Family: ***Myrtaceae***

Taxon: ***Eucalyptus macrocarpa***

Synonym: ***Common Name:*** mottlecah

Questionaire : current 20090513 **Assessor:** Patti Clifford **Designation:** EVALUATE

Status: Assessor Approved **Data Entry Person:** Patti Clifford **WRA Score** 3

101	**Is the species highly domesticated?**	**y=-3, n=0**	**n**
102	**Has the species become naturalized where grown?**	**y=1, n=-1**	
103	**Does the species have weedy races?**	**y=1, n=-1**	
201	**Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"**	**(0-low; 1-intermediate; 2-high) (See Appendix 2)**	**High**
202	**Quality of climate match data**	**(0-low; 1-intermediate; 2-high) (See Appendix 2)**	**High**
203	**Broad climate suitability (environmental versatility)**	**y=1, n=0**	**n**
204	**Native or naturalized in regions with tropical or subtropical climates**	**y=1, n=0**	**y**
205	**Does the species have a history of repeated introductions outside its natural range?**	**y=-2, ?=-1, n=0**	**n**
301	**Naturalized beyond native range**	**y = 1*multiplier (see Appendix 2), n= question 205**	**n**
302	**Garden/amenity/disturbance weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
303	**Agricultural/forestry/horticultural weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
304	**Environmental weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**y**
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**n**
402	**Allelopathic**	**y=1, n=0**	
403	**Parasitic**	**y=1, n=0**	**n**
404	**Unpalatable to grazing animals**	**y=1, n=-1**	
405	**Toxic to animals**	**y=1, n=0**	**n**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
407	**Causes allergies or is otherwise toxic to humans**	**y=1, n=0**	**n**
408	**Creates a fire hazard in natural ecosystems**	**y=1, n=0**	
409	**Is a shade tolerant plant at some stage of its life cycle**	**y=1, n=0**	**n**
410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y=1, n=0**	**n**
411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**

412	**Forms dense thickets**	**y=1, n=0**	
501	**Aquatic**	**y=5, n=0**	**n**
502	**Grass**	**y=1, n=0**	**n**
503	**Nitrogen fixing woody plant**	**y=1, n=0**	**n**
504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**y=1, n=0**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	**n**
602	**Produces viable seed**	**y=1, n=-1**	**y**
603	**Hybridizes naturally**	**y=1, n=-1**	**y**
604	**Self-compatible or apomictic**	**y=1, n=-1**	
605	**Requires specialist pollinators**	**y=-1, n=0**	**n**
606	**Reproduction by vegetative fragmentation**	**y=1, n=-1**	**n**
607	**Minimum generative time (years)**	**1 year = 1, 2 or 3 years = 0, 4+ years = -1**	
701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y=1, n=-1**	
702	**Propagules dispersed intentionally by people**	**y=1, n=-1**	**y**
703	**Propagules likely to disperse as a produce contaminant**	**y=1, n=-1**	**n**
704	**Propagules adapted to wind dispersal**	**y=1, n=-1**	**y**
705	**Propagules water dispersed**	**y=1, n=-1**	
706	**Propagules bird dispersed**	**y=1, n=-1**	**n**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	**n**
708	**Propagules survive passage through the gut**	**y=1, n=-1**	**n**
801	**Prolific seed production (>1000/m2)**	**y=1, n=-1**	
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	
803	**Well controlled by herbicides**	**y=-1, n=1**	
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y=1, n=-1**	**y**
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: EVALUATE **WRA Score** **3**

Supporting Data:

