

<i>Eucalyptus erythrocorys</i> (Bookara, Illyarrie, Helmet Nut Gum, Red-Cap Gum) -- FLORIDA		Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to FL climates (USDA hardiness zones; 0-low, 1-intermediate, 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	n	0
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	n	0
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	n	-2
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	?	
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	?	
4.05	Toxic to animals	?	
4.06	Host for recognised pests and pathogens		
4.07	Causes allergies or is otherwise toxic to humans		
4.08	Creates a fire hazard in natural ecosystems	?	
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	n	0
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation		
6.07	Minimum generative time (years)		

7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant		
7.04	Propagules adapted to wind dispersal	y	1
7.05	Propagules water dispersed	?	
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides	?	
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05	Effective natural enemies present in U.S.		
	Total Score		1
	Implemented Pacific Second Screening		Yes
	Risk Assessment Results		Evaluate

	Reference	Source data
1.01		Cultivated but no evidence of selection for reduced weediness.
1.02		Skip to 2.01
1.03		Skip to 2.01
2.01	1. PERAL NAPPFast Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFast%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif) & USDA Plant Hardiness Zone Map, 2012. Agricultural Research Service, U.S. Department of Agriculture. Accessed from http://planthardiness.ars.usda.gov . 2. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948 [Accessed: 8 May 2012]). 3.a-b. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012. 4. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	No computer analysis was performed. 1. Global plant hardiness zones 10-11; equivalent to USDA Hardiness zones 10a+ (south zone of Florida). 2. Native distribution: southwest Western Australia, Australia. 3.a. Hardy range 9a-11. 3.b. Native to Western Australia. 4. Endemic to Western Australia, where it is restricted to a coastal belt.
2.02		No computer analysis was performed. 1. Native range is well known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Native distribution appears to be in two climatic groups (BSh and Csa). 2. Altitudinal range: 20 m-80 m (65.6'-262.5').
2.04	1. Australia's Virtual Herbarium. 2009. http://chah.gov.au/avh/index.jsp . Accessed: 8 May 2012. 2. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. 400 mm-1200 mm (15.7"-47.2"). 2. Rainfall: 400 mm-500 mm (15.7"-19.7")
2.05	1. Fairchild Tropical Garden. The Virtual Herbarium. http://www.virtualherbarium.org . 2011. Accessed 23 May 2012. Internet. 2. Global Biodiversity Information Facility. http://es.mirror.gbif.org/welcome.htm . Accessed 23 May 2012. Internet.	1. Exotic Flora of Southern California, Los Angeles, CA Arboretum collected 14 September 1972. 2. Arizona State University Vascular Plant Herbarium preserved specimen collected 10 October 1999 from Maricopa County, Glendale Xeriscape Botanical Garden, Glendale Main Public Library.
3.01		No evidence.
3.02		No evidence.
3.03		No evidence.
3.04		No evidence.

3.05	1. Holm, L. et al. <i>A Geographical Atlas of World Weeds</i> . John Wiley and Sons, New York. 1979.	1. The following <i>eucalypts</i> are considered principal weeds in Australia (principal weed in this context is ranked according to the importance of the weed and is usually referring to about the five most troublesome species for the crop): <i>E. cambageana</i> , <i>E. ferruginea</i> , <i>E. gracilis</i> , <i>E. marginata</i> , <i>E. miniata</i> , <i>E. pilularis</i> , <i>E. populnea</i> , <i>E. tetradonta</i> .
4.01		No evidence.
4.02	1. Anonymous. 2009. "Focus on Eucalypts." SAPIA NEWS No. 12. ARC-Plant Protection Research Institute, South Africa. 2. Anonymous. October 2010. Scotland, Forestry Commission. Interim Guidance on the Grant Aiding and Planting of Eucalypts in Scotland. Accessed: 1 June 2012. 3. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. It is likely that most Eucalypts are allelopathic-having the potential to suppress understory plants through chemical inhibitors that leach into the soil. 2. There are many reports in global literature of toxic inhibition of germination and growth of other plant species (allelopathic effects), which inhibits the growth of an understory. 3. Concerns expressed about suppression of ground vegetation due to possible allelopathic effects. Allelopathic effects are widely reported and these reports are largely based on laboratory bioassays. If not chemical inhibition then at least accumulation of dead material of the floor of eucalypt plantations hinders regeneration of native species.
4.03		No evidence.
4.04	1. United States Department of Agriculture Permit applications 08-11-106rm and 08-014-101rm received from ArborGen LLC. Field testing of genetically engineered <i>E. grandis</i> X <i>E. urophylla</i> (http://www.aphis.usda.gov/brs/aphisdocs/08_014101rm_ea2.pdf [Accessed: 8/19/2010]).	1. Eucalyptus species are known to produce chemical compounds that are required by the plant for defense against herbivores and pathogens.
4.05	1. <i>Medicinal Plants for Livestock: Eucalyptus spp.</i> Cornell University, Department of Animal Science. http://www.ansci.cornell.edu/plants/medicinal/eucalyp.html . 1 June 2012.	1. " <i>Eucalyptus spp.</i> contain high levels of phenolics and terpenoids which can be toxic. Animals such as the koala which eat Eucalyptus have developed methods for detoxifying the compounds in the liver. In addition, they have bacteria that degrade tannin-protein complexes. Most animals do not have this ability."
4.06		
4.07		
4.08	1. Gill, A.M. "Eucalypts and fires: interdependent or independent?" In: <i>Eucalypt ecology: individuals to ecosystems</i> . Ed. J.E. Williams & J. Woinarski. Cambridge, New York: Cambridge University Press, 1997. 2. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Eucalypts often are the major source of fuel for fires, but not always. 2. Accumulated litter in dense stands of eucalypt stands are extremely flammable.

