Eucalyptus smithii (Blackbutt peppermint, Gully gum, Gully peppermint, Gully-ash) -- 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	y	1
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	?	
3.04	Environmental weed	?	
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	y	1
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	?	
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	?	
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)		

Completed: July 2012

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	n	-1
7.05	Propagules water dispersed	y	1
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	**Accept**	

	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) & 2. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948. 15 December 2011. 3. *Ecocrop* . Copyright 1993-2007. Food and Agriculture Organization of the United Nations. Web. 31 January 2012. http://ecocrop.fao.org/ecocrop/srv/en/home. 4. The Royal Botanic Gardens and Domain Trust ([31 January 2012]). PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (2.0 [1991]). http://plantnet.rbgsyd.nsw.gov.au. 5. FAO Forestry Department. 1995. Non-Wood Forest Products. Flavours and fragances of plant origin, Chapter 5 Eucalyptus Oil. FAO, Rome. E-Book. 1 February 2012. http://www.fao.org/docrep/V5350E/V5350E00.htm.	**No computer analysis was performed**. 1. Global plant hardiness zones 8-10; equivalent to USDA Hardiness zones 8a-10a (north, central south zones of Florida). 2. Distributional range: Native to New South Wales (se) and Victoria (e), Australia. 3. Found on the coastal ranges adjacent to the escarpment and table lands of southern NSW, and into the ranges of Victoria. Occurs on lower slopes of hills, and on edges of streams and swamps. 4. Locally frequent, in shallow soils on sloping site; south from Yerranderie. NSW subdivisions: SC, CT, ST. Other Australian states: Vic. 5. South Africa, Swaziland, and Zimbabwe.
2.02		**No computer analysis was performed**.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. *Ecocrop* . Copyright 1993-2007. Food and Agriculture Organization of the United Nations. Web. 31 January 2012. http://ecocrop.fao.org/ecocrop/srv/en/home.	1. Native distribution along the southeast coast of New South Wales and eastern Victoria, Australia appears to be in 2 climatic groups (Cfa, Cfb). 2. Climate zone: subtropical humid (Cf).
2.04	1. *Ecocrop* . Copyright 1993-2007. Food and Agriculture Organization of the United Nations. Web. 31 January 2012. http://ecocrop.fao.org/ecocrop/srv/en/home.	1. Optimal annual rainfall: 900 - 1500 mm (35.4 - 59 in); Absolute annual rainfall: 750 - 2200 mm (29.5 - 86.6 in).
2.05	1. FAO Forestry Department. 1995. Non-Wood Forest Products. Flavours and fragances of plant origin, Chapter 5 Eucalyptus Oil. FAO, Rome. E-Book. 1 February 2012. http://www.fao.org/docrep/V5350E/V5350E00.htm.	1. Grows very well under local conditions in South Africa (grown for mining timber) and Swaziland producing large amounts of leaf biomass and has led to it being the preferred species for oil production over other species. Zimbabwe is a minor producer.
3.01	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. *E. smithii* has no conclusive evidence of naturalizing; however, that does not conclude that it is non-invasive.
3.02		No evidence

3.03	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Concern has been expressed about the suppression of food crops growing nearby plantings of eucalypts.
3.04	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Concern has been expressed about the excessive water use, suppression of ground vegetation, and increased fire hazard.
3.05	1. Holm, L. et al. *A Geographical Atlas of World Weeds* . John Wiley and Sons, New York. 1979.	1. The following *eucalypts* 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): *E. cambageana, E. ferruginea, E. gracilis, E. marginata, E. miniata, E. pilularis, E. populnea, E. tetradonta* .
4.01		Species does not possess these described morphological features.
4.02	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. 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		
4.04		
4.05		
4.06	1. FAO. 2007. Forest Health & Biosecurity Working Papers Overview of Forest Pests – South Africa. Working Paper FBS/30E, FAO, Rome. 31 January 2012. http://www.fao.org/docrep/012/al019e/al019e00.pdf.	1.a. *Thaumastocoris peregrinus* (bronze bug) is a gregarious, sap-sucking bug that has become a significant pest in commercially important exotic Eucalyptus plantations of South Africa. Infests many eucalypts species and hybrids, including *E. smithii* . 1.b. *Phytophthora nicotianae* (Phytophthora rot) has been recovered from dead and dying *Eucalyptus* spp. *E. smithii* (Maseko et al., 2001). It is believed that this is the causative agent in cooler areas of root and collar rot. It has a very wide host range that includes other tree species and crops.
4.07		
4.08	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Accumulated litter in dense eucalypt stands are extremely flammable.
4.09	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Shade-tolerant sub-canopy species are not known.

