Towards identification of an efficient set of natural diversity recovery catchments in the Western Australian wheatbelt

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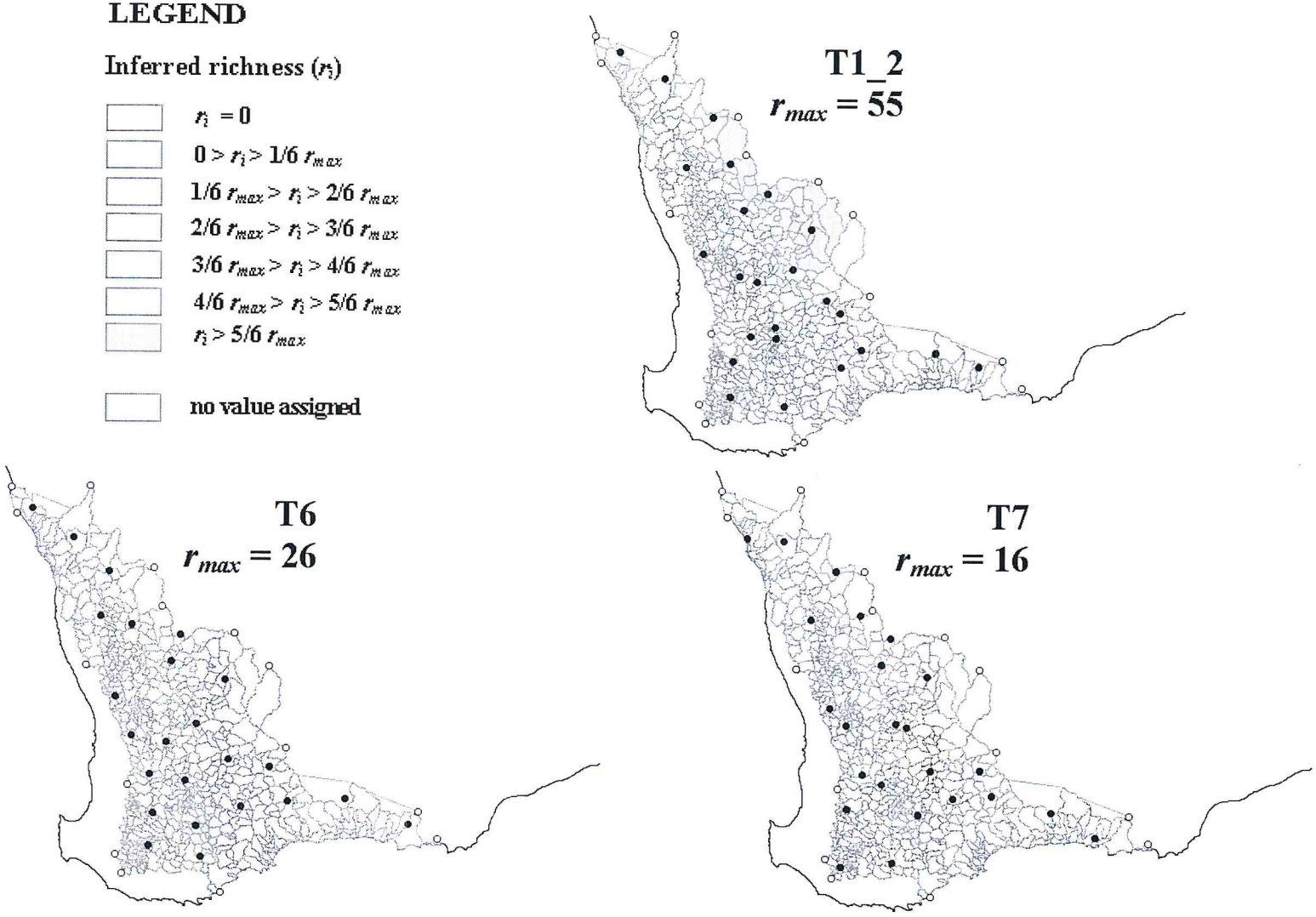
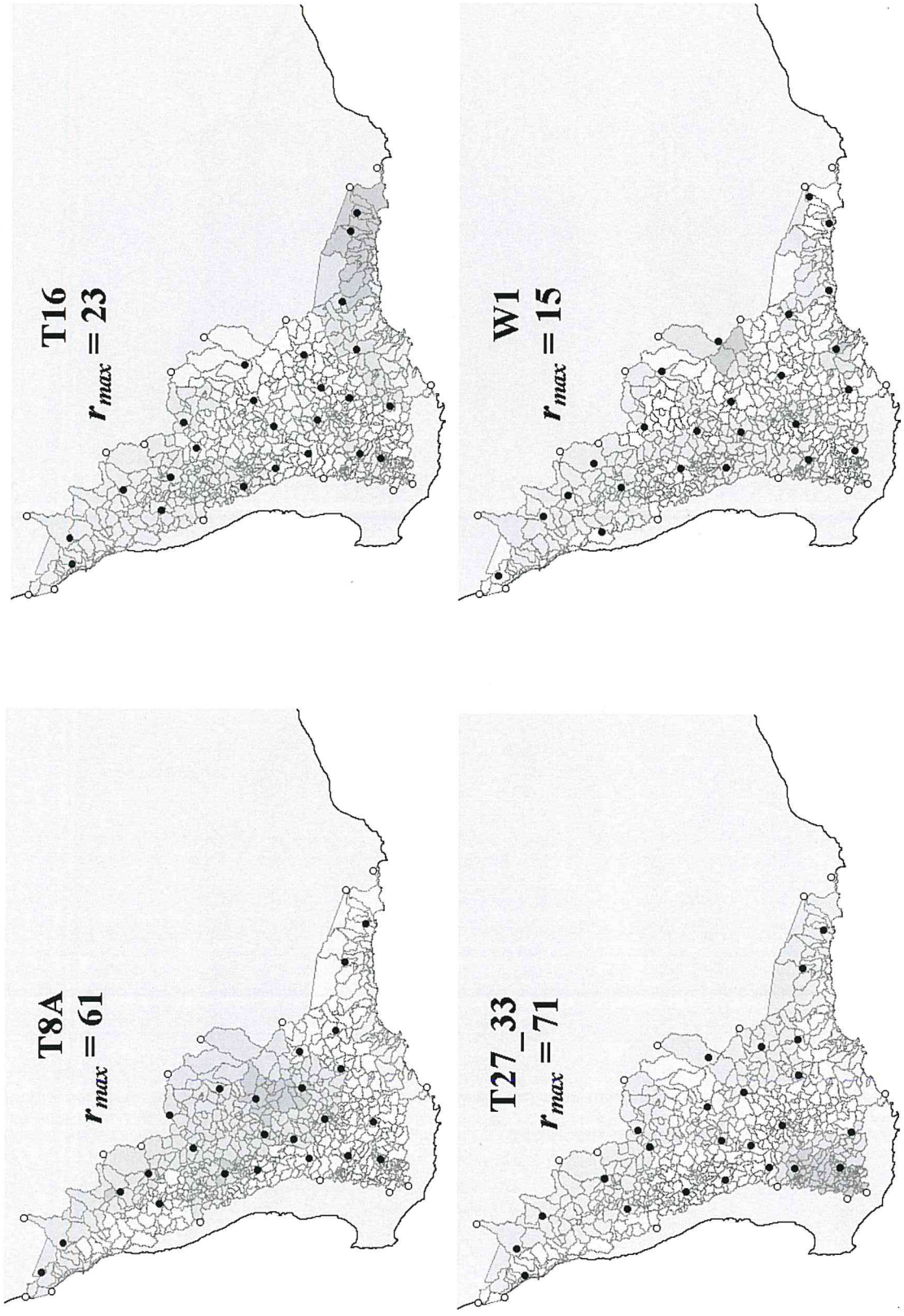
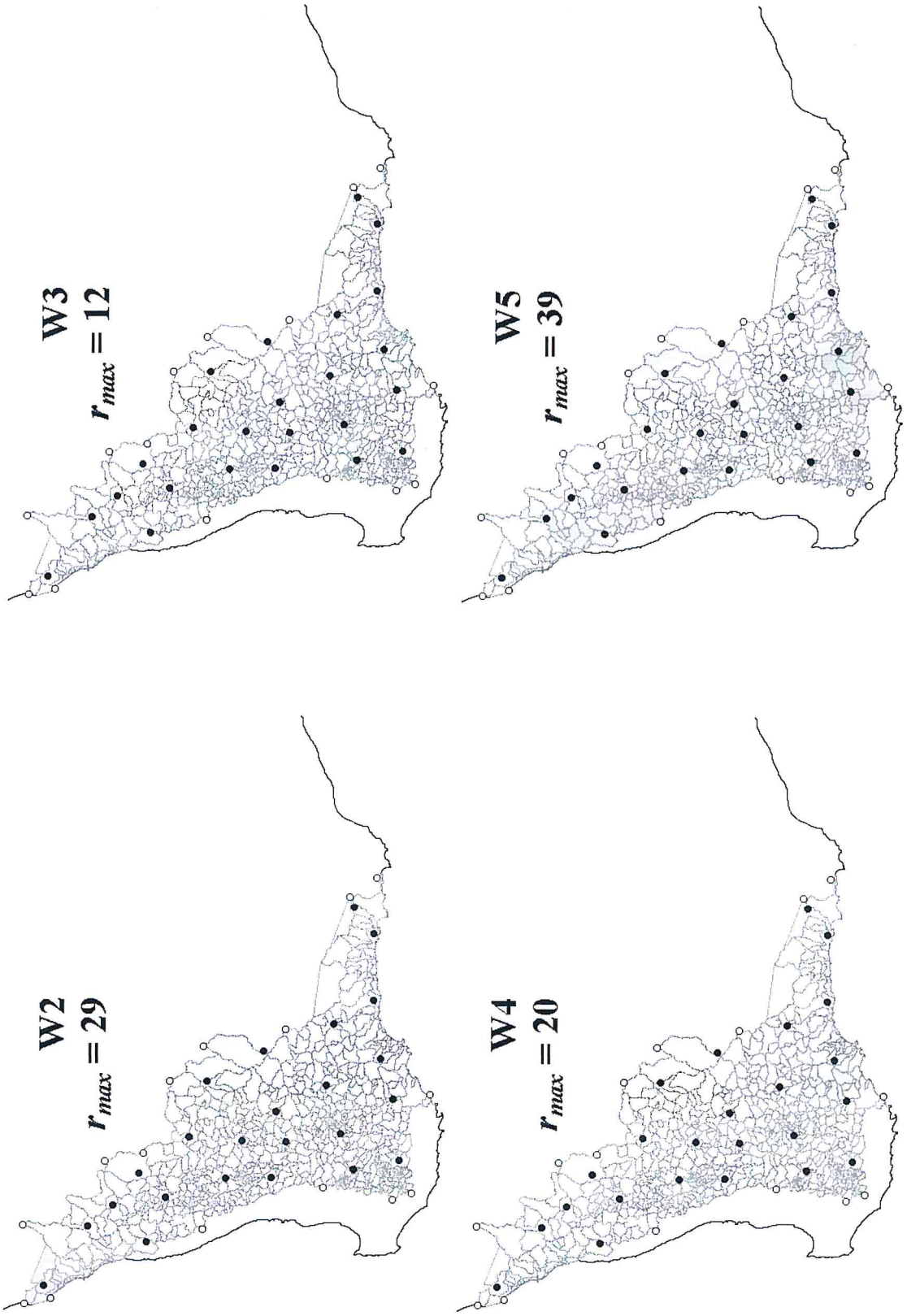
Appendix 1: Species richness assemblage maps

