

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>Billbergia pyramidalis</i> (foolproof plant)			
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	y	1
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	?	
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		
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	y	-1
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	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production	n	-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			-1

Outcome	Accept*
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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	9	yes
C	14	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		
2.04		
2.05	Frank, Stewart, and Watson (1988) Mosquito larvae in axils of the imported bromeliad <i>Billbergia pyramidalis</i> in southern Florida. <i>Florida Entomologist</i> 71: 33-44.	" <i>Billbergia pyramidalis</i> is a Brazilian bromeliad which is cultivated widely as an ornamental."

3.01	Liogier (2000) Flora of Puerto Rico and Adjacent Islands: a Systematic Synopsis. University of Puerto Rico Press.	sometimes escaped in Puerto Rico [not strong enough to say that it has naturalized]
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	Rauh (1979) Bromeliads for Home, Garden and Greenhouse. Blanford Press, Poole and Dorset.	leaf margins with brown spines
4.02		no evidence
4.03	Rauh (1979) Bromeliads for Home, Garden and Greenhouse. Blanford Press, Poole and Dorset.	no description of this
4.04		
4.05		no mention of toxicity in horticultural or toxicity references
4.06	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	mosquitoes breed in water held in leaf axils
4.07		no mention of toxicity in horticultural or toxicity references
4.08		no evidence
4.09	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	"Ordinarily, billbergias thrive in fairly bright light." [for genus as a whole]
4.1		
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	Frank, Stewart, and Watson (1988) Mosquito larvae in axils of the imported bromeliad <i>Billbergia pyramidalis</i> in southern Florida. Florida Entomologist 71: 33-44.	"will form dense beds if left unattended" (but is an herb)
5.01	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	terrestrial or epiphytic
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.	Bromeliaceae
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 Bromeliaceae
5.04		
6.01		
6.02	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	"propagation: division of offsets, or seed"
6.03		
6.04		
6.05	Buzato, Sazima, and Sazima (2000) Hummingbird-pollinated floras at three Atlantic forest sites. Biotropica 34: 824-841.	<i>B. pyramidalis</i> is hummingbird-pollinated.
6.06	Watkins, Sheehan, and Black (2005) Florida Landscape	"propagation: division of

	Plants: Native and Exotic. University Press of Florida.	offsets, or seed"
6.07	Pertuit (1995) Understanding and producing bromeliads. Clemson Extension, Horticulture, Hort L64 (http://www.clemson.edu/psapublishing/Pages/Hort/HortLf64.pdf).	" <i>Aechmea</i> , <i>Billbergia</i> , <i>Neoregelia</i> , and <i>Vriesea</i> can flower in three years if grown from seeds." [but don't know when it can start reproducing vegetatively]
7.01		
7.02	Frank, Stewart, and Watson (1988) Mosquito larvae in axils of the imported bromeliad <i>Billbergia pyramidalis</i> in southern Florida. Florida Entomologist 71: 33-44.	" <i>Billbergia pyramidalis</i> is a Brazilian bromeliad which is cultivated widely as an ornamental."
7.03		no evidence
7.04	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	fruit is a many-seeded berry
7.05		no evidence
7.06	Benzing (1980) The Biology of the Bromeliads. Mad River Press, Eureka, CA.	"Soft, sweet, edible bromelioid [subfamily to which <i>Billbergia</i> belongs] fruits are designed for immediate consumption and dissemination of the contents by animate carriers. The berries of bromelioids are brightly colored, but only a few have strong odors or tastes, suggesting that birds may be the most common dispersal agents."
7.07	Watkins, Sheehan, and Black (2005) Florida Landscape Plants: Native and Exotic. University Press of Florida.	fruit is a many-seeded berry - no evidence of any means of attachment
7.08		fleshy fruited
8.01	Rauh (1979) Bromeliads for Home, Garden and Greenhouse. Blanford Press, Poole and Dorset.	"bromeliads bloom only once in their life and then die"
8.02		
8.03		
8.04		
8.05		