

**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>Callistephus chinensis (China aster)</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	n	0
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	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	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)	?	
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	y	1
7.05	Propagules water dispersed	n	-1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	?	
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)		
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>2</b>

<b>Outcome</b>	<b>Accept*</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	7	yes
B	10	yes
C	14	yes
total	31	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. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 2. New Zealand Plant Conservation Network (2005) New Zealand Adventive Vascular Plant List.	1. native to China 2. fully naturalized in New Zealand
2.04	McKay, ME, GC Nahrung, and IK Hughes (1983) Growing asters. Queensland Agricultural Journal 109: 192-198.	"Well drained soils are essential for the successful production of asters. They will not tolerate waterlogged conditions".
2.05	McKay, ME, GC Nahrung, and IK Hughes (1983) Growing asters. Queensland Agricultural Journal 109: 192-198.	"The aster ( <i>Callistephus chinensis</i> (L) Nees), an annual plant native to China and Japan, is grown in many parts of the world for cut flowers."
3.01	New Zealand Plant Conservation Network (2005) New Zealand Adventive Vascular Plant List.	fully naturalized in New Zealand
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	no congeners
4.01	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	no description of these traits
4.02		no evidence
4.03	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	no description of this
4.04		
4.05		no evidence
4.06	1. Gilman and Howe (1999) <i>Callistephus chinensis</i> . FPS-94, University of Florida, IFAS Extension	1. "The most serious disease on china aster is fusarium wilt." 2. Harmful organism

	( <a href="http://hort.ufl.edu/shrubs/CALCHIA.PDF">http://hort.ufl.edu/shrubs/CALCHIA.PDF</a> ). 2. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland ( <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?8581">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?8581</a> ).	host: crop diseases.
4.07		no evidence
4.08		no evidence
4.09	1. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 2. Hortocopia 4.0. 3. Gilman and Howe (1999) <i>Callistephus chinensis</i> . FPS-94, University of Florida, IFAS Extension ( <a href="http://hort.ufl.edu/shrubs/CALCHIA.PDF">http://hort.ufl.edu/shrubs/CALCHIA.PDF</a> ).	1. grow in full sun 2. full sun 3. full sun or light shade
4.1	1. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 2. Gilman and Howe (1999) <i>Callistephus chinensis</i> . FPS-94, University of Florida, IFAS Extension ( <a href="http://hort.ufl.edu/shrubs/CALCHIA.PDF">http://hort.ufl.edu/shrubs/CALCHIA.PDF</a> ). 3. Hortocopia 4.0.	1, 2. fertile, well-drained soil BUT 3. "Suitable soil is sandy."
4.11	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	an erect, herbaceous annual, to 80 cm
4.12		no evidence
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.	Asteraceae
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.	herbaceous Asteraceae
5.04	Hortocopia 4.0	"This plant's roots are fibrous." [and an annual]
6.01		
6.02	Hortocopia 4.0	"Propagation is from seeds."
6.03		
6.04		
6.05	Hortocopia 4.0	attracts butterflies
6.06	1. McKay, ME, GC Nahrung, and IK Hughes (1983) Growing asters. Queensland Agricultural Journal 109: 192-198. 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 3. 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.	annual (1, 2, 3) [and no evidence of vegetative reproduction]
6.07	1. McKay, ME, GC Nahrung, and IK Hughes (1983) Growing asters. Queensland Agricultural Journal 109: 192-198. 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London. 3. USDA, NRCS. 2005. The PLANTS Database, Version 3.5 ( <a href="http://plants.usda.gov">http://plants.usda.gov</a> ). Data compiled from various	annual (1, 2, 3)

	sources by Mark W. Skinner. National Plant Data Center, Baton Rouge, LA 70874-4490 USA.	
7.01		
7.02	McKay, ME, GC Nahrung, and IK Hughes (1983) Growing asters. Queensland Agricultural Journal 109: 192-198.	"The aster ( <i>Callistephus chinensis</i> (L) Nees), an annual plant native to China and Japan, is grown in many parts of the world for cut flowers."
7.03		no evidence
7.04	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	"Fruit a compressed cypsela with 2 rows of pappus bristles."
7.05		no evidence
7.06		wind dispersed
7.07	Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	"Fruit a compressed cypsela with 2 rows of pappus bristles."
7.08		wind dispersed
8.01		
8.02		
8.03		
8.04		
8.05		