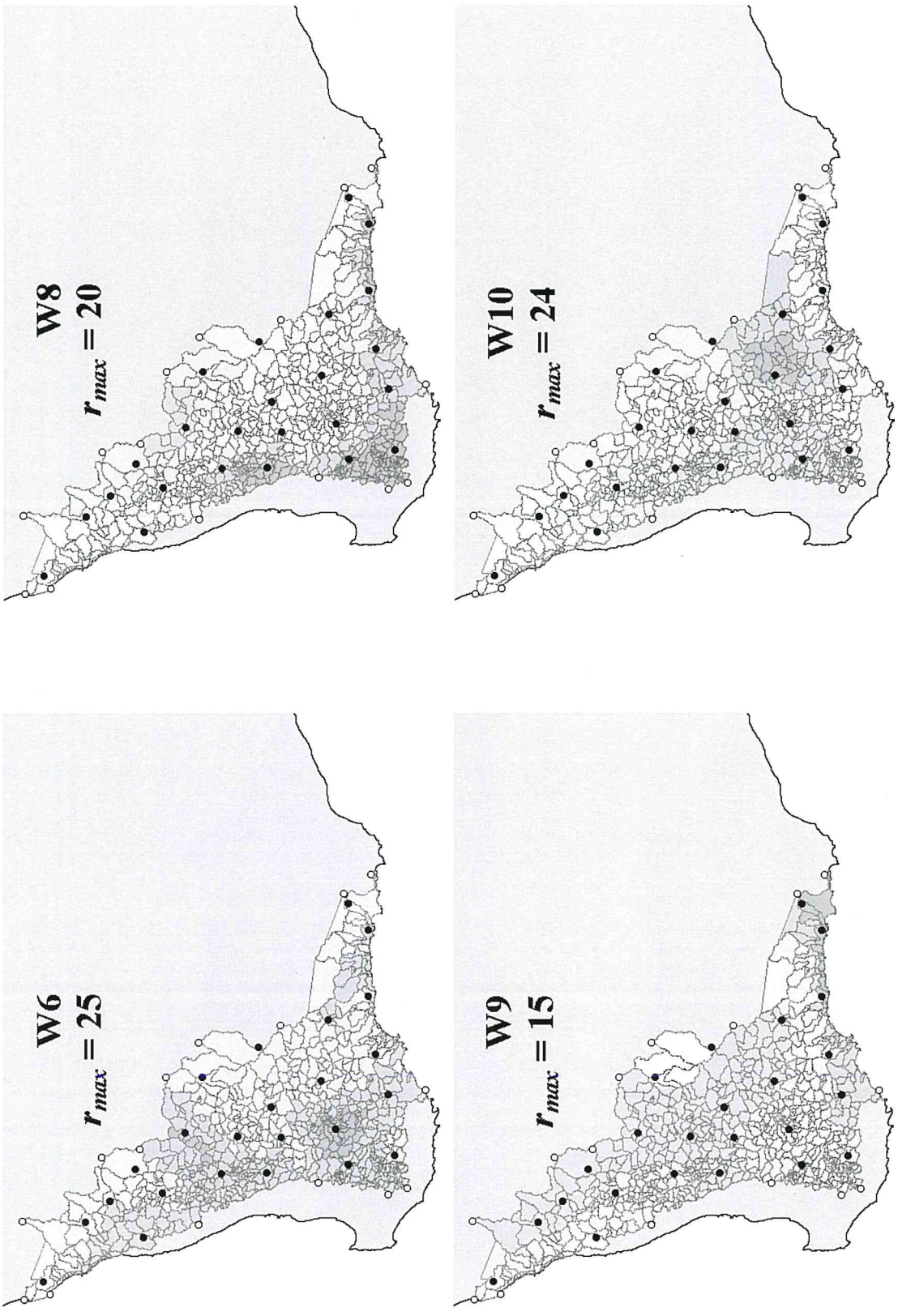
Appendix 2: Current and proposed recovery catchments summed species richness results

