Eucalyptus caesia (Silver Princess) -- 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)	y	1
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	?	
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	?	
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	y	1
6.05	Requires specialist pollinators	y	-1
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	?	
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	**0**	
	Implemented Pacific Second Screening	**No**	
	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) & 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. Australia's Virtual Herbarium. 2009. http://chah.gov.au/avh/index.jsp. Accessed: 8 May 2012. 4. "*Eucalyptus caesia* ." horticopia.com. Horticopia, 2011. Web. 14 May 2012. 5. Moran, G.F. & S.D. Hopper. Genetic Diversity and the Insular Population Structure of the Rare Genetic Rock Species, *Eucalyptus caesia* Benth. *Australian Journal of Botany* , 31(2): 161-172. 6. Australian Native Plant Society (Australia) (ANPSA). http://anpsa.org.au/index.html. Accessed: 16 May 2012.	**No computer analysis was performed**. 1. Global plant hardiness zones 9-10; equivalent to USDA Hardiness zones 8b-10a (north, central, & south zones of Florida). 2. Distributional range: Western Asutralia (southwest). 3. Also herbarium specimens collected from southeast Queensland, eastern New South Wales, and southwest Victoria Australia. 4. Hardiness range: 9a-11. 5. Occur in southwestern Australia on granite rocks. 6. Granite outcrops in a restricted area in south Western Australia.
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).	1. Native distribution in Western Asutralia, and southeast Queensland, eastern New South Wales, and southwest Victoria Australia appears to be in at least three climatic groups (Csa, Cfa, Cfb) and possibly three additional climatic group (BSk, BSh, BWh).
2.04	1. Australia's Virtual Herbarium. 2009. http://chah.gov.au/avh/index.jsp. Accessed: 8 May 2012.	1. 200 mm-800 mm (7.8"-31.5").
2.05	1. Pacific Island Ecosystems at Risk (PIER). http://www.hear.org. Via: Chippendale, G.M. 1973. Eucalypts of the Western Australian goldfields : (and the adjacent wheatbelt). Australian Government Publishing Service for the Minister for Primary Industry, Canberra 1973. 218 pp. p.73	1. Has been cultivated in most of Australia and also in California.
3.01		No evidence.

3.02		No evidence.
3.03		No evidence.
3.04		No evidence.
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		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. *Encyclopedia of Biological Invasions.* 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 E. grandis X E. urophylla (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. *Medicinal Plants for Livestock: Eucalyptus spp* . Cornell University, Department of Animal Science. http://www.ansci.cornell.edu/plants/medicinal/eucalyp.html. 1 June 2012.	1. "*Eucalyptus spp* . 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: *Eucalypt ecology: individuals to ecosystems* . Ed. J.E. Williams & J. Woinarski. Cambridge, New York: Cambridge University Press, 1997. 2. Anonymous. October 2010. Scotland, Forestry Commission. Interim Guidance on the Grant Aiding and Planting of Eucalypts in Scotland. Accessed: 1 June 2012. http://www.forestry.gov.uk/pdf/InterimEucalyptusGuidance.pdf/$FILE/InterimEucalyptusGuidance.pdf. 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. *Eucalypts* often are the major source of fuel for fires, but not always. 2. Leaves of eucalypts are relatively slow to breakdown and have a high volatile oil content, which contributes to the severity of fire events in their native Australia. 3. Accumulated litter in dense stands of eucalypt stands are extremely flammable.
4.09	1. "*Eucalyptus caesia ssp. magna."* *horticopia.com* . Horticopia, 2011. Web. 13 December 2011. 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. Exposure: partial shade or partial sun to full sun. 2. 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. Confined to granite outcrops, growing in crevices and near the base of rocks. Soils are typically skeletol loams that include a coarse sand component.
4.11	1. "*Eucalyptus caesia ssp. magna* ." *horticopia.com* . Horticopia, 2011. Web. 1 June 2012.	1. "Tree."
4.12	1. Boland, D.J. et al. *Forest Trees of Australia* . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Species is a sprawling mallee, often with an untidy growth habit; densely pruinose branchlets.
5.01	1. Boland, D.J. et al. *Forest Trees of Australia* . 5th ed. Collingswood, Victoria, Australia: CSIRO, 2006. Print.	1. Occurs in low woodlands in the southern wheat belt.
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: *Myrtaceae.*
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: *Myrtaceae.*
5.04	1. "*Eucalyptus caesia ssp. magna* ." *horticopia.com* . Horticopia, 2011. Web. 1 June 2012.	1. "Tree."
6.01	1. Govindaraju, D.R. 1988. Relationship between Dispersal Ability and Levels of Gene Flow in Plants. *Oikos* , 52(1): 31-35.	1. *E. caesia* showed much lower levels of gene flow than some of the self pollinated species examined in this study

