 1999, WC = Wildlife Conservation Act 1950, DPaW = Department of Parks and Wildlife Priority Code, A = Listed in Naturemap, B= DPaW Threatened and Priority fauna search, C= EPBC Protected Matters search, D= Current Survey

Note: For Definitions of Conservation Codes see Appendix A.

Scientific Name	Common Name	Conservation Codes					
		EPBC	WC	DPaW	A	B	C
CASUARIIDAE							
<i>Dromaius novaehollandia</i>	Emu (Noongar: Weitj)						X
MEGAPODIIDAE							
<i>Leipoa ocellata</i>	Malleefowl	Vu	S1				X
PHASIANIDAE							
<i>Coturnix ypsilophora</i>	Brown Quail				X		
ANATIDAE							
<i>Anas castanea</i>	Chestnut Teal				X		
<i>Anas gracillis</i>	Grey Teal				X		
<i>Anas platyrhynchos</i>	Mallard				X		X
<i>Anas rhynchos</i>	Australian Shoveler				X		
<i>Anas superciliosa</i>	Pacific Black Duck				X		
<i>Anser anser</i>	Greylag Goose				X		
<i>Aythya australis</i>	Hardhead				X		
<i>Biziura lobata</i>	Musk Duck				X		
<i>Cairina moschata</i>	Muscovy duck				X		
<i>Chenonetta jubata</i>	Australian Wood Duck				X		
<i>Cygnus atratus</i>	Black Swan				X		
<i>Dendrocygna eytoni</i>	Plumed whistling Duck				X		
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck				X		
<i>Oxyura australis</i>	Blue-billed Duck			P4	X		
<i>Stictonetta naevosa</i>	Freckled Duck				X		
<i>Tadorna tadornoides</i>	Australian Shelduck				X		
PODICIPEDIDAE							
<i>Poliocephalus poliocephalus</i>	Hoary-headed Greb				X		
<i>Podiceps cristatus</i>	Great Crested Grebe				X		
<i>Tachybaptus novaehollandiae</i>	Australian Grebe				X		
ANHINGIDAE							
<i>Anhinga melanogaster</i>	Oriental Darter				X		

Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
<i>Anhinga novaehollandiae</i>	Australasian Darter				X			
PHALACROCORACIDAE								
<i>Microcarbo melanoleucus</i>	Little Pied Cormorant				X			
<i>Phalacrocorax carbo</i>	Great Cormorant				X			
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant				X			
<i>Phalacrocorax varius</i>	Pied Cormorant				X			
PELECANIDAE								
<i>Pelecanus conspicillatus</i>	Australian Pelican				X			
ARDEIDAE								
<i>Ardea garzetta</i>	Little Egret				X			
<i>Ardea ibis</i>	Cattle Egret	MiMa			X	X	X	
<i>Ardea modesta</i>	Great Egret	MiMa			X	X	X	
<i>Ardea novaehollandiae</i>	White-faced Heron				X			
<i>Ardea pacifica</i>	White-necked Heron				X			
<i>Botaurus poiciloptilus</i>	Australasian Bittern	En	S2		X			
<i>Ixobrychus dubius</i>	Black Backed Bittern				X			
<i>Ixobrychus flavicollis australis</i>	Black Bittern (southwest pop)			P1	X	X		
<i>Ixobrychus minutus</i>	Little Bittern			P4	X	X		
<i>Nycticorax caledonicus</i>	Rufous Night Heron				X			
RECURVIROSTRIDAE								
<i>Cladorhynchus leucocephalus</i>	Banded Stilt				X			
<i>Himantopus himantopus</i>	Black-winged Stilt	Ma			X		X	
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet	Ma			X		X	
CHARADRIIDAE								
<i>Charadrius leschenaultii</i>	Greater Sand Plover	MiMa			X	X		
<i>Charadrius ruficapillus</i>	Red-capped Plover				X			
<i>Elseyornis melanops</i>	Black-fronted Dotterel				X			
<i>Erythrogonys cinctus</i>	Red-kneed Dotterel				X			
<i>Thinornis rubricollis</i>	Hooded Plover	Ma	P4				X	
ROSTRATULIDAE								
<i>Rostratula australis</i>	Australian Painted Snipe	En, MiMa					X	
SCOLOPACIDAE								
<i>Actitis hypoleucus</i>	Common Sandpiper	MiMa			X			
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	MiMa			X		X	
<i>Calidris ferruginea</i>	Curlew Sandpiper	MiMa			X	X		
<i>Calidris melanotos</i>	Pectoral Sandpiper	MiMa			X			
<i>Calidris ruficollis</i>	Red-necked Stint	MiMa	S3		X	X	X	
<i>Calidris subminuta</i>	Long-toed Stint	MiMa			X			
<i>Limosa limosa</i>	Black-tailed Godwit	MiMa			X	X		
<i>Tringa glareola</i>	Wood Sandpiper	MiMa			X			
<i>Tringa nebularia</i>	Common Greenshank	MiMa	S3		X	X	X	

Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
COLUMBIDAE								
<i>Columba livia</i>	Domestic Pigeon				X		X	
<i>Ocyphaps lophotes</i>	Crested Pigeon				X			
<i>Phaps chalcoptera</i>	Common Bronzewing				X			
<i>Streptopelia chinensis</i>	Spotted Turtle-Dove				X		X	
<i>Streptopelia senegalensis senegalensis</i>	Laughing Dove				X		X	
PODARGIDAE								
<i>Podargus strigoides</i>	Tawny Frogmouth				X			
APODIDAE								
<i>Apus pacificus</i>	Fork-tailed Swift	MiMa			X	X	X	
PROCELLARIIDAE								
<i>Macronectes giganteus</i>	Southern Giant-Petrel				X			
<i>Pachyptila desolata</i>	Antarctic Prion				X			
THRESKIORNITHIDAE								
<i>Plegadis falcinellus</i>	Glossy Ibis	MiMa	S5		X	X		
<i>Platalea regia</i>	Royal Spoonbill				X			
<i>Plegadis flavipes</i>	Yellow-billed Spoonbill				X			
<i>Threskiornis molucca</i>	Australian White Ibis				X			
<i>Threskiornis spinicollis</i>	Straw-necked Ibis				X			
ACCIPITRIDAE								
<i>Accipiter cirrocephalus cirrocephalus</i>	Collared Sparrowhawk				X			
<i>Accipiter fasciatus didimus</i>	Brown Goshawk				X			
<i>Aquila audax</i>	Wedge-tailed Eagle				X			
	Eagle in Noongar: Warlitj							
<i>Aquila morphnoides</i>	Little Eagle				X			
<i>Circus approximas</i>	Swamp harrier				X			
<i>Elanus axillaris</i>	Black Shouldered Kite				X			
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle	Ma			X		X	
<i>Haliastur sphenurus</i>	Whistling Kite				X			
<i>Lophoictinia isura</i>	Square-tailed Kite				X			
<i>Pandion haliaetus</i>	Osprey	MiMa			X		X	
FALCONIDAE								
<i>Falco berigora</i>	Brown Falcon				X			
<i>Falco cenchroides</i>	Australian Kestrel				X			
<i>Falco longipennis</i>	Australian Hobby				X			
<i>Falco peregrinus</i>	Peregrine Falcon	S7			X	X		
RALLIDAE								
<i>Fulica atra</i>	Eurasian Coot				X			
<i>Gallinula tenebrosa</i>	Dusky Moorhen				X			
<i>Gallirallus philippensis</i>	Buff-banded Rail				X			
<i>Porphyrio porphyrio bellus</i>	Purple Swamphen				X			