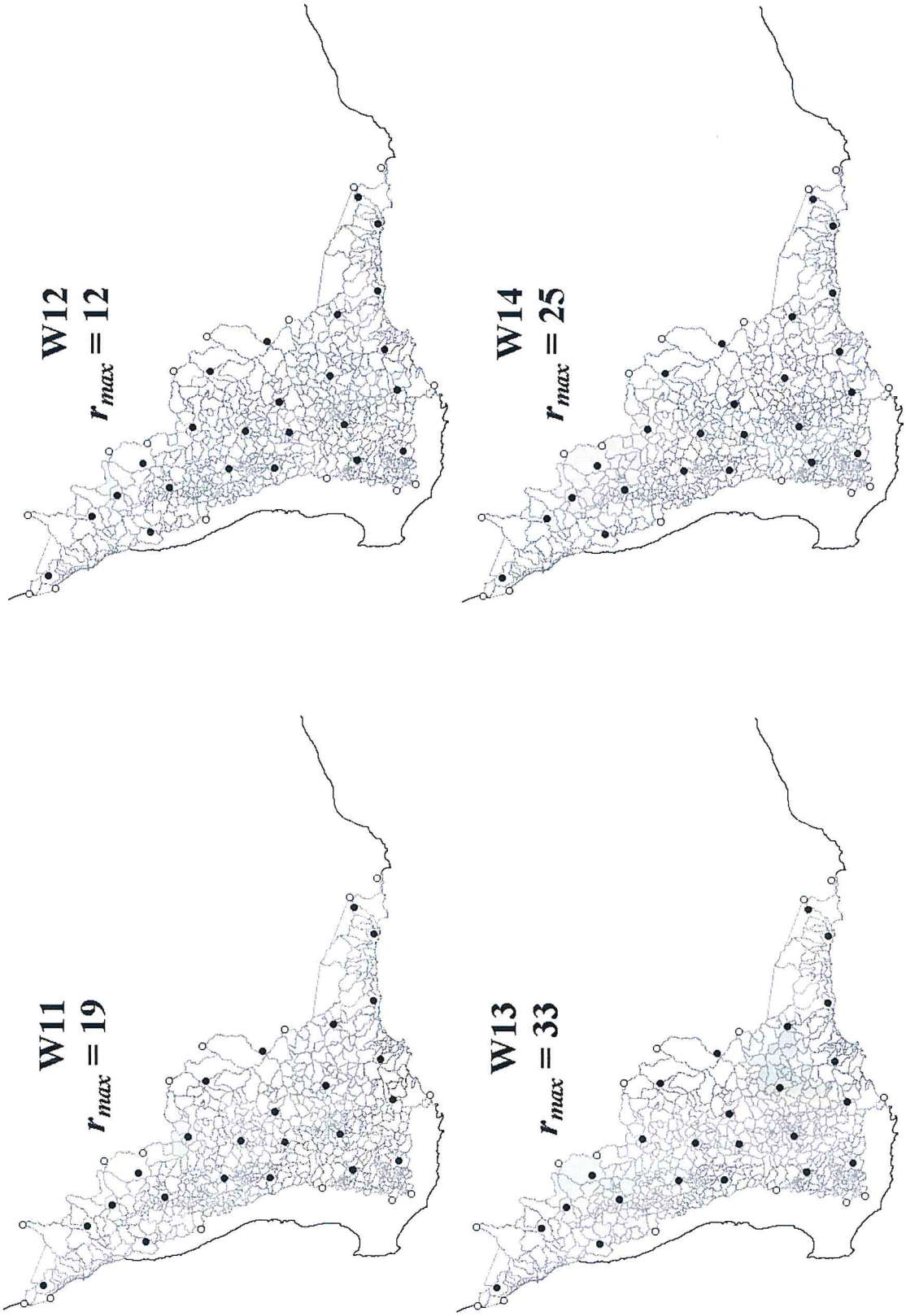
Appendix 1. Maps of species richness of the assemblages used to derive potential Recovery Catchments in the wheatbelt. Each map shows inferred proportion of maximum species richness (rmax) in each subcatchment of the study area. See Halse et al. (2004) and McKenzie et al. (2004) for definition of the assemblages.

