

Australia/New Zealand Weed Risk Assessment adapted for Florida.

Data used for analysis published in: Gordon, D.R., D.A. Onderdonk, A.M. Fox, R.K. Stocker, and C. Gantz. 2008. Predicting Invasive Plants in Florida using the Australian Weed Risk Assessment. Invasive Plant Science and Management 1: 178-195.

<i>Kalanchoe gastonis-bonnierei (palm beachbells)</i>			
Question number	Question	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 Florida's USDA climate 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)		
2.04	Native or naturalized in habitats with periodic inundation		
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	0
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
4.05	Toxic to animals	y	1
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	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	?	
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)	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		
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 fragmentation	y	1
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	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	n	-1
7.06	Propagules bird dispersed		
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production	y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in Florida, or east of the continental divide		
Total Score			2

Outcome Accept*

*Used secondary screen from: Daehler, C. C., J.L. Denslow, S. Ansari, and H. Kuo. 2004. A risk assessment system for screening out harmful invasive pest plants from Hawaii's and other Pacific islands. *Conserv. Biol.* 18: 360-368.

section	# questions answered	satisfy minimum?
A	6	yes
B	8	yes
C	12	yes
total	26	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		used horticulturally, but no evidence for selection of reduced weediness
1.02		
1.03		
2.01		
2.02		
2.03	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	native to Madagascar
2.04		
2.05	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	horticultural species
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	Weber (2003) Invasive Plant Species of the World. CABI Publishing.	<i>K. pinnata</i> considered an environmental weed in Australia and the Galapagos
4.01	Eggle (2003) Illustrated Handbook of Succulent Plants. Crassulaceae. Springer-Verlag, Berlin.	no description of these traits
4.02		no evidence
4.03	Eggle (2003) Illustrated Handbook of Succulent Plants. Crassulaceae. Springer-Verlag, Berlin.	no description of this
4.04		
4.05	Smith (2004) <i>Kalanchoe</i> species poisoning in pets. Veterinary Medicine 99: 933-936.	" <i>Kalanchoe</i> species contain cardiac glycosides and are toxic to animals. In South Africa and Australia, where these plants are found in the wild, cattle and sheep poisonings are common."
4.06		
4.07		
4.08		no evidence
4.09	desert-tropicals.com (http://www.desert-tropicals.com)	sun exposure: light shade

	tropicals.com/Plants/Crassulaceae/Kalanchoe_ga stonis.html)	
4.1	Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden.	" <i>Kalanchoe</i> species are mainly found in dry rocky or sandy...locations."
4.11	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	growth habit: forb/herb
4.12		no evidence
5.01		terrestrial
5.02	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	Crassulaceae
5.03	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	herbaceous Crassulaceae
5.04		
6.01		
6.02	Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden.	" <i>Kalanchoe</i> plants are easy to propagate from seed and cuttings."
6.03		
6.04		
6.05	T.D. Macfarlane, L. Watson and N.G. Marchant (Editors) (2000 onwards). Western Australian Genera and Families of Flowering Plants. Western Australian Herbarium. Version: August 2002. (http://florabase.calm.wa.gov.au/).	floral nectaries present, entomophilous [genus <i>Kalanchoe</i>]
6.06	Queensland Government, Natural Resources and Mines, Pest Series. Mother of millions: Bryophyllum species. (<a href="http://www.nrm.qld.gov.au/factsheets/pdf/pest/pp
33.pdf">http://www.nrm.qld.gov.au/factsheets/pdf/pest/pp 33.pdf)	"all [<i>Kalanchoe</i> species] produce small plantlets along the edges of the leaves. These plantlets drop readily, develop roots, and establish quickly to form a new colony."
6.07		
7.01		
7.02	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	horticultural species
7.03		no evidence
7.04	Eggle (2003) Illustrated Handbook of Succulent Plants. Crassulaceae. Springer-Verlag, Berlin.	fruit is a follicle
7.05		no evidence
7.06		
7.07		no evidence of any means of attachment

7.08		
8.01	Eggle (2003) Illustrated Handbook of Succulent Plants. Crassulaceae. Springer-Verlag, Berlin.	numerous, minute seeds
8.02		
8.03		
8.04		
8.05		