

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>Adansonia suarezensis</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	N	0
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	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		
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	N	0
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	N	-1
6.04	Self-compatible or apomictic	?	
6.05	Requires specialist pollinators	Y	-1
6.06	Reproduction by vegetative fragmentation		
6.07	Minimum generative time (years)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in	N	-1

	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	?	
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)	N	-1
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			-7

Outcome	Accept
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section	# questions answered	satisfy minimum?
A	11	Yes
B	7	Yes
C	15	Yes
total	33	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%20lgn d.tif). 2. Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	1. Global hardiness zones 11-12. 2. "Adansonia is almost exclusively tropical, extending only a few degrees south of the tropic of Capricorn in Madagascar and Africa".
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. Baum, DA (1995) A systematic revision	1. Only 1 climatic regions. 2. "Adansonia suarezensis is restricted to the very northern tip of

	of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	Madagascar around the Baie d'Antsiranana." [and no evidence of naturalization elsewhere]
2.04	Atlapedia Online (http://www.atlapedia.com/online/countries/madagasc.htm).	The coastal region has a tropical climate with no completely dry season. The heaviest rainfall occurs on the coastal region between May and September with average annual precipitation varying from 2,030 mm to 3,250 mm (80 to 120 inches).
2.05	Jardin Naturel	Seeds being sold internationally.
3.01		no evidence
3.02		no evidence
3.03		<i>no evidence</i>
3.04		no evidence
3.05		<i>no evidence</i>
4.01	Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	no description of these traits
4.02		
4.03	Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	no description of parasitism
4.04		
4.05	Baum, DA (2003) Bombacaceae, Adansonia, Baobab, Bozy, Fony, Renala, Ringy, Za. Pp. 339-342 in SM Goodman and JP Benstead (eds) The Natural History of Madagascar. University of Chicago Press, Chicago.	"Leaves are used as fodder for cattle". [no evidence of toxicity]
4.06		
4.07	Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	"Fruit and seeds are eaten". [no evidence of toxicity or allergenicity]
4.08		
4.09		
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources	1. Entisols are present in this region. 2. Found especially on limestone.
4.11	Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	"Large deciduous trees up to 25 m tall".
4.12	Jardin Naturel (http://www.seedsplants.com/ResultChoix2.php?Lang=en&YY=Carac&VV=Designation%20ASC&TypP=S&SearchNameB=Adansonia&Titre=FOR%20SALE).	Photo shows very large tree with branches only on uppermost portion of trunk.
5.01	Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 82: 440-470.	"Large deciduous trees up to 25 m tall".
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?428213).	Malvaceae

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?428213).	Malvaceae
5.04	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"Large deciduous trees up to 25 m tall".
6.01		no evidence
6.02	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	Germination cryptocotylar.
6.03	Baum, DA (2003) Bombacaceae, <i>Adansonia</i> , Baobab, Bozy, Fony, Renala, Ringy, Za. Pp. 339-342 in SM Goodman and JP Benstead (eds) <i>The Natural History of Madagascar</i> . University of Chicago Press, Chicago.	Occurs sympatrically with <i>A. madagascariensis</i> in some places; "co-occurring species are easy to tell apart, have nonoverlapping flowering, and do not form hybrids".
6.04	Baum, DA (1995) The comparative pollination and floral biology of baobabs (<i>Adansonia</i> - Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 322-348.	Self-pollinated flowers of <i>A. suarezensis</i> showed pollen-tube growth, but a study of fruit set in <i>A. gibbosa</i> showed that most selfed flowers aborted, suggesting late-acting incompatibility.
6.05	Baum, DA (1995) The comparative pollination and floral biology of baobabs (<i>Adansonia</i> - Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 322-348.	"My observations suggest that <i>A. suarezensis</i> is primarily pollinated by fruit bats...Birds and insects, although frequent visitors, do not contribute significantly to pollination."
6.06		
6.07		
7.01		large fruit/seed, no means of attachment, not growing in pastures, etc.
7.02	Jardin Naturel (http://www.seedsplants.com/ResultChoix2.php?Lang=en&YY=Carac&VV=Designation%20ASC&TypP=S&SearchNameB=Adansonia&Titre=FOR%20SALE).	Seeds being sold internationally.
7.03		no evidence
7.04	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"Fruit irregularly oblong-cylindrical to elongated ovoid, 20-40 cm long and 8-14 cm wide"; seeds large, reniform. [no adaptations to wind dispersal]
7.05	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"Hydrochory is unlikely in <i>A. grandidieri</i> and <i>A. suarezensis</i> because of their fragile pericarps".
7.06	1. Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470. 2. Baum, DA (2003) Bombacaceae, <i>Adansonia</i> , Baobab, Bozy, Fony, Renala, Ringy, Za. Pp. 339-342 in SM Goodman and JP Benstead (eds) <i>The Natural History of Madagascar</i> . University of Chicago Press, Chicago.	1. "In Madagascar, animal dispersal of <i>Adansonia</i> has not been documented...It appears that the baobabs of Madagascar are not currently endozoochorous." [But they may have been dispersed in the past by extinct large mammals or birds.] 2. <i>A. suarezensis</i>

		"appear[s] adapted to animal dispersal...Because no living Malagasy animals are known to eat baobab fruit, it has been hypothesized that dispersal was originally carried out by now extinct species, for example, the baboonlike <i>Archaeolemur</i> ".
7.07	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"Fruit irregularly oblong-cylindrical to elongated ovoid, 20-40 cm long and 8-14 cm wide"; seeds large, reniform. [no adaptations to external dispersal]
7.08	1. Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470. 2. Baum, DA (2003) Bombacaceae, <i>Adansonia</i> , Baobab, Bozy, Fony, Renala, Ringy, Za. Pp. 339-342 in SM Goodman and JP Benstead (eds) <i>The Natural History of Madagascar</i> . University of Chicago Press, Chicago.	1. "In Madagascar, animal dispersal of <i>Adansonia</i> has not been documented...It appears that the baobabs of Madagascar are not currently endozoochorous." [But they may have been dispersed in the past by extinct large mammals or birds]. 2. <i>A. suarezensis</i> "appear[s] adapted to animal dispersal...Because no living Malagasy animals are known to eat baobab fruit, it has been hypothesized that dispersal was originally carried out by now extinct species, for example, the baboonlike <i>Archaeolemur</i> ".
8.01		
8.02	Razanameharizaka, J, M Grouzis, D Ravelomanana, and P Danthu (2006) Seed storage behaviour and seed germination in African and Malagasy baobabs (<i>Adansonia</i> species). <i>Seed Science Research</i> 16: 83-88.	"There was no physical dormancy in the two species belonging to the <i>Brevitubae</i> section, <i>A. grandidieri</i> and <i>A. suarezensis</i> . Their seeds germinated without any prior scarification."
8.03		
8.04		
8.05		