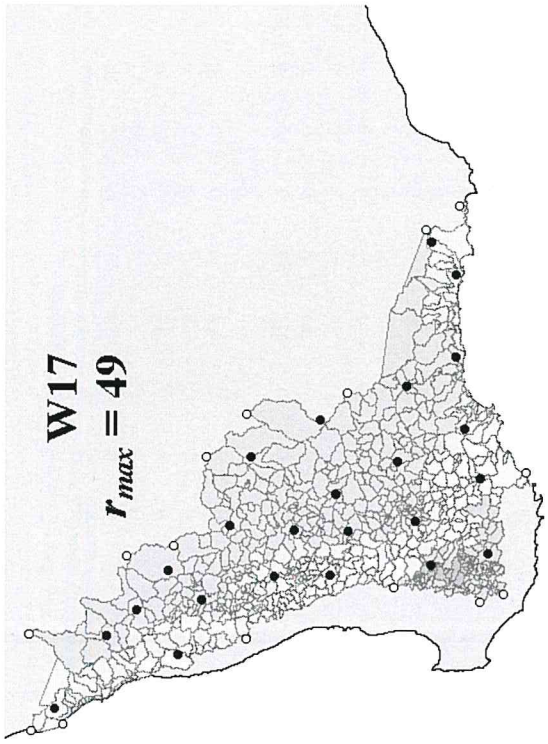


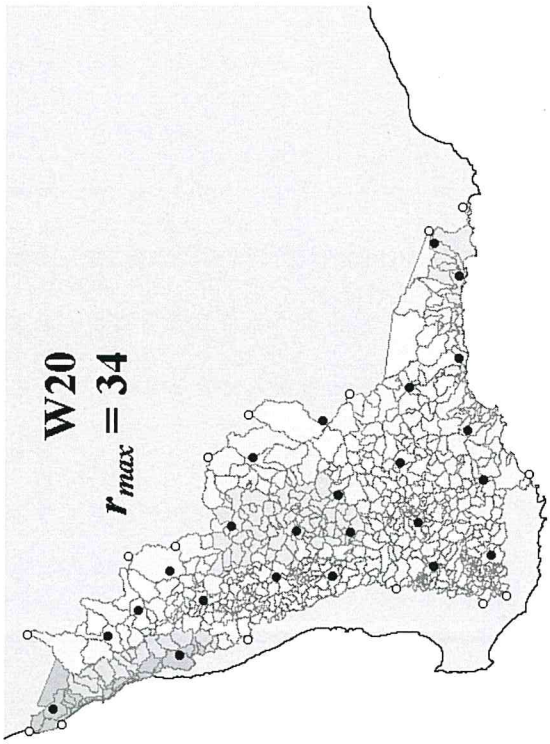

T16
r_{max} = 23
W1
r_{max} = 15
T8A
r_{max} = 61
T27_33
r_{max} = 71

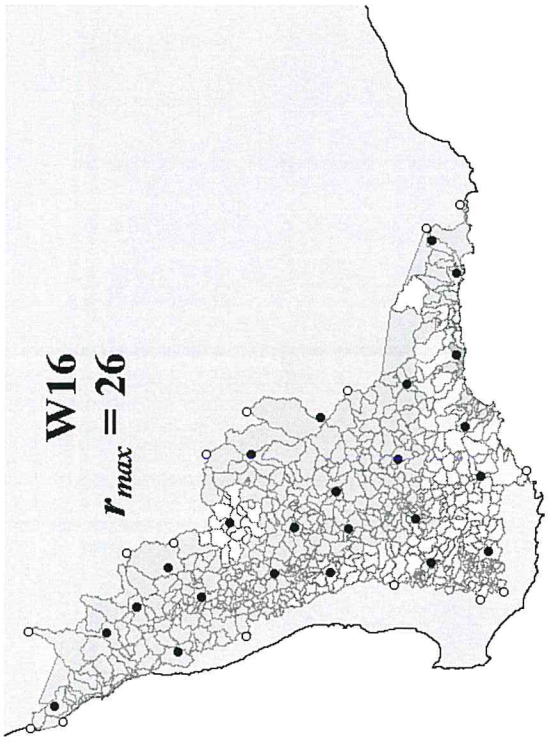

W3
$r_{max} = 12$
W5
$r_{max} = 39$
W2
$r_{max} = 29$
W4
$r_{max} = 20$

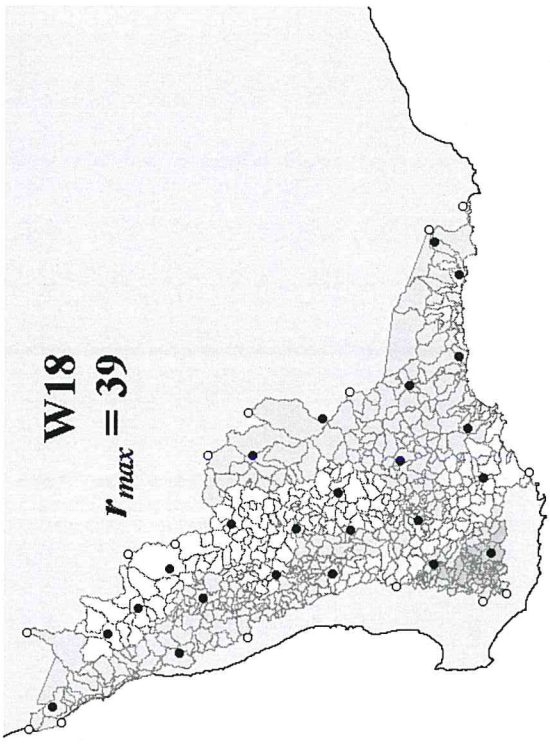

W8
r_{max} = 20
W10
r_{max} = 24
W6
r_{max} = 25
W9
r_{max} = 15


W12
r_{max} = 12
W14
r_{max} = 25
W11
r_{max} = 19
W13
r_{max} = 33


W17
r_{max} = 49


W20
r_{max} = 34


W16
r_{max} = 26


W18
r_{max} = 39

Appendix 2. Summed species richness (SSR) results for current and proposed recovery catchments for the target 2 x n_j.