Scientific Name	Common Name	EPBC	WC	DPaW	A	B	C	D
<i>Cracticus nigrogularis</i>	Pied Butcherbird				X			
<i>Cracticus tibicen</i>	Australian Magpie (Noongar: Koolbardi)				X			X
<i>Cracticus torquatus</i>	Grey Butcherbird				X			X
<i>Strepera versicolour</i>	Grey Curranwong				X			
CORVIDAE								
<i>Corvus bennetti</i>	Little Crow				X			
<i>Corvus coronoides</i>	Australian Raven				X			X
PETROICIDAE								
<i>Microeca fascinans</i>	Jacky Winter				X			
<i>Petroica boodang</i>	Scarlet Robin				X			
<i>Petroica goodenovii</i>	Red-capped Robin				X			
DICAEIDAE								
<i>Dicaeum hirundinaceum</i>	Mistletoebird				X			
ACROCEPHALIDAE								
<i>Acrocephalus australis</i>	Australian Reed-Warbler				X			
MEGALURIDAE								
<i>Megalurus gramineus</i>	Little Grassbird				X			
TIMALIIDAE								
<i>Zosterops lateralis</i>	Silvereye				X			
HIRUNDINIDAE								
<i>Cheramoeca leucosterna</i>	White-backed Swallow				X			
<i>Hirundo neoxena</i>	Welcome Swallow				X			
<i>Hirundo nigricans</i>	Tree Martin				X			
STURINADAE								
<i>Acridotheres tristis</i>	Common Myna						X	
<i>Sturnus vulgaris</i>	Common Starling						X	
PASSERIDAE								
<i>Passer domesticus</i>	House Sparrow				X		X	
<i>Passer montanus</i>	Eurasian Tree Sparrow						X	
MOTACILLIDAE								
<i>Motacilla cinerea</i>	Grey Wagtail	MiMa					X	
FRINGILLIDAE								
<i>Carduelis carduelis</i>	European Goldfinch						X	

Scientific Name	Common Name	Conservation Codes					
		EPBC	WC	DPaW	A	B	C
<i>Oryctolagus cuniculus</i>	European Rabbit				X		X
BOVIDAE							
<i>Bos taurus</i>	Cattle						X

APPENDIX L

Black Cockatoo Potential Breeding Trees

ID	Species	DBH	Height	No. of Hollow	Hollow Size	Easting	Northing	Comments
1	Marri	A	14	0		385167	6488592	
2	Jarrah	A	13	0		385168	6488604	
3	Jarrah (dead)	A	8	4		385159	6488608	Hollows don't go anywhere
4	Jarrah	A	8	2		385137	6488634	Hollows don't go anywhere
5	Jarrah	A	14	0		385151	6488645	
6	Jarrah	A	12	1	<100	385141	6488642	
7	Jarrah (dead)	A	0	0		385125	6488649	Bees
8	Jarrah	A	15	0		385113	6488662	
9	Jarrah	A	17	0		385109	6488674	
10	Jarrah	A	16	1	<100	385119	6488711	
11	Jarrah	B	18	4	<100	385072	6488674	
12	Jarrah	A	18	0		385075	6488695	
13	Jarrah	A	14	0		385095	6488721	
14	Jarrah	A	16	0		385092	6488735	
15	Jarrah	A	18	0		385090	6488748	
16	Jarrah	A	14	1	<100	385068	6488735	
17	Jarrah	A	15	0		385048	6488738	
18	Jarrah	A	16	0		385020	6488758	
19	Jarrah (dead)	A	14	0		385018	6488766	
20	Jarrah	A	16	0		385007	6488775	Splits into two at 2m
21	Jarrah (dead)	A	15	0		384968	6488802	
22	Jarrah (dead)	A	18	5	<100	384992	6488827	
23	Jarrah	A	12	0		385000	6488829	
24	Jarrah (dead)	A	12	0		385003	6488822	
25	Jarrah (dead)	A	15	0		384996	6488841	Bees
26	Jarrah (dead)	A	16	0		384979	6488834	
27	Jarrah (dead)	A	16	3	1x100, 2x <100	384945	6488866	Bees
28	Jarrah (dead)	A	16	0		384934	6488852	Patch of Marri <500mm
29	Jarrah (dead)	B	17	4	1x100, 3x<100	384959	6488900	Bees
30	Jarrah	A	16	2	<100	384952	6488935	Bees
31	Jarrah	A	20	3	<100	384885	6488947	Bees

