

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>Bombax ceiba (red silk-cotton tree)</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	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	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	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		
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	n	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative fragmentation		

6.07	Minimum generative time (years)	8	-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)	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)	?	
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			-4

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	1. Hortocopia 4.0 2. Ramsden 1998 (http://web.hku.hk/~lramden/bombax.html) 3. Beentje (1989) <i>Flora of Tropical East Africa: Bombacaceae</i> . A.A. Balkema/Rotterdam/Brookfield.	1. used horticulturally in the U.S. 2. "widely planted in Hong Kong as an ornamental" 3. cultivated in East Africa for its

		kapok (seed floss)
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	Horticoxia 4.0	"The trunk is thorny when young and smooths out with age."
4.02	John and Nair (1998) Allelopathic effect of leaf litter of multipurpose trees on crops. <i>Allelopathy Journal</i> 5: 191-194.	Leaf litter from <i>B. ceiba</i> inhibited the germination and growth of rice.
4.03	Horticoxia 4.0	no description of this
4.04		
4.05		no mention of toxicity in horticultural or toxicity references
4.06		
4.07		no mention of toxicity in horticultural or toxicity references
4.08		no evidence
4.09	Horticoxia 4.0	exposure: full sun
4.1		
4.11	Horticoxia 4.0	tree
4.12		no evidence
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 USA.	Bombacaceae
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.	Bombacaceae
5.04		
6.01		
6.02	Bowman and Panton (1993) Factors that control monsoon-rainforest seedling establishment and growth in north Australian <i>Eucalyptus</i> savanna. <i>Journal of Ecology</i> 81: 297-304.	produces viable seed
6.03		
6.04	Raju, Rao, and Rangaiah (2005) Pollination by bats and birds in the obligate outcrosser <i>Bombax ceiba</i> L. (Bombacaceae), a tropical dry season flowering tree species in the Eastern Ghats forests of India. <i>Ornithological Science</i> 4: 81-87.	"it is an obligate outcrosser"
6.05	Bhattacharya and Mandal (2000) Pollination biology in <i>Bombax ceiba</i> Linn. <i>Current Science</i> 79: 1706-1712.	<i>B. ceiba</i> is pollinated by several species of birds (one species is a specialist (sunbird) but the others are not (e.g., babbler, mynah, bulbul, starling)).

6.06		
6.07	Pankaj Oudhia (2003) Interactions with herb traders of Chhattisgarh, India, having rich traditional medicinal knowledge about common herbs. (http://botanical.com/site/column_poudhia/74_dhamtar_i_herbmarket.html)	"flowering starts after 8 years of planting"
7.01		
7.02	1. Hortocopia 4.0 2. Ramsden 1998 (http://web.hku.hk/~lramsden/bombax.html) 3. Beentje (1989) Flora of Tropical East Africa: Bombacaceae. A.A. Balkema/Rotterdam/Brookfield.	1. used horticulturally in the U.S. 2. "widely planted in Hong Kong as an ornamental" 3. cultivated in East Africa for its kapok (seed floss)
7.03		unlikely to come into contact with produce
7.04	1. Raju, Rao, and Rangaiah (2005) Pollination by bats and birds in the obligate outcrosser <i>Bombax ceiba</i> L. (Bombacaceae), a tropical dry season flowering tree species in the Eastern Ghats forests of India. <i>Ornithological Science</i> 4: 81-87. 2. Ramsden 1998 (http://web.hku.hk/~lramsden/bombax.html)	1. "Ripe, dry fruits dehisce and seed dispersal is by wind during the dry season." 2. "Fruit: a large woody capsule to 20cm long containing up to 400 seeds surrounded by long white fluffy hair. In dry conditions the seeds can be transported up to 500m by the hairs."
7.05		no evidence
7.06		wind dispersed
7.07		no evidence of any means of attachment
7.08		wind dispersed
8.01	Raju, Rao, and Rangaiah (2005) Pollination by bats and birds in the obligate outcrosser <i>Bombax ceiba</i> L. (Bombacaceae), a tropical dry season flowering tree species in the Eastern Ghats forests of India. <i>Ornithological Science</i> 4: 81-87.	"Very few fruits are produced per tree, but each fruit contains numerous seeds."
8.02	Pankaj Oudhia (2003) Interactions with herb traders of Chhattisgarh, India, having rich traditional medicinal knowledge about common herbs. (http://botanical.com/site/column_poudhia/74_dhamtar_i_herbmarket.html)	"The seeds remain viable up to 2 years" [no indication whether this is in soil or not]
8.03		
8.04		
8.05		