a) Current Recovery Catchments

Recovery Catchment	Sub-catchment #	Area (km^2)	T1_2	T6	T7	T8A	T16	T27_33	W1	W2	W3	W4	W5	W6	W8	W9	W10	W11	W12	W13	W14	W16	W17	W18	W20
Buntine-Marchagee	85	422.0	0	0	0	45	0	0	0	0	0	0	31	16	0	0	0	10	0	28	24	0	0	0	18
	88	302.7	0	0	0	41	0	0	0	0	0	0	32	15	0	0	0	8	0	29	23	0	0	0	11
	90	130.9	0	0	0	38	0	0	0	0	0	0	32	16	0	0	0	0	0	30	23	0	0	0	0
	93	104.1	0	0	0	37	0	0	0	0	0	0	33	16	0	0	0	0	0	30	22	0	0	0	0
	95	29.5	0	0	0	41	0	0	0	0	0	0	33	16	0	0	0	7	0	28	23	0	0	0	11
	97	351.4	0	0	0	37	0	0	0	0	0	0	34	15	0	0	0	0	0	29	22	0	0	0	0
	99	53.3	0	0	0	45	0	0	0	0	0	0	32	16	0	0	0	7	0	28	23	0	0	0	0
	101	10.6	0	0	0	43	0	0	0	0	0	0	32	16	0	0	0	7	0	28	23	0	0	0	0
	102	118.9	0	0	0	40	0	0	0	0	0	0	33	16	0	0	0	0	0	29	22	0	0	0	0
	104	23.2	0	0	0	42	0	0	0	0	0	0	33	16	0	0	0	0	0	28	23	0	0	0	0
	105	185.6	0	0	0	43	0	0	0	0	0	0	31	17	0	0	0	7	0	28	23	0	0	0	0
	107	4.5	0	0	0	42	0	0	0	0	0	0	33	16	0	0	0	0	0	28	23	0	0	0	0
	110	2.0	0	0	0	43	0	0	0	0	0	0	32	16	0	0	0	7	0	28	23	0	0	0	0
	111	55.3	0	0	0	42	0	0	0	0	0	0	32	16	0	0	0	7	0	28	23	0	0	0	0
	subtotal	**1794.2**	**0**	**0**	**0**	**579**	**0**	**0**	**0**	**0**	**0**	**0**	**453**	**223**	**0**	**0**	**0**	**60**	**0**	**399**	**320**	**0**	**0**	**0**	**40**
Drummond	236	359.1	0	0	0	51	0	39	4	0	0	18	36	21	15	0	0	0	0	24	11	0	16	0	0
	subtotal	**359.1**	**0**	**0**	**0**	**51**	**0**	**39**	**4**	**0**	**0**	**18**	**36**	**21**	**15**	**0**	**0**	**0**	**0**	**24**	**11**	**0**	**16**	**0**	**0**
Lake Bryde	463	584.2	0	0	0	44	0	0	5	0	0	0	22	14	0	0	23	0	0	32	12	0	0	0	16
	492	163.3	0	0	0	40	0	0	5	0	0	0	24	15	0	0	22	0	0	30	11	0	0	0	15
	519	261.2	0	0	0	42	0	0	7	0	0	0	26	15	11	0	22	0	0	28	10	0	0	0	14
	523	280.4	0	0	0	38	0	0	7	0	0	0	28	15	11	5	21	0	0	26	8	0	0	0	13
	524	39.8	0	0	0	40	0	0	6	0	0	0	26	15	0	0	22	0	0	28	9	0	0	0	14
	525	66.8	0	0	0	42	0	0	6	0	0	0	26	15	11	0	22	0	0	29	10	0	0	0	14
	579	73.3	0	0	0	40	0	0	7	0	0	0	28	15	11	5	21	0	0	27	9	0	0	0	13
	583	163.7	0	0	0	35	0	0	7	0	0	0	29	16	11	5	20	0	0	24	7	0	0	0	12
	584	286.9	0	0	0	38	0	0	8	0	0	0	30	15	12	6	21	0	0	25	8	0	0	0	12
	subtotal	**1919.6**	**0**	**0**	**0**	**358**	**0**	**0**	**58**	**0**	**0**	**0**	**239**	**135**	**67**	**21**	**194**	**0**	**0**	**249**	**84**	**0**	**0**	**0**	**123**
Lake Warden	562	611.6	0	0	0	0	20	0	0	0	0	0	14	14	12	14	0	0	0	18	0	0	0	0	0
	574	543.5	0	0	0	0	20	0	0	0	0	0	16	15	12	14	0	0	0	18	0	0	0	0	0
	594	318.0	0	0	0	0	20	0	0	0	0	0	22	17	14	13	0	0	0	18	0	0	15	0	0
	641	377.2	0	0	0	0	20	0	0	0	10	12	28	20	17	14	0	0	0	18	0	0	20	13	0
	662	16.3	0	0	0	0	20	0	0	0	10	12	29	21	18	14	0	0	0	18	0	0	21	14	0
	subtotal	**1866.6**	**0**	**0**	**0**	**0**	**100**	**0**	**0**	**0**	**20**	**24**	**109**	**87**	**73**	**69**	**0**	**0**	**0**	**90**	**0**	**0**	**56**	**27**	**0**

Recovery Catchment	Sub-catchment #	Area (km²)	T1_2	T6	T7	T8A	T16	T27_33	W1	W2	W3	W4	W5	W6	W8	W9	W10	W11	W12	W13	W14	W16	W17	W18	W20
Muir Unicup	788	96.6	0	0	0	19	0	60	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	789	42.8	0	0	0	18	0	61	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	793	12.6	0	0	0	19	0	61	0	0	0	0	33	17	19	9	0	0	0	19	0	13	38	35	12
	794	43.1	0	0	0	19	0	61	0	0	0	0	33	17	19	9	0	0	0	19	0	13	38	35	12
	804	19.0	0	0	0	19	0	60	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	810	44.5	0	0	0	19	0	59	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	813	29.6	0	0	0	20	0	60	0	0	0	0	33	17	19	9	0	0	0	19	0	13	38	35	12
	815	17.1	0	0	0	20	0	59	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	817	5.8	0	0	0	19	0	60	0	0	0	0	33	17	19	9	0	0	0	18	0	13	39	36	12
	818	95.1	0	0	0	21	0	59	0	0	0	0	33	17	18	9	0	0	0	19	0	13	38	34	11
	821	141.2	0	0	0	21	0	58	0	0	0	0	33	18	18	9	0	0	0	20	0	13	37	32	11
	subtotal	**547.6**	**0**	**0**	**0**	**215**	**0**	**659**	**0**	**0**	**0**	**0**	**363**	**188**	**207**	**99**	**0**	**0**	**0**	**204**	**0**	**142**	**423**	**386**	**130**
Toolibin	432	77.5	0	0	0	46	0	0	0	0	0	0	28	21	0	0	0	0	0	28	7	0	0	0	0
	437	105.7	0	0	0	45	0	0	0	0	0	0	26	20	0	5	0	0	0	31	6	0	0	0	0
	443	223.1	0	0	0	46	0	0	0	0	0	0	28	21	0	0	0	0	0	29	8	0	0	0	0
	444	40.1	0	0	0	44	0	0	0	0	0	0	26	21	0	5	0	0	0	31	6	0	0	0	0
	445	28.8	0	0	0	45	0	0	0	0	0	0	27	21	0	5	0	0	0	30	7	0	0	0	0
	452	5.6	0	0	0	44	0	0	0	0	0	0	27	21	0	5	0	0	0	31	6	0	0	0	0
	subtotal	**480.7**	**0**	**0**	**0**	**270**	**0**	**0**	**0**	**0**	**0**	**0**	**162**	**125**	**0**	**20**	**0**	**0**	**0**	**180**	**40**	**0**	**0**	**0**	**0**
	TOTAL	**6967.8**	**0**	**0**	**0**	**1473**	**100**	**698**	**62**	**0**	**20**	**42**	**1363**	**779**	**363**	**209**	**194**	**60**	**0**	**1146**	**455**	**142**	**494**	**413**	**293**
	Target SSR		**554**	**224**	**32**	**236**	**260**	**478**	**54**	**212**	**122**	**124**	**128**	**70**	**140**	**60**	**200**	**88**	**126**	**136**	**74**	**102**	**178**	**168**	**148**
	% of Target		**0**	**0**	**0**	**624**	**39**	**146**	**115**	**0**	**16**	**34**	**1065**	**1113**	**259**	**348**	**97**	**69**	**0**	**843**	**615**	**140**	**278**	**246**	**198**