32	Jarrah	A	16	0		384886	6488932	
33	Marri	A	17	0		384877	6488950	
34	Jarrah	A	14	0		384869	6489010	
35	Marri	A	16	0		384876	6489025	
36	Marri	A	16	0		384876	6489025	
37	Jarrah	A	17	3	1X150, 2x<100	384864	6489055	
38	Tuart	A	23	0		384851	6489218	
39	Jarrah	A	14	0		384753	6489635	
40	Rudis	A	16	0		384763	6489631	
41	Marri	A	15	0		384769	6489627	
42	Marri	A	18	0		384766	6489620	
43	Rudis	A	14	0		384789	6489604	
44	Marri	A	17	0		384774	6489595	
45	Rudis	A	16	0		384840	6489530	Bees
46	Rudis	A	14	0		384838	6489518	
47	Marri	A	12	0		384831	6489520	
48	Jarrah	A	16	0		384029	6491022	
49	Tuart	A	20	0		385305.368	6488138.412	
50	Tuart	A	14	0		385266	6488158	
51	Tuart	A	20	0		385267.222	6488218.237	
52	Tuart	A	17	0		385630	6487553	
53	Tuart	A	16	0		385373.031	6488014.412	
54	Rudis	A	12	0		385779	6487447	
55	Tuart	A	12	0		385807	6486637	
56	Tuart	A	20	0		386007.121	6486063.26	
57	Tuart	A	23	0		386013.533	6486048.879	
58	Tuart	A	21	0		386029.3	6486007.969	
59	Tuart	A	20	0		386035.74	6485993.381	
60	Marri	A	8	0		386062.202	6485971.556	
61	Marri	A	12	0		386066	6485924.35	
62	Powderbark	A	12	0		386084.327	6485884.638	
63	Tuart	A	12	0		386096	6485855	
64	Tuart	A	13	0		386105.44	6485833.031	

65	Rudis	A	15	0		386143.206	6485737.44	
66	Rudis	A	20	0		386172.677	6485695.677	
67	Rudis	A	12	0		386385	6485168	
68	Marri	A	16	0		386549	6484797	
69	Jarrah	A	16	0		386755.605	6484445.598	
70	Marri	A	16	0		386774.86	6484432.788	
71	Marri	A	16	0		386784.08	6484430.577	
72	Rudis	A	18	0		386631.573	6484190.75	Carnaby's Black Cockatoo flying nearby
73	Rudis	A	18	0		386631	6484160	
75	Rudis	A	18	0	All <100	385015	6488697	
76	Tuart	C	20	0	All <100	386519	6483962	
77	Tuart	B	26	1	<100	386103.456	6482970.352	
78	Tuart	A	25	0		386143	6483014	
79	Tuart	A	18	0		386167	6483059	
80	Tuart	A	16	0		386211	6483069	
81	Tuart	A	20	0		386092	6482896	
82	Tuart	A	20	0		386092	6482896	
83	Tuart	A	20	0		386092	6482896	
84	Tuart	A	18	0		386098	6482846	
85	Tuart	A	18	0		386098	6482846	
86	Marri	A	22	0		386092	6482790	
87	Marri	A	20	0		386096	6482763	
88	Tuart	A	26	0		386120	6482720	
89	Tuart	A	18	0		385938	6482658	
90	Tuart	A	30	0		385732	6482602	
91	Tuart	A	30	0		385732	6482602	
92	Tuart	A	30	0		385732	6482602	
93	Tuart	A	18	0		384679	6482683	
94	Tuart	A	16	0		384679	6482683	
95	Jarrah	A	12	0		385015	6488647	
96	Jarrah	A	15	0		385043	6488693	
97	Jarrah (dead)	A	14	0		385053	6488706	
98	Jarrah	A	17	0		385073	6488694	

99	Jarrahd	A	16	0		385072	6488674	
100	Jarrahd (dead)	A	14	0		385015	6488769	
101	Jarrahd (dead)	A	15	0		385038	6488707	
102	Jarrahd	A	16	2	<100	385048	6488736	
103	Jarrahd	A	15	0		385024	6488758	
104	Marri	A	19	0		384920	6488823	
105	Marri	A	16	0		384921	6488832	
106	Marri	A	19	0		384911	6488847	
107	Jarrahd	A	17	0		384890	6488858	
108	Marri	C	40	0		385229	6482717	
109	Marri	A	15	0		385156	6482730	

APPENDIX M

Fauna Habitat Assessments

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL

(South West)

Location: Culvier Court	Site Number	Habitat Assessment #1
Project: GWRS - Joondalup		
Date: 17/05/2016	Easting: 385142	Aspect
Northing: 6488619		E
Quadrat Size: 50 x 50 m		SE
		W
		N/A



Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Hollows	0 none	1 rare	2 moderate	3 common
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Hollows	0 none	1 rare	2 moderate	3 common
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Prescence	0 none	1 rare	2 moderate	3 common
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common
Caves	Absent	Present	Total =		Woody Debris	0 none	1 rare	2 moderate	3 common

SPECIES

Black Cockatoo Foraging Habitat

Species:	% cover	Hollows:
Jarrahd	10	Small (<120mm)
Marri	10	/
<i>Banksia attenuata</i>	10	Large (>120mm)
Allocasuarina	10	/

Birds		Mammals	Reptiles
Corella	Grey (backed) Butcherbird	Bandicoot diggings	
Galah	WC/NH Honeyeater	Kangaroo tracks	
Rainbow Lorikeet	Grey fantail	Kangaroo scats	
Australian Ringneck	Yellow-rumped Thornbill	Rabbit scats	
Crow			
Red Wattlebird (lots)			
Magpie			
Magpie Lark			
Butcherbird			

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL

(South West)

Location: Culvier Court		Site Number Habitat Assessment #2				
Project: GWRS - Joondalup						
Date: 17/05/2016		Easting: 385045			Aspect	N
Quadrat Size: 50 x 50 m		Northing: 6488756				E



Soil Texture	sand	sandy-loam	loam	cracking clay	clay
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VEGETATION

Vegetation Description	Hummock Grassland	Other:		Average Height (M)	Cover					
	Acacia Shrubland	Stratum			Scattered Plants	Sparse	Moderate	Thick		
	Riverine Woodland	Overstorey			0 14	<5% COVER	2 20-60%	3 60-100%		
	Other Grassland	Midstorey			0 6	<5% COVER	1 20-60%	3 60-100%		
	Low Woodland	Ground Cover			0 <1	<5% COVER	1 20-60%	3 60-100%		

CONDITION

LAST FIRE

Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1-3 Yr	2 2-5 Yr	3 >5 Yr
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(Cattle)

DISTURBANCE

(Other)

	0 heavy	1 medium	2 mild	3 none		0 heavy	1 medium	2 mild	3 none	
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GROUND COVER

Bare Ground	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Hummock Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Rock	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Leaf Litter	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Herbs	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Logs >10cm	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other:	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	

MICROHABITATS

Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Hollows	0 none	1 rare	2 moderate	3 common
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Hollows	0 none	1 rare	2 moderate	3 common
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Prescence	0 none	1 rare	2 moderate	3 common
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common
Caves	Absent	Present	Total =		Woody Debris	0 none	1 rare	2 moderate	3 common

SPECIES

Black Cockatoo Foraging Habitat

Species:	% cover	Hollows:
Jarrahd	10	Small (<120mm)
Marri	10	
Banksia attenuata	10	Large (>120mm)
Allocasuarina	10	

Birds		Mammals	Reptiles
Corella	Grey-backed Butcherbird	Bandicoot diggings	
Galah	White-cheeked Honeyeater	Kangaroo tracks	
Rainbow Lorikeet	Grey fantail	Kangaroo scats	
Australian Ringneck	Yellow-rumped Thornbill	Rabbit scats	
Crow			
Red Wattlebird (lots)			
Magpie			
Magpie Lark			
Butcherbird			

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL

(South West)

Location: Towards top of Survey Area		Site Number Habitat Assessment #3				
Project: GWRS - Joondalup						
Date: 17/05/2016	Easting: 384800	Aspect	N	NE	SW	NW
Quadrat Size: 50 x 50 m	Northing: 6489588		E	SE	W	N/A



Soil Texture	sand	sandy-loam	loam	cracking clay	clay
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VEGETATION

Vegetation Description	Hummock Grassland	Other:		Average Height (M)	Cover				
					Scattered Plants	Sparse	Moderate	Thick	
	Acacia Shrubland	Stratum			0	1 <20% COVER	2 20-60%	3 60-100%	
	Riverine Woodland	Overstorey	Jarrah and Marri	14	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
	Other Grassland	Midstorey	Banksia menz, Macrozamia	8	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
	Low Woodland	Ground Cover	Weeds	<1	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	

CONDITION

LAST FIRE

Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	0 <1 year	1 1 - 3 Yr	2 2 - 5 Yr	3 >5 Yr
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(Cattle)

