

Appendix 4 – Summary of modelling of climatic suitability (Ecoclimatic Index) for listed species.

Maps of modelled distributions (current since 1975 and future – 2070 Mk3 GCM based on A1B emissions scenario) are available: <http://data.csiro.au/dap>

NRM Region	Common Name	Distribution (maximum Ecoclimatic Index, EI)			
		Currently (since 1975) within SWCC (incl Peel)	Projected distribution (2070) to remain in SWCC (incl Peel)	Projected distribution (2070) to enter SWCC (incl Peel)	Projected distribution (2070) no longer within SWCC (incl. Peel)
	<i>Acacia catechu</i>	0		8	
	<i>Acacia cyclops</i>	45	46		
	<i>Acacia karroo</i>	29	33		
	<i>Acacia nilotica</i>	0		12 - very northern boundary (City of Mandurah)	
	<i>Acacia pycnantha</i>	26	31		
	<i>Alternanthera philoxeroides</i>	50	64		
	<i>Arundo donax</i>	43	49		
	<i>Asparagus aethiopicus</i>	37 - Wheatbelt only	42 - Wheatbelt only (very little change)		
	<i>Asparagus africanus</i>	38	38		
	<i>Asparagus asparagoides (western Cape)</i>	35	31 - retraction away from the Swan Coastal Plain and Scott Coastal Plain		
	<i>Asparagus asparagoides (widespread)</i>	38	38		
	<i>Asparagus declinatus</i>	36 - Leeuwin Nat Ridge and Wheatbelt	45 - retraction away from the ridge and only occurring in the lower southern Wheatbelt		

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<i>Asparagus densiflorus</i>	asparagus fern, plume asparagus, foxtail fern	5 - Leeuwin Nat Ridge and Scott Coastal Plain. Low density (yellow shading)	7 - Retraction down towards the south coast.		
<i>Asparagus officinalis</i>	Asparagus or garden asparagus	23 - gap in northern jarrah forest	30 - retraction south, covering area of northern jarrah forest not currently suitable, moving out of northern Wheatbelt area		
<i>Asparagus plumosus</i>	Common Asparagus Fern, Lace Fern, Climbing Asparagus, or Ferny Asparagus	0		6 - Small pockets at Cape Leeuwin and cape Naturaliste (gap in between)	
<i>Asparagus scandens</i>	Climbing Asparagus fern or Krulkransie	60	62 - retraction towards the south coast		
<i>Asparagus virgatus</i>	African Broom Fern	0		6 - Small pockets at Cape Leeuwin and cape Naturaliste (gap in between)	
<i>Asystasia gangetica ssp. micrantha</i>	Chinese violet	5	14 - spread for the length of the swan coastal plain and Leeuwin Naturaliste ridge		
<i>Baccharis halimifolia</i>	Groundsel bush	61	50		
<i>Baccharis pingraea</i>	Chilquilla	78	76		
<i>Bassia scoparia</i>	Kochia	74	85 - intensifies on the south coast		

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<i>Buddleja davidii</i>	summer lilac, butterfly-bush, or orange eye,	32	31 - retraction away northern Wheatbelt boundary		
<i>Calluna vulgaris</i>	common heather, ling, or simply heather	67	62 - retraction out of Jarrah forest to only occur on the Scott coastal plain and cape Naturaliste		
<i>Cannabis sativa</i>		73	65		
<i>Cenchrus ciliaris</i>	Buffel grass	24 - only around peel-harvey	36 - spread south and east to include SCP, Wheatbelt and Leeuwin Nat ridge (Scott coastal plain remains free)		
<i>Centaurea eriophora</i>	Mallee Cockspur	54	54 - retraction away from northern boundary		
<i>Centaurea solstitialis</i>	yellow star-thistle	3	4		
<i>Chloris truncata</i>	Australian windmill grass and simply windmill grass	21	32		
<i>Crupina vulgaris</i>	common crupina, bearded creeper, false saw-wort, and starry scabiou	38	34		
<i>Cryptostegia grandiflora</i>	rubber vine	0		11 - northern peel boundary	
<i>Cuscuta suaveolens</i>	Fringed Dodder	86	85 - retraction from northern Wheatbelt boundary		
<i>Cynodon dactylon</i>	dūrvā grass, Dhoob, Bermuda grass, dubo, dog's tooth grass, Bahama grass, devil's grass, couch grass, Indian doab, arugampul, grama, and scutch grass	66	70		