b) Proposed Recovery Catchments

Recovery Catchment	Sub-catchment #	Area (km²)	T1_2	T6	T7	T8A	T16	T27_33	W1	W2	W3	W4	W5	W6	W8	W9	W10	W11	W12	W13	W14	W16	W17	W18	W20
Avon	131	789.0	53	0	2	49	0	0	0	0	0	0	22	18	0	0	0	11	0	22	19	0	0	0	0
	149	690.2	54	0	0	49	0	0	0	0	0	0	20	20	0	0	0	13	0	23	21	0	0	0	0
	178	662.2	54	0	0	47	0	0	0	0	0	0	23	16	0	0	0	8	0	21	19	0	0	0	0
	188	885.6	54	0	0	46	0	0	0	0	0	0	28	13	0	0	0	0	0	19	16	0	0	0	0
	193	58.0	54	0	0	47	0	0	0	0	0	0	23	16	0	0	0	8	0	22	19	0	0	0	0
	195	20.5	54	0	0	47	0	0	0	0	0	0	23	16	0	0	0	8	0	21	19	0	0	0	0
	sub- total	**3105.6**	**322**	**0**	**2**	**285**	**0**	**0**	**0**	**0**	**0**	**0**	**139**	**99**	**0**	**0**	**0**	**48**	**0**	**128**	**113**	**0**	**0**	**0**	**0**
Blackwood	614	79.8	0	24	0	34	0	37	0	0	0	0	29	22	11	8	0	0	0	32	6	0	14	0	11
	630	24.7	0	25	0	34	0	39	0	0	0	0	29	23	11	9	0	0	0	31	0	0	15	0	11
	631	56.9	0	26	0	33	0	38	0	0	0	0	30	22	12	9	0	0	0	31	0	8	16	0	11
	655	236.8	0	25	0	31	0	38	4	0	0	0	31	22	12	9	0	0	0	30	0	9	19	0	11
	sub- total	**398.2**	**0**	**100**	**0**	**132**	**0**	**152**	**4**	**0**	**0**	**0**	**119**	**89**	**46**	**35**	**0**	**0**	**0**	**124**	**6**	**17**	**64**	**0**	**44**
Esperence	505	600.5	0	0	0	0	23	0	0	0	0	0	16	15	0	11	15	0	0	20	0	0	0	0	0
Coast	542	644.6	0	0	0	0	22	0	0	0	0	0	28	20	14	10	0	0	0	21	0	0	15	0	0
	555	451.6	0	0	0	0	22	0	0	0	0	0	20	17	11	10	15	0	0	21	0	0	0	0	0
	628	420.7	0	0	0	0	21	0	0	0	9	0	29	18	15	12	0	0	0	19	0	15	0	0	0
	632	500.3	0	0	0	0	20	0	0	0	10	12	30	20	18	14	0	0	0	18	0	0	20	14	0
	639	111.9	0	0	0	0	21	0	0	0	10	0	29	18	16	13	0	0	0	18	0	14	0	0	0
	642	144.0	0	0	0	0	21	0	0	0	10	0	29	19	16	13	0	0	0	18	0	11	14	0	0
	647	43.8	0	0	0	0	20	0	0	0	10	9	29	19	16	13	0	0	0	18	0	10	15	0	0
	654	509.6	0	0	0	0	0	0	0	0	12	0	30	16	17	15	0	0	0	16	0	24	0	0	0
	658	34.0	0	0	0	0	0	0	0	0	10	9	30	19	17	14	0	0	0	18	0	10	16	0	0
	659	597.4	0	0	0	0	0	0	0	0	11	0	30	18	17	15	0	0	0	17	0	16	13	0	0
	661	107.1	0	0	0	0	0	0	0	0	11	9	30	19	18	14	0	0	0	17	0	13	15	0	0
	664	85.1	0	0	0	0	0	0	0	0	11	0	30	18	17	15	0	0	0	17	0	19	0	0	0
	sub- total	**4250.6**	**0**	**0**	**0**	**0**	**170**	**0**	**0**	**0**	**104**	**39**	**360**	**236**	**192**	**169**	**30**	**0**	**0**	**238**	**0**	**132**	**108**	**14**	**0**