DISTURBANCE

(Other)

	0 heavy	1 medium	2 mild	3 none		0 heavy	1 medium	2 mild	3 none	
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GROUND COVER

Bare Ground	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Hummock Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Rock	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Leaf Litter	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Herbs	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Logs >10cm	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other:	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	

MICROHABITATS

SPECIES

Black Cockatoo Foraging Habitat

Species:	% cover	Hollows:
Jarrah	5	Small (<120mm) /
Marri	5	
Banksia menziesii	5	Large (>120mm) /

Birds

Mammals

Reptiles

FAUNA HABITAT ASSESSMENT SHEET - 360 ENVIRONMENTAL

(South West)

Location: Waneroo Road Ens of Survey Area	Site Number Habitat Assessment #4				
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Project: GWRS - Joondalup		Aspect	N	NE	SW	NW
Date: 17/05/2016	Easting: 384110		Northing: 6490902		E	SE
Quadrat Size: 50 x 50 m			W		N/A	



Soil Texture	sand	sandy-loam	loam	cracking clay	clay
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VEGETATION

Vegetation Description	Hummock Grassland	Other:		Average Height (M)	Cover				
		Scattered Plants	Sparse		Moderate	Thick			
	Acacia Shrubland	Stratum							
	Riverine Woodland	Overstorey	Jarrah	12	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
	Other Grassland	Midstorey	Jacksonia sp., Banksia att, Banksia menz	10	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
	Low Woodland	Ground Cover	Hibertia, Xanthorrhoea, Weeds	1	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	

CONDITION

LAST FIRE

Scale:	5 Pristine	4 Excellent	3 Very Good	2 Good	1 Degraded	0 Completely Degraded	<1 year	1 1-3 Yr	2 2-4.5 Yr	3 >5 Yr
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(Cattle)

DISTURBANCE

(Other)

	0 heavy	1 medium	2 mild	3 none		0 heavy	1 medium	2 mild	3 none	
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GROUND COVER

Bare Ground	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Hummock Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Rock	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other Grass	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Leaf Litter	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Herbs	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	
Logs >10cm	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	Other:	0 <5% COVER	1 <20% COVER	2 20-60%	3 60-100%	

MICROHABITATS

Burrowing Suitability	0 Rock	1 Stony	2 Sandy Loam	3 Sand	Peeling Bark	0 none	1 rare	2 moderate	3 common
Pebbles Stones	0 none	1 0-30%	2 30-70%	3 70-100%	Large Hollows	0 none	1 rare	2 moderate	3 common
Exfoliating Slabs	0 none	1 0-30%	2 30-70%	3 70-100%	Small Hollows	0 none	1 rare	2 moderate	3 common
Rock Crevices	0 none	1 0-30%	2 30-70%	3 70-100%	Water Prescence	0 none	1 rare	2 moderate	3 common
Boulders	0 none	1 0-30%	2 30-70%	3 70-100%	Distance to Water	0 >5km	1 2-5km	2 500m - 2km	3 <500m
Suitability for Bats	YES		NO		Termite Mounds	0 none	1 rare	2 moderate	3 common
Caves	Absent	Present	Total =		Woody Debris	0 none	1 rare	2 moderate	3 common

SPECIES

Black Cockatoo Foraging Habitat

Species:	% cover	Hollows:
Jarrah	10	Small (<120mm) /
Banksia attenuata	20	
Banksia menziesii	20	Large (>120mm) /

Birds

Mammals

Reptiles

Our Ref: 1744AB

26/08/2016

Tung Nguyen
Senior Project Manager
Water Corporation
629 Newcastle Street
Leederville, WA 6007
Via Email: mailto:Tung.Nguyen@watercorporation.com.au

Dear Tung,

Black Cockatoo Habitat Assessment – Perth Groundwater Replenishment Scheme Stage 2

1. Background

360 Environmental is pleased to provide the Water Corporation with this letter report to provide information in relation to the Black Cockatoo habitat assessment undertaken as part of the Perth Groundwater Replenishment Scheme (GWRS) Stage 2.

