

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>Alternanthera brasiliana (Brazilian joyweed)</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	?	
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	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens		
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	y	1
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)	y	1
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1

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		
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)	y	1
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)	y?	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		
<b>Total Score</b>			<b>13</b>

<b>Outcome</b>	<b>Reject*</b>
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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	5	yes
B	11	yes
C	11	yes
total	27	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	Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden.	"Native of tropical America; introduced and naturalized in western and central Java." [all tropical]
2.02		
2.03		
2.04	Flora of North America, vol. 4 ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242415693">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242415693</a> ).	"sandy, wet, disturbed sites"
2.05	1. Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden. 2. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	1. "Native of tropical America; introduced and naturalized in western and central Java." 2. "cultivated for its dark purple foliage and white heads"
3.01	1. Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden. 2. Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i Press/Bishop Museum Press, Honolulu.	1. "Native of tropical America; introduced and naturalized in western and central Java." 2. "appears to be naturalized" in Hawaii
3.02		occurs in disturbed areas - unclear how weedy it is
3.03	Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden.	<i>A. brasiliensis</i> is a weed of coffee in SE Asia.
3.04		no evidence
3.05	Holm, Doll, Holm, Pancho, and Herberger (1997) World weeds: natural histories and distribution. John Wiley & Sons, New York.	<i>A. philoxeroides</i> is reported as a weed in 30 countries, and <i>A. sessilis</i> in more than 65 countries.
4.01	Wagner, Herbst, and Sohmer (1999) Manual of the flowering plants of Hawai'i. University of Hawai'i	no description of these traits

	Press/Bishop Museum Press, Honolulu.	
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	Lorenzi (2000) Plantas Daninhas do Brasil. Instituto Plantarum.	"It is avidly appreciated by cattle"
4.05	Lorenzi (2000) Plantas Daninhas do Brasil. Instituto Plantarum.	"It is avidly appreciated by cattle" [and no evidence of toxicity]
4.06		
4.07		no evidence
4.08		no evidence
4.09	1. Padua, Bunyaphatsara, and Lemmens, eds. (1999) Plant Resources of South-East Asia. No. 12. Medicinal and poisonous plants 1. Backhuys Publishers, Leiden. 2. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	1. " <i>A. brasiliensis</i> shows a preference for shaded localities" 2. "partially shaded places are preferred"
4.1	1. Flora of North America, vol. 4 ( <a href="http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242415693">http://www.efloras.org/florataxon.aspx?flora_id=1&amp;taxon_id=242415693</a> ). 2. Lorenzi (2000) Plantas Daninhas do Brasil. Instituto Plantarum.	1. "sandy, wet, disturbed sites" BUT 2. "principally in clay soils"
4.11	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> ). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	growth habit: forb/herb, shrub, vine
4.12	Lorenzi (2000) Plantas Daninhas do Brasil. Instituto Plantarum.	"forming dense carpets of semi-creeping vegetation"
5.01		terrestrial
5.02	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> ). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	Amaranthaceae
5.03	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> ). Data compiled from various sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	Amaranthaceae
5.04		
6.01		
6.02	1. Lorenzi (2000) Plantas Daninhas do Brasil. Instituto Plantarum. 2. Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	1. reproduction is by seeds 2. propagate by seeds
6.03		
6.04		
6.05		
6.06	PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/alternanthera_brasiliana.htm">http://www.hear.org/pier/species/alternanthera_brasiliana.htm</a> ).	propagation: seed and vegetatively
6.07		
7.01	PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/alternanthera_brasiliana.htm">http://www.hear.org/pier/species/alternanthera_brasiliana.htm</a> ).	"Can spread through discarded cuttings."

7.02	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	"cultivated for its dark purple foliage and white heads"
7.03		no evidence
7.04	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	fruit a tiny, one-seeded utricle
7.05		no evidence
7.06		
7.07		no evidence of any means of attachment
7.08		
8.01	Whistler (2000) Tropical Ornamentals: a Guide. Timber Press, Portland.	one seed per fruit
8.02	PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/alternanthera_brasiliiana.htm">http://www.hear.org/pier/species/alternanthera_brasiliiana.htm</a> ).	"The seeds appear to have the ability to remain dormant for a long period."
8.03		
8.04		
8.05		