4.10	1. Boland, D.J. et al. *Forest Trees of Australia* . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Prefers clay loams or deep sandy loams over clays; will grow on a wide range of soils. Poorer soils ar oftern sand over sandstone or conglomerate.
4.11	1. The Royal Botanic Gardens and Domain Trust ([31 January 2012]). PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (2.0 [1991]). http://plantnet.rbgsyd.nsw.gov.au.	1. Tree or mallee to 40 m high.
4.12	1. Boland, D.J. et al. *Forest Trees of Australia* . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	No evidence. 1. Tall tree, 40-45 m high with a long, well-shaped trunk.
5.01	1. Boland, D.J. et al. *Forest Trees of Australia* . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Occurs on lower slopes of hills and small stream flats and around the edges of swamps; also on flats and low slopes near streams of the coastal area. In some areas on the scarps, bases of cliffs, and upper slopes of dry and exposed sandstone ridges.
5.02	1. The Royal Botanic Gardens and Domain Trust ([31 January 2012]). PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (2.0 [1991]). http://plantnet.rbgsyd.nsw.gov.au.	1. Family: *Myrtaceae* .
5.03	1. The Royal Botanic Gardens and Domain Trust ([31 January 2012]). PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (2.0 [1991]). http://plantnet.rbgsyd.nsw.gov.au.	1. Family: *Myrtaceae* .
5.04	1. The Royal Botanic Gardens and Domain Trust ([31 January 2012]). PlantNET - The Plant Information Network System of The Royal Botanic Gardens and Domain Trust, Sydney, Australia (2.0 [1991]). http://plantnet.rbgsyd.nsw.gov.au.	1. Family: *Myrtaceae* . 2. Tree or mallee to 40 m high.
6.01		
6.02	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Eucalypt breeding system is of mixed mating with preferential outcrossing.
6.03		
6.04	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Eucalypt breeding system is of mixed mating with preferential outcrossing.

6.05	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press. 2. Free, J. B. *Insect Pollination of Crops* . Academic Press, London, UK. 1993. Reprinted with permission from Elsevier. Web/PDF.	1. Eucalypts generally don't need special pollinators. They are pollinated mostly by bees, wasps, and to lesser extents, birds, mammals, and wind. 2. Insect pollinated.
6.06		
6.07		
7.01		
7.02	1. USDA/ARS-GRIN [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?15948. 15 December 2011. 2. *Ecocrop* . Copyright 1993-2007. Food and Agriculture Organization of the United Nations. Web. 31 January 2012. http://ecocrop.fao.org/ecocrop/srv/en/home. 3. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Ecnomic importance: lipids, wood. 2. Products: timber wood. 3. Eucalypts provide saw timber, plywood, fiberwood, pulp for paper, poles, firewood, charcoal, essential oils, honey, shelter, and are also considered suitable for biofuel production.
7.03		
7.04	1. Boland, D.J. et al. Forest Trees of Australia. 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print. 2. Potts, B. 1990. The response of eucalypt populations to a changing environment. Tasforests, December: 179-193. 3. Cremer, K.W. 1977. Distance of seed dispersal in Eucalypts estimated from seed weights. Australian Forest Research, 7(4): 225-228. 4. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In: D. Simberloff & M. Rejmánek, eds. Encyclopedia of Biological Invasions. Berkeley: University of California Press.	No adaptions for wind dispersal (i.e., lacks wings). 1. Seeds flattened-elliposoidal, brown-black, hilum ventral. 2. Seed dispersal in most eucalypt species is mainly by wind and gravity. 3. Wind is probably the only important agent of seed dispersal in the eucalypts, except possibly in species growing on river margins or flood plains where water could also transport the seed. 4. Relatively limited seed dispersal; planted eucalypts are very small and have no adaptions for dispersal (wings or fleshy). The passive release of seeds is undoubtedly aided by wind; however all rigorous studies of eucalypt seed dispersal and seedling spatial distribution show that in general seeds are dispersed over quite short distances that are in agreement with measurement of terminal descent velocity.
7.05	1. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . 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. *Australian Forestry* , 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. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	No adaptations that would suggest that it could attach itself externally to animals. 1. Relatively limited seed dispersal; planted eucalypts are very small and have no adaptions for dispersal (wings or fleshy).
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. *Australian Forestry* , 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. *Encyclopedia of Biological Invasions* . 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. *Encyclopedia of Biological Invasions* . Berkeley: University of California Press.	1. Triclopyr or glyphosate applied to freshly cut stumps can greatly reduce resprouting.
8.04	1. FAO Forestry Department. 1995. Non-Wood Forest Products. Flavours and fragances of plant origin, Chapter 5 Eucalyptus Oil. FAO, Rome. E-Book. 1 February 2012. http://www.fao.org/docrep/V5350E/V5350E00.htm. 2. Rejmánek, M. & D.M. Richardson. 2011. Eucalypts (203-209). In D. Simberloff & M. Rejmánek, eds. Encyclopedia of Biological Invasions. Berkeley: University of California Press.	1. In Swaziland *E. smithii* responds well to coppicing; the first cut is made 20-24 months after planting and subsequent cuts of the coppice regrowth are made at approximately 16 month intervals. Harvesting may continue for as much as 20 years or more. 2. Has a regenerative strategy as a lignotuber sprouter.
8.05		