In May 2016, 360 Environmental undertook a preliminary flora and fauna assessment of the proposed pipeline route for the GWRS Stage 2 Project. As part of the fauna assessment a Black Cockatoo habitat assessment was undertaken. During this assessment foraging habitat and a number of potential breeding trees were identified, particularly in the northern section adjacent to Lake Joondalup where there is a relatively large area of native bushland (Survey Area) (Figure 1).

All three Black Cockatoo species are federally listed under the EPBC Act: Carnaby's Black Cockatoo (*Calyptorhynchus latirostris*) is listed as Endangered, the Forest Red-tailed Black Cockatoo (FRTBC [*Calyptorhynchus banksii naso*]) and Baudin's Black Cockatoo (*Calyptorhynchus baudinii*) are classified as Vulnerable.

As a result of the fauna assessment it was identified that a follow up Black Cockatoo habitat assessment should be undertaken in order to find alternative routes that minimise the quantity of foraging and potential breeding habitat removed as a result of the construction of the pipeline. The focus of this assessment was in areas with relatively intact native vegetation, namely the relatively large area of native bushland in the northern section adjacent to Lake Joondalup and to the north of this.

2. Methods

The objective of the Black Cockatoo habitat assessment was to identify and determine the type and extent of habitat (breeding and foraging) suitable for Black Cockatoos in the Survey Area with reference to the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) referral guidelines for three threatened Black Cockatoo species (DSEWPaC 2011).

The Survey Area consisted of the patch of native bushland in the northern section adjacent to Lake Joondalup and the small area of native bushland to the north of that. This section had been identified in the previous fauna assessment as foraging and potential breeding Black Cockatoo habitat (taken from Figures 8e & 8f in the 360 Environmental draft flora and fauna preliminary report). Further investigation of this area was required in order to define the best possible option for the final pipeline route alignment that minimised the loss of Black Cockatoo habitat.

This Black Cockatoo habitat assessment was undertaken on 28th July 2016. The assessment involved traversing the Survey Area on foot; any trees meeting each of the following criteria for potential breeding were recorded and electronically logged using a hand held Global Positioning System (GPS) unit:

- Native trees (e.g. Jarrah, Tuart, Marri etc.);
- Diameter at breast height (DBH) > 500 mm (>300 mm for Wandoo and Salmon Gum) regardless of the presence or absence of hollows;
- Trees were placed in the following size class categories:
 - A = 500 – 1000 mm DBH
 - B = 1000 – 2000 mm DBH
 - C = >2000 mm DBH

The Black Cockatoo habitat assessment involved assessing the habitat for tree and shrub species known to be important dietary items e.g. Marri and *Banksia sp*. It also included looking for:

- Evidence of feeding (chewed cones, seed and nut material); and
- Opportunistic observations of Black Cockatoos in the Survey Area.

The removal of vegetation may be required along a corridor between 6 m and 20 m in total width. To allow for a degree of flexibility in the alignment of the pipeline, the alignment width during this assessment is represented by a total width of 40 m as per the preliminary flora and fauna assessment in May 2016.

3. Results

During the Black Cockatoo habitat assessment, FRTBCs were heard calling in the Survey Area, however, they were not directly seen feeding, or observed flying over during the assessment.

3.1. Potential Breeding Trees

Five species of Eucalypts, Marri (*Corymbia calophylla*), Jarrah (*Eucalyptus marginata*), Powderbark Wandoo (*Eucalyptus wandoo*), Tuart (*Eucalyptus gomphocephala*) and Flooded Gum (*Eucalyptus rudis*) recorded in the Survey Area are considered Black Cockatoo potential breeding habitat. The current Survey Area contains 70 potential breeding trees with a DBH of more than 500 mm Jarrah (47) Flooded Gum (12), Tuart (7) and (Marri (4). The dimensions and the locations of these 70 potential breeding trees surveyed in the current Black Cockatoo habitat assessment as well as the 108 potential breeding trees in the entire GWR pipeline alignment footprint (surveyed previously) are displayed in Appendix A and Figure 2.

A total of three hollows were observed from the ground in the current Survey Area. All three hollows were considered to be large enough at their entrances (>100 mm) to be considered as potential breeding hollows in the future. (Three hollows were also observed from the ground during the previous survey.) The locations three hollows from the current survey and the three hollows from the previous survey are shown in Figure 3.

The dimensions and the locations of the six observable hollows, as well as the previously observed 33 small hollows are displayed in Appendix A.