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<i>Cynoglossum creticum</i>	Blue hound's tongue	24	25 - retraction to the south coast		
<i>Cyperus teneristolon</i>		40	43		
<i>Cytisus multiflorus</i>	white Spanish broom	60	56		
<i>Cytisus scoparius</i>	Scotch broom	38	39 - retraction from northern Wheatbelt boundary		
<i>Dactylis glomerata</i>	cock's-foot or orchard grass,	81	76		
<i>Dittrichia viscosa</i>	False Yellowhead, Sticky Fleabane, Woody Fleabane and Yellow Fleabane	55	58 - retraction from northern Wheatbelt boundary		
<i>Eleocharis parodii</i>	Parodi Spike Rush	43	51 - retraction to the south coast		
<i>Emex australis</i>	Spiny emex	48	51		
<i>Emex spinosa</i>	Lesser Jack	32	32		
<i>Equisetum arvense</i>	Horsetail	51	50 - retraction from northern Wheatbelt boundary		
<i>Eucalyptus globulus</i>	Tasmanian blue gum	65	65		
<i>Froelichia floridana</i>	Snakecotton	48 - currently small pocket northern jarrah forest and then along south coast	51 - retraction to the south coast		
<i>Gymnocoronis spilanthoides</i>	Senegal tea plant	62	60		
<i>Hieracium aurantiacum</i>	Orange hawkweed	76	67 - retraction to the south coast		
<i>Hyparrhenia hirta</i>	common thatching grass and Coolatai grass	9 - SCP, Cape Naturaliste and Wheatbelt	11 - spread to include all of SWCC		

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<i>Hypericum tetrapterum</i>	St. Peter's Wort, Peterwort, Square Stemmed St. John's Wort, and Square Stalked St. John's Wort.	75	66 - retraction from northern Wheatbelt boundary		
<i>Jatropha curcas</i>	Physic nut	15	21		
<i>Koelreuteria elegans ssp. formosana</i>	Golden rain tree	0		2	
<i>Lachenalia aloides</i>	opal flower	54	44		
<i>Lachenalia reflexa</i>	yellow soldier	55	49 - retraction away from SCP		
<i>Lagarosiphon major</i>	African elodea, curly waterweed, oxygen weed and South African oxygen weed	72	63		
<i>Lantana camara</i>	big sage, wild sage, red sage, white sage and tickberry	20	23		
<i>Lycium ferocissimum</i>	African Boxthorn or boxthorn	42	44		
<i>Macfadyena unguis-cati</i>	cats claw creeper, funnel creeper, or cat's claw trumpet	44 - not currently in central Jarrah Forest	48 - widespread through SWCC		
<i>Medicago sativa</i>	lucerne	60	62		
<i>Melaleuca quinquenervia</i>	broad-leaved paperbark	13 - currently around Peel-Harvey only	17 - spread throughout SWCC		
<i>Mikania micrantha</i>	Bitter Vine or Climbing Hemp Vine or American Rope	0		27 - northern SCP	
<i>Mimosa pigra</i>	Mimosa; Giant Sensitive Tree	0		8 - very northern coastal boundary Peel	
<i>Miscanthus sinensis</i>	Maiden Grass	42	47		
<i>Nassella charruana</i>	Lobed needle grass	51	60 - retraction to the south coast		
<i>Nassella hyalina</i>	Cane needlegrass	50	54		