4.09	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press. 2. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012.	1. Shade-tolerant sub-canopy [<i>Eucalyptus</i>] species are not known. 2. "Exposure: Full sun".
4.10	1. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012. 2. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. "This plant will grow in very dry soil. Suitable soil is well-drained/loamy, sandy or clay. The pH preference is an acidic to slightly alkaline (less than 6.8 to 7.7) soil." 2. Restricted to the occurrence of limestone rocks, outcropping among massive coastal sand dunes. Soils are calcareous sands and often skeletal.
4.11	1. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012.	1. "Tree, woody plant."
4.12	1. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Forms low open woodlands. Topography includes the rises and crests of limestone outcrops and interdune swales of dune systems.
5.01	1. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012.	1. "This plant tolerates drought. This plant will grow in very dry soil."
5.02	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948 [Accessed: 8 May 2012]).	1. Family: <i>Myrtaceae</i> .
5.03	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948 [Accessed: 8 May 2012]).	1. Family: <i>Myrtaceae</i> .
5.04	1. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012.	1. "Tree, woody plant."
6.01		
6.02	1. Australian Native Plant Society (Australia) (ANPSA). http://anpsa.org.au/index.html . Accessed: 16 May 2012.	1. Propagation is from seed, which germinates readily.
6.03		
6.04		
6.05	1. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Floral structure does not suggest adaptations for specialist pollinators. Inflorescence simple, axillary, 3-flowered; peduncles to 3 cm long; buds pedicellate, obovoid, 2-3 x 2-3 cm, green, subglossy, concolorous.
6.06		
6.07	1. " <i>Eucalyptus erythrocorys</i> ." horticultura.com. Horticultura, 2011. Web. 21 May 2012.	1. Growth rate is fast.
7.01		

7.02	1. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	Species is being considered for introduction as a biomass crop. 1. Species is commonly planted along streets in Perth and many other towns in temperate Australia.
7.03		
7.04	1. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print. 2. Pacific Island Ecosystems at Risk (PIER). http://www.hear.org . Via: Hill, K.D. & L.A.S. Johnson. 1988. Systematic studies in the eucalypts. 8. A review of the <i>Eudesmioid</i> eucalypts, <i>Eucalyptus</i> subgenus <i>Eudesmia</i> (<i>Myrtaceae</i>). <i>Telopea</i> , 7(4): 375-414. 3. Potts, B. 1990. The response of eucalypt populations to a changing environment. <i>Tasforests</i> , December: 179-193. 4. Cremer, K.W. 1977. Distance of seed dispersal in Eucalypts estimated from seed weights. <i>Australian Forest Research</i> , 7(4): 225-228. 5. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In: D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Seeds shallowly pyramidal, sides ribbed, dull brown to black, hilum ventral. 2. Seeds irregular, angular, dull, brownish black, sometimes with a ragged translucent wing around the edge.
7.05	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Eucalypts should not be planted near rivers/streams. Temporarily flooded or eroded river/stream banks are suitable habitat for spontaneous establishment of seedlings. Additionally, their seeds can be dispersed for long distances by running water.
7.06	1. Southern, S.G. et al. 2004. Review of gene movement by bats and birds and its potential significance for eucalypt plantation forestry. <i>Australian Forestry</i> , 67(1): 44-53.	1. Dispersal in animal droppings does not occur, although many birds eat eucalypt seed, because the seed does not survive passage through the alimentary canal of mammals and birds (Joseph 1986).
7.07	1. Boland, D.J. et al. <i>Forest Trees of Australia</i> . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. No adaptations that would suggest that it could attach itself externally to animals. Seeds shallowly pyramidal, sides ribbed, dull brown to black, hilum ventral.
7.08	1. Southern, S.G. et al. 2004. Review of gene movement by bats and birds and its potential significance for eucalypt plantation forestry. <i>Australian Forestry</i> , 67(1): 44-53.	1. Dispersal in animal droppings does not occur, although many birds eat eucalypt seed, because the seed does not survive passage through the alimentary canal of mammals and birds (Joseph 1986).
8.01		
8.02	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Eucalypt seeds do not have dormancy and seed storage in the soil lasts less than a year.

8.03	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In : D. Simberloff & M. Rejmánek, eds. <i>Encyclopedia of Biological Invasions</i> . Berkeley: University of California Press.	1. Triclopyr or glyphosate applied to freshly cut stumps can greatly reduce resprouting.
8.04	1. Australian Native Plant Society (Australia) (ANPSA). http://anpsa.org.au/index.html . Accessed: 21 May 2012.	1. Responds well to pruning.
8.05		