3.2. Foraging Habitat

During the assessment of the current Survey Area a total of:

- 28 ha of foraging and potential breeding habitat was identified; and
- 4.74 ha of foraging and potential breeding habitat were identified in the GRWS pipeline alignment (Figure 2).

This includes trees that are potential breeding trees and known foraging species, as well as trees with a DBH of >500 mm (>300mm for Wandoo) and other known Black Cockatoo dietary items.

Five species of Eucalypts recorded in the Survey Area; Marri, Jarrah, Tuart, Powderbark Wandoo and Flooded Gum are Black Cockatoo foraging species and as such habitat. Other known foraging species present in the Survey Area includes *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana* and *Xanthorrhoea preissii*. These species are important foraging habitat for all three species of Black Cockatoo (Appendix B).

4. Discussion

4.1. Potential Breeding Habitat

Black Cockatoos breed in large hollow-bearing trees, generally within woodlands or forests. The size of the tree can be a useful indication of the hollow-bearing potential of the tree. Therefore maintaining the long-term supply of trees large enough to provide suitable hollows is particularly important in woodland stands that are known to support Black Cockatoo breeding (SEWPaC 2012).

During the preliminary flora and fauna survey 108 trees were recorded which met the criteria to be classed as a potential breeding trees. In this Black Cockatoo habitat assessment a further 70 trees were recorded which met the criteria to be classed as a potential breeding trees. These 178 trees have the potential to develop hollows and consequently be used for breeding in the future. In total 24 Marri, 93 Jarrah, 37 Tuart and 23 Flooded Gum trees with a DBH of more than 500 mm and one Powderbark with a DBH > 300 mm were recorded in the Survey Area.

Hollow formation in trees (in Eucalypt woodlands and forests) is a result of a number of processes including fungal attack, termites and fire and the propensity for hollow formation varies between the Eucalypt species (Whitford 2002). Just over 52% of all the potential breeding trees identified in the Survey Area were Jarrah. Hollows in Jarrah tend to be smaller than those found in Marri, consequently, Black Cockatoos, particularly FRTBCs breed predominantly in Marri in the Jarrah-Marri forest of the south west (Whitford 2002; Johnstone et al. 2013). On the Swan Coastal Plain most Black Cockatoo breeding records (nests), particularly for Carnaby's Cockatoo are in Tuart (Johnstone & Kirkby 2011).

In order to be suitable for Black Cockatoos, hollow entrances need to be greater than approximately 100 mm to 120 mm in diameter. A total of 36 hollows were observed during the fauna survey and a further three hollows were observed during the Black Cockatoo habitat assessment. Of these 39 hollows, six were considered to be large enough at their entrances (when observed from the ground) to be considered as potential future breeding

hollows. Given these hollows could not be inspected we could not determine if the hollows were deep enough for nesting to occur.

4.2. Foraging Habitat

The total area of foraging habitat present in the current Survey Area is 28 ha (Figure 2). In the canopy, foraging habitat consisted primarily of Jarrah, and to a much lesser extent Marri, Tuart and Flooded Gum. Some of these tree species are of various sizes, but all are considered mature i.e. they had fruit or were large enough to produce fruit. In the mid-storey or shrub layer, foraging species consisted of chewed *B. attenuata* and *B. menziesii* cones, *A. fraseriana* nuts and Marri nuts, as well as chewed pine cones (from the adjacent pine plantation). All of these species are known dietary items of all three Black Cockatoo species (Johnstone & Kirkby 2011). Records of the type of foraging evidence in the current Survey Area can be seen in Appendix B.

5. Potential Pipeline Alignment

Collectively, the fauna survey and Black Cockatoo habitat assessment have provided a comprehensive overview of Black Cockatoo habitat present in the Survey Area, including the GWR pipeline alignment and the relatively large area of native bushland evaluated as part of this Black Cockatoo habitat assessment.

The initial objective of this Black Cockatoo habitat assessment was to find a suitable alignment through the aforementioned intact patch of native bushland to minimise clearing of Black Cockatoo habitat. In the interim period between draft and final version of this report, the route was altered and so no longer passes through this area of native bushland.

6. References

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7. Acknowledgements

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FIGURES

