

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 rubrostipa</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	?	
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 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	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		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in U.S.		
<b>Total Score</b>			<b>-7</b>

<b>Outcome</b>	<b>Accept</b>
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section	# questions answered	satisfy minimum?
A	11	Yes
B	6	Yes
C	17	Yes
total	34	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 ( <a href="http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgn d.tif">http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgn d.tif</a> ). 2. Baum, DA (1995) A systematic revision of Adansonia (Bombacaceae). Annals of the Missouri Botanical Garden 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 ( <a href="http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf">http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf</a> ). 2. Baum, DA (1995) A systematic revision	1. Only 1-2 climatic regions. 2. Distribution restricted to the west coast of Madagascar [and no

	of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	evidence of naturalization elsewhere].
2.04	Atlapedia Online ( <a href="http://www.atlapedia.com/online/countries/madagasc.htm">http://www.atlapedia.com/online/countries/madagasc.htm</a> ).	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 <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"rarely conical spines on upper surfaces of branches"
4.02		
4.03	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	no description of parasitism
4.04		
4.05	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.	"Leaves are used as fodder for cattle". [no evidence of toxicity]
4.06		
4.07	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	" <i>Adansonia rubrostipa</i> has edible fruits, seeds, and roots". [no evidence of toxicity or allergenicity]
4.08		
4.09		
4.1	USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources	Entisols and alfisols are present in this region.
4.11	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"Small to large deciduous trees (5-20 m)".
4.12	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.	Photo shows very large tree with branches only on uppermost portion of trunk.
5.01		Terrestrial
5.02		Malvaceae
5.03		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.	"Small to large deciduous trees (5-20 m)".
6.01		no evidence
6.02	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical</i>	"Germination phanerocotylar."

	Garden 82: 440-470.	
6.03	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.	Occurs sympatrically with <i>A. za</i> and <i>A. grandidieri</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. rubrostipa</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.	A long-tongued hawkmoth, <i>Coelonia solanii</i> , is "clearly the major pollinator of <i>A. rubrostipa</i> ".
6.06		
6.07		
7.01		Large fruit/seed, no means of attachment, not growing in pastures, etc.
7.02	Jardin Naturel	Seeds being sold internationally.
7.03		no evidence
7.04	1. Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470. 2. Du Puy, B (1996) The baobabs of Madagascar. <i>Curtis's Botanical Magazine</i> 13(2): 86-95.	1. Fruit a dry, large many-seeded berry, more or less globose; seeds large, reniform. 2. Fruit ca. 10 cm. in diameter. [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. rubrostipa</i> because it rarely occurs near rivers or streams".
7.06	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"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.)
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 a dry, large many-seeded berry, more or less globose; seeds large, reniform. [no adaptations to external dispersal]
7.08	Baum, DA (1995) A systematic revision of <i>Adansonia</i> (Bombacaceae). <i>Annals of the Missouri Botanical Garden</i> 82: 440-470.	"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].
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	For <i>A. rubrostipa</i> , "the removal of a fragment of seed coat significantly increased their capacity to

	(Adansonia species). Seed Science Research 16: 83-88.	germinate [from 7% to 100%]. These five species [including A. rubrostipa] possess seeds with physical dormancy."
8.03		
8.04		
8.05		