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence of domestication.
102	2011. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown?] NA
103	2011. WRA Specialist. Personal Communication.	[Does the species have weedy races?] NA
201	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s)?] Native to Australia [s.w.][subtropical]
202	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data] Native to Australia [s.w.] [subtropical]
203	2011. Australian Native Plant Society. Eucalyptus macrocarpa. http://anpsa.org.au/e-macro.html	[Broad climate suitability? No] As a species native to relatively dry areas, "E. macrocarpa is best suited to cultivation in climates which have a dry summer. It has been grown in sub tropical districts but cannot be regarded as reliable in those areas. It has been observed growing and flowering in western Sydney. "
203	2011. Dave's Garden. PlantFiles: Mottlecah, Blue Bush, Desert Mallee Eucalyptus macrocarpa. http://davesgarden.com/guides/pf/go/74324/	[Broad climate suitability? No] USDA Hardiness zones: 9b-11.
204	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	Native range: Australia [s.w.] [subtropical]
205	2011. WRA Specialist. Personal Communication.	[Does the species have a history of repeated introductions outside its natural range? No] No evidence of repeated introductions.
301	2011. WRA Specialist. Personal Communication.	[Naturalized beyond native range? No] No evidence of naturalization beyond native range.
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No] No evidence of weediness.
303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Agricultural/forestry/horticultural weed? No] No evidence of weediness.
304	2002. Schutz, W./Milberg, P./Lamont, B.B.. Germination requirements and seedling responses to water availability and soil type in four eucalupt species. Acta Oecologica. 23: 23-30.	[Environmental weed? No] No evidence of weediness.
305	2011. California Invasive Pest Council. Eucalyptus globulus (Tasmanian blue gum). http://www.cal-ipc.org/ip/management/plant_profiles/Eucalyptus_globulus.php	[Congeneric weed? Yes] "Eucalyptus globulus (Tasmanian blue gum) is a tree (family Myrtaceae) found throughout California, but has primarily escaped to become invasive along the coast from northern to southern California. Native plants are unable to grow underneath groves of eucalyptus. This has been attributed to either the thick litter layer that can develop, or perhaps an allelopathic effect."
401	1847. Hooker, W.J./Prain, D./Stapf, O./Royal Horticultural Society/Bentham-Moxon Trust/Royal Botanic Gardens, Kew/Stanley Smith Horticultural Trust. Curtis's botanical magazine. 73: .Reeve Brothers, http://books.google.com/books?id=noUUAAAAYAAJ&dq=eucaly	[Produces spines, thorns or burrs? No] No spines, thorn, burrs.
402	2011. WRA Specialist. Personal Communication.	[Allelopathic?] Unknown.

403	2010. Nickrent, D.. The parasitic plant connection. Department of Plant Biology, Southern Illinois University, Carbondale http://www.parasiticplants.siu.edu/index.html	[Parasitic? No] Myrtaceae.
404	2011. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals?] Unknown.
405	2011. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland http://www.ncbi.nlm.nih.gov/	[Toxic to animals? No] No evidence of toxicity.
405	2011. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Toxic to animals? No] No evidence of toxicity.
406	2011. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens?] Unknown.
407	2011. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland http://www.ncbi.nlm.nih.gov/	[Causes allergies or is otherwise toxic to humans? No] No evidence of allergies or toxicity to humans.
407	2011. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Causes allergies or is otherwise toxic to humans? No] No evidence of allergies or toxicity to humans.
408	2011. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems?] Unknown. [some species of Eucalyptus do]
409	2011. Dave's Garden. PlantFiles: Mottlecah, Blue Bush, Desert Mallee Eucalyptus macrocarpa. http://davesgarden.com/guides/pf/go/74324/	[Is a shade tolerant plant at some stage of its life cycle? No] Full sun.
410	2002. Schutz, W./Milberg, P./Lamont, B.B.. Germination requirements and seedling responses to water availability and soil type in four eucalupt species. Acta Oecologica. 23: 23-30.	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? No] In its native region, Eucalyptus macrocarpa occurs in open scrub-heath on deep sands or sand over laterite with annual rainfall of 380–500 mm.
410	2011. Dave's Garden. PlantFiles: Mottlecah, Blue Bush, Desert Mallee Eucalyptus macrocarpa. http://davesgarden.com/guides/pf/go/74324/	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? No] Soil pH: 5.6-6.0 (acidic).
411	1847. Hooker, W.J./Prain, D./Stapf, O./Royal Horticultural Society/Bentham-Moxon Trust/Royal Botanic Gardens, Kew/Stanley Smith Horticultural Trust. Curtis's botanical magazine. 73: .Reeve Brothers, http://books.google.com/books?id=noUUAAAAYAAJ&dq=eucaly	[Climbing or smothering growth habit? No]
412	2011. WRA Specialist. Personal Communication.	[Forms dense thickets?] Unknown.
501	1847. Hooker, W.J./Prain, D./Stapf, O./Royal Horticultural Society/Bentham-Moxon Trust/Royal Botanic Gardens, Kew/Stanley Smith Horticultural Trust. Curtis's botanical magazine. 73: .Reeve Brothers, http://books.google.com/books?id=noUUAAAAYAAJ&dq=eucaly	[Aquatic? No] Terrestrial.
502	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Grass? No] Myrtaceae.

