

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>Callistemon citrinus (crimson bottlebrush)</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	n	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	n	0
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	y	1
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	n	0
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		
6.07	Minimum generative time (years)	3	0
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)	n	-1
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			-1

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	11	yes
C	13	yes
total	30	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01		
2.02		
2.03		
2.04		
2.05	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	"widely cultivated in tropical to warm temperate regions for its red flowers"
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	Henderson (2001) Alien Weeds and Invasive Plants: a Complete Guide to Declared Weeds and Invaders in South Africa. Plant Protection Research Institute Handbook No. 12.	<i>Callistemon rigidus</i> is a proposed invader in South Africa. [but no evidence of current congeneric invaders]
4.01	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	no description of these traits
4.02		no evidence
4.03	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	no description of this
4.04		
4.05		no evidence
4.06	Tommerup, Alfenas, and Old (2003) Guava rust in Brazil - a threat to <i>Eucalyptus</i> and other Myrtaceae. New Zealand Journal of Forestry Science 33: 420-428.	"... <i>Callistemon citrinus</i> Skeels, a moderately susceptible species, [is an] important industrial floriculture species which [is] widely grown in private and public gardens in disease-prone regions of Australia and parts of Africa. These and other widely dispersed susceptible hosts

		would facilitate rust invasion should an incursion occur." Guava rust (<i>Puccinia psidii</i> Wint.) is present in Florida and is a serious threat to Eucalyptus plantations, as well as to wild Myrtaceae.
4.07	Horticopia 4.0	"pollen can cause significant allergenic reaction"
4.08		no evidence
4.09	1. Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida. 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 3. Horticopia 4.0	1. requires full sun 2. grow in full sun BUT 3. exposure: partial shade or partial sun to full sun
4.1	1. Horticopia 4.0 2. Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	1. suitable soil: well-drained/loamy, sandy, or clay 2. tolerates a wide range of soils
4.11	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	form: evergreen shrub, upright, or small tree
4.12		no evidence
5.01		terrestrial
5.02	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	Myrtaceae
5.03	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	Myrtaceae
5.04		
6.01		
6.02	Horticopia 4.0	propagation from seed
6.03	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	" <i>Callistemon</i> spp. hybridize readily" [but no indication of whether this is in the wild or in cultivation]
6.04		
6.05	1. Missouri Botanical Garden, Kemper Center for Home Gardening (http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?code=A494) 2. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	1. flowers are attractive to bees 2. pollinated by birds (referring to genus)
6.06		
6.07	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	"Grows at a rapid rate."
7.01		
7.02	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	"widely cultivated in tropical to warm temperate regions for its red flowers"
7.03		no evidence; propagules unlikely to come into contact with produce
7.04	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	fruit is woody capsule

7.05		no evidence
7.06		
7.07	Dehgan (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	fruit is woody capsule - no adaptations for attachment
7.08		
8.01	Prakash (1969) Some aspects of the life history of <i>Callistemon citrinus</i> (Curt.) Skeels. Australian Journal of Botany 17: 107-117.	350-700 seeds in each fruit, but only 4% of them are viable (or 14-28 viable seeds per fruit). [R. Stocker estimates that plants are approx. 4m ² and contain approx. 1,000 fruits (250 fruits/m ²). This gives 3,500-7,000 viable seeds/m ² .]
8.02	Vinay, Charan, and Kukreti (2000) Studies on seed germination of twenty-one tree species from central Himalaya. Indian Journal of Soil Conservation 28: 54-57.	None of 21 species studied (including <i>C. citrinus</i>) showed seed dormancy.
8.03		
8.04		
8.05		