

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>Bauhinia purpurea</i> (purple orchid tree)			
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	n	0
3.04	Environmental weed	y	0
3.05	Congeneric weed	y	0
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	y	1
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		
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)	n	0
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	y	1
5.04	Geophyte		
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally	y?	1
6.04	Self-compatible or apomictic	y	1
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	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
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)	y?	1
8.03	Well controlled by herbicides	y	-1
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>8</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	6	yes
B	9	yes
C	17	yes
total	32	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	Gilman and Watson (2003) <i>Bauhinia purpurea</i> : purple orchid-tree. ENH249, University of Florida, IFAS Extension ( <a href="http://edis.ifas.ufl.edu/pdf/files/ST/ST09000.pdf">http://edis.ifas.ufl.edu/pdf/files/ST/ST09000.pdf</a> ).	hardiness zones 9B through 11
2.02		
2.03		
2.04		
2.05	PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/bauhinia_purpurea.htm">http://www.hear.org/pier/species/bauhinia_purpurea.htm</a> )	widely cultivated throughout the tropics
3.01	1. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy. 2. PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/bauhinia_purpurea.htm">http://www.hear.org/pier/species/bauhinia_purpurea.htm</a> ) 3. 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.	1. considered naturalized in Puerto Rico 2. possibly sparingly naturalized along roadsides in Fiji 3. naturalized in South Africa
3.02		no evidence
3.03		no evidence
3.04	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.	Considered a category 3 invader in South Africa - invades savanna, coastal bush, riverbanks, urban open space.
3.05	1. 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. 2. Kairo, Ali, Cheesman, Haysom, and Murphy (2003) Invasive Species Threats in the Caribbean Region. Report to the Nature Conservancy.	<i>B. variegata</i> considered a category 3 invader in South Africa (1), and considered naturalized and invasive in the Bahamas (2).
4.01	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	no description of these traits
4.02	Chou (1980) Allelopathic researches in the subtropical vegetation in Taiwan. Comparative Physiology and	"The species that exhibited allelopathy or allelopathic-like

	Ecology 5: 222-234.	patterns included... <i>Bauhinia purpurea</i> ..."
4.03	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	no description of this
4.04	Singh (2001) Leaf morphology and leaf area of fodder trees of NEH region. Range Management and Agroforestry 22: 85-93.	is an important fodder species in India [unclear whether eaten readily]
4.05	1. 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. 2. Singh (2001) Leaf morphology and leaf area of fodder trees of NEH region. Range Management and Agroforestry 22: 85-93.	1. not indicated to be poisonous 2. is an important fodder species in India
4.06		
4.07	1. 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. 2. Connor (2003) <i>Bauhinia purpurea</i> DC. ex Walp. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources ( <a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file</a> ).	1. not indicated to be poisonous or an irritant 2. "The leaves are edible".
4.08		no evidence
4.09	1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. 2. Horticultura 4.0	1. full sun to partial shade 2. partial shade or partial sun to full sun (BUT "should be grown in full sun")
4.1	1. Connor (2003) <i>Bauhinia purpurea</i> DC. ex Walp. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources ( <a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file</a> ). 2. Horticultura 4.0.	1. "The species does not grow well on nutrient-poor...sites." BUT 2. "Suitable soil is well-drained/loamy, sandy, or clay." [first reference more specific]
4.11	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	form: tree
4.12		no evidence
5.01		terrestrial
5.02	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	Fabaceae
5.03	1. Domingo (1983) Nitrogen fixation in Southeast Asian forestry: research and practice. Pp. 295-315 in Gordon and Wheeler (eds.) Biological Nitrogen Fixation in Forest Ecosystems: Foundations and Applications. Martinus Nijhoff / Dr W. Junk Publishers, The Hague. 2. Pokhriyal, Bhandari, Negi, Chaukiyal, and Gupta (1990) Identification of some fast growing leguminous tree species for nitrogen fixation studies. Indian Forester 116: 504-507.	1. <i>B. purpurea</i> on list of southeast Asian forestry species from which <i>Rhizobia</i> were isolated. BUT 2. <i>Bauhinia purpurea</i> not found to produce nodules.
5.04		
6.01		
6.02	1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. 2. Horticultura 4.0	1. propagate by seed 2. "abundant seedlings...may germinate in the landscape"