Recovery Catchment	Sub-catchment #	Area (km²)	T1_2	T6	T7	T8A	T16	T27_33	W1	W2	W3	W4	W5	W6	W8	W9	W10	W11	W12	W13	W14	W16	W17	W18	W20
Greenough	62	803.7	0	0	0	35	0	0	0	17	0	0	34	20	0	0	0	0	9	26	18	0	16	0	26
(Arrowsmith)	**sub- total**	**803.7**	**0**	**0**	**0**	**35**	**0**	**0**	**0**	**17**	**0**	**0**	**34**	**20**	**0**	**0**	**0**	**0**	**9**	**26**	**18**	**0**	**16**	**0**	**26**
Greenough	4	509.0	0	18	3	44	0	0	0	26	0	11	30	16	13	5	0	0	0	14	10	0	14	0	31
(Hutt)	5	1071.4	0	19	3	43	0	0	4	28	0	12	29	15	13	5	0	0	0	12	9	0	13	0	32
	6	172.1	0	17	2	44	0	0	0	25	0	10	30	16	12	5	0	0	0	15	11	0	13	0	29
	7	135.9	0	17	2	44	0	0	0	25	0	10	30	16	12	0	0	0	0	14	11	0	0	0	29
	8	2.3	0	18	3	44	0	0	0	26	0	11	30	16	13	5	0	0	0	14	10	0	14	0	31
	sub- total	**1890.6**	**0**	**89**	**13**	**219**	**0**	**0**	**4**	**130**	**0**	**54**	**149**	**79**	**63**	**20**	**0**	**0**	**0**	**69**	**51**	**0**	**54**	**0**	**152**
Greenough	15	567.0	0	0	6	44	0	0	0	16	0	0	33	16	0	0	0	7	9	18	17	0	0	0	17
(Irwin)	**sub- total**	**567.0**	**0**	**0**	**6**	**44**	**0**	**0**	**0**	**16**	**0**	**0**	**33**	**16**	**0**	**0**	**0**	**7**	**9**	**18**	**17**	**0**	**0**	**0**	**17**
Murchison	2	487.3	0	18	4	44	0	0	0	26	0	11	29	16	13	5	0	0	0	14	10	0	14	0	32
	3	1760.5	0	18	3	43	0	0	0	25	0	10	29	15	12	0	0	0	0	13	11	0	0	0	30
	sub- total	**2247.8**	**0**	**36**	**7**	**87**	**0**	**0**	**0**	**51**	**0**	**21**	**58**	**31**	**25**	**5**	**0**	**0**	**0**	**27**	**21**	**0**	**14**	**0**	**62**
Ninghan	129	670.3	54	0	2	50	0	0	0	0	0	0	19	21	0	0	0	16	0	24	22	0	0	0	0
	sub- total	**670.3**	**54**	**0**	**2**	**50**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**21**	**0**	**0**	**0**	**16**	**0**	**24**	**22**	**0**	**0**	**0**	**0**
Yarra Yarra	20	1645.5	44	0	11	44	0	0	0	0	0	0	31	16	0	0	0	9	9	22	20	0	0	0	17
	40	1138.7	46	0	15	49	0	0	0	0	0	0	26	17	0	0	0	14	11	29	24	0	0	0	14
	44	221.8	0	0	7	49	0	0	0	0	0	0	28	17	0	0	0	12	11	26	22	0	0	0	14
	47	1455.2	48	0	13	50	0	0	0	0	0	0	25	16	0	0	0	15	11	30	25	0	0	0	16
	50	3843.5	48	0	6	46	0	0	0	0	0	0	28	16	0	0	0	15	9	28	25	0	0	0	22
	52	440.3	0	0	11	51	0	0	0	0	0	0	23	17	0	0	0	16	12	32	25	0	0	0	12
	57	772.8	0	0	6	46	0	0	0	0	0	0	25	18	0	0	0	14	11	31	23	0	0	0	15

Recovery Catchment	Sub-catchment #	Area (km²)	T1_2	T6	T7	T8A	T16	T27_33	W1	W2	W3	W4	W5	W6	W8	W9	W10	W11	W12	W13	W14	W16	W17	W18	W20
	61	162.6	0	0	3	39	0	0	0	0	0	0	30	18	0	0	0	9	10	27	20	0	0	0	20
	63	819.9	0	0	7	46	0	0	0	0	0	0	26	17	0	0	0	12	10	31	24	0	0	0	11
	64	245.7	0	0	6	46	0	0	0	0	0	0	25	18	0	0	0	13	11	31	24	0	0	0	14
	65	66.6	0	0	2	37	0	0	0	0	0	0	29	19	0	0	0	9	10	29	21	0	0	0	21
	sub- total	**10812.5**	**186**	**0**	**87**	**503**	**0**	**0**	**0**	**0**	**0**	**0**	**296**	**189**	**0**	**0**	**0**	**138**	**115**	**316**	**253**	**0**	**0**	**0**	**176**
	TOTAL	**24746.3**	**562**	**225**	**117**	**1354**	**170**	**152**	**8**	**214**	**104**	**114**	**1207**	**780**	**326**	**229**	**30**	**209**	**132**	**970**	**501**	**149**	**256**	**14**	**477**
	Target SSR		**554**	**224**	**32**	**236**	**260**	**478**	**54**	**212**	**122**	**124**	**128**	**70**	**140**	**60**	**200**	**88**	**126**	**136**	**74**	**102**	**178**	**168**	**148**
	% of Target		**101**	**100**	**366**	**574**	**66**	**32**	**15**	**101**	**85**	**92**	**943**	**1115**	**233**	**382**	**15**	**237**	**105**	**713**	**677**	**146**	**144**	**8**	**322**