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<i>Nassella neesiana</i>	Chilean needle grass	20	22		
<i>Nassella trichotoma</i>	serrated tussock	28 - not currently in Wheatbelt	28 - retraction to the south coast		
<i>Nicotiana tabacum</i>	cultivated tobacco	50	45		
<i>Oenanthe pimpinelloides</i>	Water Dropwort	75	66 - retraction from northern Wheatbelt boundary		
<i>Olea europaea ssp. europaea</i>	Common olive	14	16		
<i>Onopordum tauricum</i>	Taurian Thistle or Bull Cottonthistle	48	40 - retraction to the south coast		
<i>Opuntia robusta</i>	Wheel Cactus	26 - currently wheatbelt only	29 - widespread except south coast		
<i>Parkinsonia aculeata</i>	Parkinsonia	42 - currently SCP and Leeuwin Nat Ridge	49 - widespread		
<i>Parthenium hysterophorus</i>	Parthenium weed	24	27		
<i>Pelargonium alchemilloides</i>	Garden geranium	63	60 - retraction to the south coast		
<i>Pennisetum clandestinum</i>	kikuyu grass	68	64		
<i>Pennisetum purpureum</i>	Napier grass, elephant grass or Ugandan grass	8 - currently SCP, Leeuwin Nat Ridge and South Coast	12 - widespread except eastern Wheatbelt		
<i>Pereskia aculeata</i>	Barbados gooseberry, leaf cactus and ora-pronobis	28	29 - retraction from northern wheatbelt boundary		
<i>Phalaris aquatica</i>	bulbous canary-grass and Harding grass	70	65		
<i>Phalaris arundinacea</i>	reed canary grass	75	66		
<i>Phoenix dactylifera</i>	date or date palm	54 - currently eastern wheatbelt	66 - spread west slightly		

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<i>Phyla canescens</i>	Lippia	41	47		
<i>Piptochaetium montevidense</i>	Uruguayan rice grass	33 - south coast only	35- retracts towards walpole		
<i>Pueraria lobata</i>	kudzu	5 - scott coastal plain only			0
<i>Rapistrum rugosum</i>	annual bastard cabbage, common giant mustard or turnipweed	78	73		
<i>Retama raetam</i>	White weeping broom	100	100		
<i>Rorippa sylvestris</i>	Creeping Yellowcress	31 - south coast only	32 - retracts towards walpole		
<i>Rubus anglocandicans</i>	European Blackberry	69	60		
<i>Saccharum officinarum</i>	sugarcane	7 - SCP, Leeuwin Nat Ridge and southern JF and south coast	9 - spread to northern JF		
<i>Senecio glastifolius</i>	holly-leaved senecio, and pink ragwort	46 - south coast, southern JF and foothills of SCP	48 - retraction to the south coast		
<i>Senna obtusifolia</i>	Sicklepod	12	15 - retraction from northern wheatbelt boundary		
<i>Solanum elaeagnifolium</i>	Silver-leaved Nightshade	21	27		
<i>Solanum hoplopetalum</i>	Thorny Solanum	26 - Leeuwin Nat Ridge and wheatbelt	32 - wheatbelt only		
<i>Sonchus oleraceus</i>	sowthistle	81	75		
<i>Sorghum bicolor</i>	sorghum	95	97		
<i>Sorghum halepense</i>	Johnson grass	72	81		
<i>Stevia ovata</i>	candyleaf	30	32		

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<i>Thunbergia laurifolia</i>	Laurel clock vine or Blue trumpet vine	21 - leeuwinn Nat Ridge and southern south coast	27 - spread across south coast		
<i>Tipuana tipu</i>	Rosewood; Tipuana tree	66	61 - retraction from northern wheatbelt boundary		
<i>Triadica sebifera</i>	Chinese tallow tree	21	24		
<i>Trianoptiles solitaria</i>	Subterranean Cape sedge	44 - currently south coast	33 - retraction to the southern south coast		
<i>Zantedeschia aethiopica</i>	Arum lily	56 - widespread except wheatbelt	36 - retraction to the south coast		