6.03	Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533.	" <i>Bauhinia blakeana</i> ...is shown here to be the result of hybridization between the largely sympatric species, <i>B. purpurea</i> and <i>B. variegata</i> ." Hybridization "probably natural" - paper demonstrates that it is feasible for the two species to interbreed.
6.04	1. Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533. 2. Reddi and Rao (1993) Pollination ecology of <i>Bauhinia purpurea</i> (Caesalpiniaceae). Journal of Palynology 29: 115-124.	1. <i>B. purpurea</i> set fruit when self-pollinated (though xenogamy is promoted). 2. "Dichogamy of the flowers involving differential maturation of sexual organs precludes autogamy. The availability of male phase and female phase flowers on a plant on a particular day facilitates geitonogamy."
6.05	Lau, Ramsden, and Saunders (2005) Hybrid origin of " <i>Bauhinia blakeana</i> " (Leguminosae:Caesalpinioideae), inferred using morphological, reproductive, and molecular data. American Journal of Botany 92: 525-533.	<i>B. purpurea</i> pollinated by several species of bees, wasps, and butterflies (pollen observed adhering to the bodies of the pollinators).
6.06		
6.07	Connor (2003) <i>Bauhinia purpurea</i> DC. ex Walp. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources ( <a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file</a> ).	" <i>Bauhinia</i> spp. bloom within 3 or 4 years".
7.01		
7.02	PIER, Institute of Pacific Islands Forestry ( <a href="http://www.hear.org/pier/species/bauhinia_purpurea.htm">http://www.hear.org/pier/species/bauhinia_purpurea.htm</a> )	widely cultivated throughout the tropics
7.03		propagules unlikely to come into contact with produce
7.04	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	fruit is a woody pod
7.05		no evidence
7.06	1. Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida. 2. Gilman and Watson (2003) <i>Bauhinia purpurea</i> : purple orchid-tree. ENH249, University of Florida, IFAS Extension ( <a href="http://edis.ifas.ufl.edu/pdf/ST/ST09000.pdf">http://edis.ifas.ufl.edu/pdf/ST/ST09000.pdf</a> ).	1. fruit is a woody pod 2. "does not attract wildlife"
7.07	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida.	no description of any means of attachment
7.08	1. Dehgan, B. (1998) Landscape Plants for Subtropical	1. fruit is a woody pod 2.

	<p>Climates. University Press of Florida. 2. Gilman and Watson (2003) <i>Bauhinia purpurea</i>: purple orchid-tree. ENH249, University of Florida, IFAS Extension (<a href="http://edis.ifas.ufl.edu/pdffiles/ST/ST09000.pdf">http://edis.ifas.ufl.edu/pdffiles/ST/ST09000.pdf</a>).</p>	"does not attract wildlife"
8.01		
8.02	<p>Connor (2003) <i>Bauhinia purpurea</i> DC. ex Walp. Tropical Tree Seed Manual, Species Descriptions. Reforestation, Nurseries, and Genetics Resources (<a href="http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file">http://www.rngr.net/Publications/ttsm/Folder.2003-07-11.4726/PDF.2003-11-12.1754/file</a>).</p>	hard-seeded legume
8.03	<p>Langeland and Stocker (2001) Control of non-native plants in natural areas of Florida. University of Florida, IFAS Extension, SP 242 (<a href="http://edis.ifas.ufl.edu/pdffiles/WG/WG20900.pdf">http://edis.ifas.ufl.edu/pdffiles/WG/WG20900.pdf</a>).</p>	"Basal bark application of 10% Garlon 4 or application of 50% Garlon 3A to cut stump; All methods listed have been found effective under certain circumstances."
8.04		
8.05		