503	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] Myrtaceae.
504	1847. Hooker, W.J./Prain, D./Stapf, O./Royal Horticultural Society/Bentham-Moxon Trust/Royal Botanic Gardens, Kew/Stanley Smith Horticultural Trust. Curtis's botanical magazine. 73: .Reeve Brothers, http://books.google.com/books?id=noUUAAAAYAAJ&dq=eucaly	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] Shrub.
601	2011. Australian Native Plant Society. Eucalyptus macrocarpa. http://anpsa.org.au/e-macro.html	[Evidence of substantial reproductive failure in native habitat? No] Not considered to be at risk in its native habitat.
602	2002. Schutz, W./Milberg, P./Lamont, B.B.. Germination requirements and seedling responses to water availability and soil type in four eucalupt species. Acta Oecologica. 23: 23-30.	[Produces viable seed? Yes] "We conducted experiments on seed germination, seedling survival and seedling growth of four Eucalyptus species to identify factors that might explain why they are restricted to the two major soil types in southwestern Australia, deep sands (E. macrocarpa, E. tetragona) and lateritic loam (E. loxophleba, E. wandoo)."
603	2011. Council of Heads of Australasian Herbaria (CHAH). Myrtaceae: Eucalyptus s. str.. http://www.chah.gov.au/chah/apc/interim/Myrtaceae-Eucalyptus.pdf	[Hybridizes naturally? Yes]"A reputed hybrid E. drummondii x E. macrocarpa is the basis for E. carnabyi Blakely & H.Steedman ex Blakely according to Pryor & Johnson (1971) and Chippendale (1988). Hybrids between E. macrocarpa and E. pyriformis are reported."
604	2011. WRA Specialist. Personal Communication.	[Self-compatible or apomictic?] Unknown.
605	1980. Keighery, G.J.. Bird pollination in Southwestern Australia: a checklist. Plant Systematics Evolution. 135: 171-176.http://www.springerlink.com/content/m057787872764048/fulltext.pdf	[Requires specialist pollinators? No] Adapted to bird pollination.
606	2011. Dave's Garden. PlantFiles: Mottlecah, Blue Bush, Desert Mallee Eucalyptus macrocarpa. http://davesgarden.com/guides/pf/go/74324/	[Reproduction by vegetative fragmentation?]Propagate by seed.
607	2011. WRA Specialist. Personal Communication.	[Minimum generative time (years)?] Unknown.
701	2011. WRA Specialist. Personal Communication.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)?] Unknown.
702	2011. Australian Native Plant Nursery. Eucalyptus macrocarpa. http://www.australianplants.com/plants.aspx?id=1566	[Propagules dispersed intentionally by people? Yes] Australian Native Plants Nursery has 5 gallon trees for sale.
702	2011. B & T World Seeds. Eucalyptus macrocarpa. http://www.b-and-t-world-seeds.com/carth.asp?species=Eucalyptus%20macrocarpa%20cs&sref=30739	[Propagules dispersed intentionally by people? Yes] B & T World Seeds has seeds for sale.
703	2011. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence of produce contamination.
704	. Krugman, S.L./Whitesell, C.D.. Eucalyptus L=Her.. http://www.nsl.fs.fed.us/wpsm/Eucalyptus.pdf	[Propagules adapted to wind dispersal? Yes] "Dispersal is largely by wind within a month or two after ripening for most species, for example, bluegum and shining eucalyptuses."
705	2011. WRA Specialist. Personal Communication.	[Propagules water dispersed?] Unknown
706	. Krugman, S.L./Whitesell, C.D.. Eucalyptus L=Her.. http://www.nsl.fs.fed.us/wpsm/Eucalyptus.pdf	[Propagules bird dispersed? No] "Dispersal is largely by wind within a month or two after ripening for most species, for example, bluegum and shining eucalyptuses."
707	. Krugman, S.L./Whitesell, C.D.. Eucalyptus L=Her.. http://www.nsl.fs.fed.us/wpsm/Eucalyptus.pdf	[Propagules dispersed by other animals (externally)? No] "Dispersal is largely by wind within a month or two after ripening for most species, for example, bluegum and shining eucalyptuses." [no means of external attachment]

708	2011. Euclid. Eucalyptus macrocarpa subsp. Elachantha. http://www.publish.csiro.au/samples/euclidsample/html/Eucalyptus_macrocarpa_subsp._elachantha.htm	[Propagules survive passage through the gut? No] "Seed pale straw-brown to pale grey-brown, 3–6 mm long, more or less pyramidal with prominent ridges and a conspicuous encircling marginal flange ca 1 mm wide, dorsal surface smooth to shallowly reticulate, hilum terminal." [unlikely] [subspecies description]
801	2011. WRA Specialist. Personal Communication.	[Prolific seed production (>1000/m2)?] Unknown.
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)?] Unknown.
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides?] Unknown.
804	2011. Australian Native Plant Society. Eucalyptus macrocarpa. http://anpsa.org.au/e-macro.html	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes]. The species develops a lignotuber and should respond to hard pruning to near ground level if rejuvenation is required.
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)?] Unknown.