

Australia/New Zealand Weed Risk Assessment adapted for United States.

Data used for analysis published in: Gordon, D.R. and C.A. Gantz. 2008. Potential impacts on the horticultural industry of screening new plants for invasiveness. Conservation Letters 1: 227-235. Available at: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121448369/PDFSTART>

<i>Bauhinia natalensis</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 U.S. climates (USDA hardiness 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)	n	0
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	y	1
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	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic		
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		
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.1	Grows on one or more of the following soil types: alfisols, entisols, or mollisols	y	1
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	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
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		
6.07	Minimum generative time (years)	2	0
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n	-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	n	-1
7.05	Propagules water dispersed		
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)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
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	11	Yes
B	8	Yes
C	12	Yes
total	31	yes

Data collected 2008

Question number	Reference	Source data
1.01		used horticulturally, but no evidence of significant modification
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20Ign d.tif). 2. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	1. Global hardiness zones 9-10. 2. distribution lies in subtropics; "It is fairly sensitive to frost"
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 3. Coates Palgrave, K (2002) <i>Trees of Southern Africa</i> . Cape Town: Struik Publishers.	1. One, possibly 2 climatic regions. 2. "Distribution is restricted to Transkei, Eastern Cape and the southern KwaZulu-Natal coastal strip." 3. Very limited distribution in southeastern South Africa. [and no evidence of naturalization elsewhere]
2.04	Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1).	Average annual precipitation in this region is 20-40 inches/year.
2.05	1. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 2. The Botanical Garden of Barcelona (http://www.jardibotanic.bcn.es/04_08_eng.htm). 3. Coetzer LA and Ross JH (1976) <i>Trees in South</i>	1. Used horticulturally. 2. In the Botanical Garden of Barcelona. 3. "Grown as an ornamental shrub in botanical gardens."

	Africa 28(3): 63-71.	
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
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.	1. <i>B. variegata</i> is considered a category 3 invader in South Africa. 2. <i>B. variegata</i> is considered to be naturalized and invasive in the Bahamas.
4.01	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	no description of these traits
4.02		
4.03	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	no description of parasitism
4.04		
4.05	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	no evidence
4.06		
4.07	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	no evidence
4.08		
4.09	1. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 2. Nicholson, H and G Nichols (1985) An elusive shrub from the dry bush areas of southern Natal - <i>Bauhinia natalensis</i> . Veld and Flora 71: 12-13.	1. " <i>Bauhinia natalensis</i> will grow in full sun or in semi-shade". 2. "enjoys full sun"
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources	1. Alfisols are predominant in this region. 2. "It is tolerant of a wide

	(http://soils.usda.gov/use/worldsoils/mapindex/order.html). 2. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 3. Nicholson, H and G Nichols (1985) An elusive shrub from the dry bush areas of southern Natal - <i>Bauhinia natalensis</i> . Veld and Flora 71: 12-13.	range of soils but seems to do best if planted in fertile, well-composted soil." 3. "in any soil"
4.11	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	Shrub 2.5 × 3 m.
4.12	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	Shrub 2.5 × 3 m. [The species grows to a tall height, but there are no descriptions of dense thickets being formed.]
5.01		terrestrial
5.02	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?418323).	Fabaceae
5.03	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?418323).	Woody Fabaceae
5.04	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm).	Shrub 2.5 × 3 m.
6.01		no evidence
6.02	1. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 2. Nicholson, H and G Nichols (1985) An elusive shrub from the dry bush areas of southern Natal - <i>Bauhinia natalensis</i> . Veld and Flora 71: 12-13.	1. "The seeds germinate easily"; "It may also seed itself freely in the garden" 2. "this shrub has been so easy to propagate from seed"
6.03		
6.04		
6.05	Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com	"Whitebellied sunbirds are regular visitors to the flowers." [unclear

	(http://www.plantzafrica.com/plantab/bauhinnatal.htm).	whether sunbirds are main pollinators]
6.06		
6.07	Nicholson, H and G Nichols (1985) An elusive shrub from the dry bush areas of southern Natal - <i>Bauhinia natalensis</i> . Veld and Flora 71: 12-13.	"The plants produce their first flowers in their second growing season in the ground."
7.01		Large fruit/seed, no means of attachment, not growing in pastures, etc.
7.02	1. Viljoen, C (2006) <i>Bauhinia natalensis</i> Oliv. ex Hook., Plantzafrica.com (http://www.plantzafrica.com/plantab/bauhinnatal.htm). 2. The Botanical Garden of Barcelona (http://www.jardibotanic.bcn.es/04_08_eng.htm). 3. Coetzer LA and Ross JH (1976) Trees in South Africa 28(3): 63-71.	1. Used horticulturally. 2. In the Botanical Garden of Barcelona. 3. "Grown as an ornamental shrub in botanical gardens."
7.03		no evidence
7.04	1. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers. 2. Coetzer LA and Ross JH (1976) Trees in South Africa 28(3): 63-71.	1. Fruits are dehiscent pods 7 x 1 cm. 2. "Pod linear-oblong to oblanceolate, 3-8 cm long, 0.8-1.2 cm wide...seeds ovate or oval to +/- circular, 4-7 mm long, 3-5 mm wide. [no evidence of adaptations to wind dispersal]
7.05		
7.06		
7.07	1. Coates Palgrave, K (2002) Trees of Southern Africa. Cape Town: Struik Publishers. 2. Coetzer LA and Ross JH (1976) Trees in South Africa 28(3): 63-71.	1. Fruits are dehiscent pods 7 x 1 cm. 2. "Pod linear-oblong to oblanceolate, 3-8 cm long, 0.8-1.2 cm wide...seeds ovate or oval to +/- circular, 4-7 mm long, 3-5 mm wide. [no evidence of adaptations to external dispersal]
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		