6.02	1. Daehler, C.C. & J.S. Denslow. 2004. Hawaii-Pacific Weed Risk Assessment. http://www.botany.hawaii.edu/faculty/daehler/wra/full_table.asp.html. Accessed 14 May 2012 & Australian Native Plant Society (Australia) (ANPSA). http://anpsa.org.au/index.html. Accessed: 16 May 2012. 2. Moran, G.F. & S.D. Hopper. Genetic Diversity and the Insular Population Structure of the Rare Genetic Rock Species, *Eucalyptus caesia* Benth. *Australian Journal of Botany* , 31(2): 161-172.	1. Propagation is from seed which germinates readily. 2. Virtually no seedlings regeneration occurs in the populations except after fire.
6.03	1. Pryor, L.D. 1956. An F1 hybrid between *Eucalyptus pulverulenta* and *E. caesia* . *Proceedings of The Linnean Society of New South Wales* , 81:97-100	1. A viable F1 hybrid was produced by manipulated pollination.
6.04	1. Pryor, L.D. 1956. An F1 hybrid between *Eucalyptus pulverulenta* and *E. caesia* . *Proceedings of The Linnean Society of New South Wales* , 81:97-100. 2. Moran, G.F. & S.D. Hopper. Genetic Diversity and the Insular Population Structure of the Rare Genetic Rock Species, *Eucalyptus caesia* Benth. *Australian Journal of Botany* , 31(2): 161-172.	1. Reciprocal pollinations were made, but with *E. caesia* as the female parent there was complete failure with *E. pulverulenta* (and with several other species), the only flowers which set seed bening selfings. This indicated that *E.caesia* was fully self compatible. 2. Diversity estimates from this study are more typical of an inbreeding annual than of an outbreeding tree species, which raises the question as to whether *E. caesia* is predominantly an outcrossing species like other eucalypts so far examined.
6.05	1. Southerton, 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. Specialised for bird-pollination, having large flowers, red or yellow stamens, pendulous or tubular flowers and synandry or aggregation of flowers (Keighery 1982; Sampson et al. 1989).
6.06		
6.07	1. "*Eucalyptus caesia* ." horticopia.com. Horticopia, 2011. Web. 14 May 2012.	1. Growth rate fast.
7.01		
7.02		Species is being considered for introduction as a biomass crop.
7.03		

7.04	1. "*Eucalyptus caesia* ." horticopia.com. Horticopia, 2011. Web. 14 May 2012. 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. Fruit is dry and oval. 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. "*Eucalyptus caesia* ." horticopia.com. Horticopia, 2011. Web. 14 May 2012.	1. No adaptations that would suggest that it could attach itself externally to animals. Fruit is dry and oval.
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. Moran, G.F. & S.D. Hopper. Genetic Diversity and the Insular Population Structure of the Rare Genetic Rock Species, *Eucalyptus caesia* Benth. *Australian Journal of Botany* , 31(2): 161-172. 2. Australian Native Plant Society (Australia) (ANPSA). http://anpsa.org.au/index.html. Accessed: 16 May 2012.	1. Field observations (Hopper, unpublished data) have shown that almost all the individuals of *E. caesia* regenerate from perennial root stocks after fires. 2. Species develops a lignotuber and should respond to hard pruning to near ground level if rejuvenation is required.
8.05		