

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>Gomphrena globosa (globe amaranth)</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	y	0
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	y	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	n	0
4.06	Host for recognised pests and pathogens	n	0
4.07	Causes allergies or is otherwise toxic to humans	n	0
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	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 fragmentation	n	-1
6.07	Minimum generative time (years)	1	1
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	?	
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		
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			8

Outcome	Reject*
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*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	12	yes
total	29	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	1. Missouri Botanical Garden, Kemper Center for Home Gardening (http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?code=A115). 2. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu. 3. Villaseñor and Espinosa-Garcia (2004) The alien flowering plants of Mexico. Diversity and Distributions 10: 113-123.	1. native range: Panama, Guatemala 2. naturalized in Hawai'i 3. naturalized in Mexico
2.04		
2.05	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	" <i>Gomphrena globosa</i> ...is native to tropical America but is widely cultivated in the tropics and temperate regions as a garden herb or is grown in planters for its attractive globose, dark pink or sometimes white or yellow inflorescences."
3.01	1. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu. 2. Villaseñor and Espinosa-Garcia (2004) The alien flowering plants of Mexico. Diversity and Distributions 10: 113-123.	1. "Probably native to the Neotropics although originally described from India, now cultivated and escaped in many parts of the world; in Hawai'i a popular garden annual (Neal, 1965) and sparingly naturalized at least on O'ahu." 2. present in 13 states in Mexico (considered naturalized)
3.02		no evidence
3.03	Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	<i>G. globosa</i> considered present as a weed of agriculture in Ghana and the Philippines.

3.04		no evidence
3.05	Holm (1979) A Geographical Atlas of World Weeds. John Wiley and Sons.	<i>G. celosioides</i> considered a serious weed of agriculture in Taiwan and Thailand.
4.01	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	no description of these traits
4.02		no evidence
4.03	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	no description of this
4.04	Harris Coker, C, EH Simonne, L Merritt, DJ Eakes, MK Causey, J Owen, and J Osborne (2001) Reducing white-tailed deer damage to landscape plants with organic products. Journal of Environmental Horticulture 19: 158-162.	"Based on the level of feeding damage observed throughout the study, hosta, globe amaranth, and annual vinca were classified as having high, medium, and low palatability to deer, respectively." [medium palatability not enough for 'no' answer]
4.05		no evidence
4.06	1. Hortocopia 4.0. 2. Missouri Botanical Garden, Kemper Center for Home Gardening (http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?code=A115). 3. Gilman and Howe (1999) <i>Gomphrena globosa</i> . University of Florida, IFAS Extension, FPS-234 (http://hort.ufl.edu/shrubs/GOMGLOA.PDF).	1. "it is generally considered to be pest free" 2. "No serious insect or disease problems...Mildew may attack drought-stressed plants." 3. "Globe Amaranth is free of most pest and disease problems."
4.07		no evidence
4.08		no evidence
4.09	1. Hortocopia 4.0. 2. Missouri Botanical Garden, Kemper Center for Home Gardening (http://www.mobot.org/gardeninghelp/plantfinder/Plant.asp?code=A115). 3. Gilman and Howe (1999) <i>Gomphrena globosa</i> . University of Florida, IFAS Extension, FPS-234 (http://hort.ufl.edu/shrubs/GOMGLOA.PDF).	full sun (1, 2, 3)
4.1	1. Hortocopia 4.0. 2. Gilman and Howe (1999) <i>Gomphrena globosa</i> . University of Florida, IFAS Extension, FPS-234 (http://hort.ufl.edu/shrubs/GOMGLOA.PDF).	1. "Suitable soil is well-drained/loamy or sandy." 2. soil tolerances: acidic, sand, loam, clay
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, and is a low-growing herb
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	Amaranthaceae

	USA.	
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 Amaranthaceae
5.04	Hortocopia 4.0	"This plant's roots are fibrous." [and an annual]
6.01		
6.02	1. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland. 2. Gilman and Howe (1999) <i>Gomphrena globosa</i> . University of Florida, IFAS Extension, FPS-234 (http://hort.ufl.edu/shrubs/GOMGLOA.PDF).	propagate by seeds (1, 2)
6.03		
6.04		
6.05	Hortocopia 4.0	"Plants serve as butterfly nectar sources."
6.06	1. 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. 2. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	annual (1, 2), and no evidence of vegetative reproduction
6.07	1. 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. 2. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	annual (1, 2)
7.01		
7.02	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	" <i>Gomphrena globosa</i> ...is native to tropical America but is widely cultivated in the tropics and temperate regions as a garden herb or is grown in planters for its attractive globose, dark pink or sometimes white or yellow inflorescences."
7.03		no evidence
7.04	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	fruit a tiny, dry, one-seeded utricle
7.05		no evidence
7.06		
7.07	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	fruit a tiny, dry, one-seeded utricle [no evidence of any means of attachment]
7.08		
8.01		
8.02		

8.03		
8.04		
8.05		