

Assessment of Non-native Plants in Florida's Natural Areas

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Assessment date 12 February 2015

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Ваг	mbusa bambos (syn. Bambusa arundinacea)Giant thorny bamboo, Indian thorny bamboo ALL ZONES	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) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)	у	1
2.04	Native or naturalized in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 inches	У	1
2.05	Does the species have a history of repeated introductions outside its natural range?	у	
3.01	Naturalized beyond native range	у	2
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture		
3.04	Environmental weed		
3.05	Congeneric weed	У	2
4.01	Produces spines, thorns or burrs	у	1
4.02	Allelopathic		
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	n	0
4.07	Causes allergies or is otherwise toxic to humans		
4.08	Creates a fire hazard in natural ecosystems		
4.09	Is a shade tolerant plant at some stage of its life cycle		
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North &		
	Central Zones: infertile soils; South Zone: shallow limerock or Histisols.		
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	У	1
5.01	Aquatic	n	0
5.02	Grass	у	1
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	У	1

	Risk Assessment Results	Hi	gh
	Implemented Pacific Second Screening	n	0
	Total Score		7
8.05			
8.04	Tolerates, or benefits from, mutilation or cultivation	у	1
8.03	Well controlled by herbicides		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.01	Prolific seed production		
7.08	Propagules dispersed by other animals (internally)		
7.07	Propagules dispersed by other animals (externally)	n	-1
7.06	Propagules bird dispersed		
7.05	Propagules water dispersed		
7.04	Propagules adapted to wind dispersal	n	-1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.02	Propagules dispersed intentionally by people	у	1
	areas)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked		
6.07	Minimum generative time (years)	16	-1
6.06	Reproduction by vegetative propagation	у	1
6.05	Requires specialist pollinators	n	C
6.04	Self-compatible or apomictic	у	1
6.03	Hybridizes naturally	n	-1

section		satisfy
	# questions answered	minimum?
Α		8 yes
В		7 yes
С		17 yes
total		32 yes

	Reference	Source data
1.01		Cultivated, but no evidence of selection for reduced weediness
1.02		skip to 2.01
1.03		skip to 2.01
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global %20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. 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?409896 (3 February 2014).	Native to Bangladesh, Cambodia, China, India, Laos, Myanmar, Pakistan, Sri Lanka,Thailand, Vietnam; Naturalized in: Australia;
2.02		No computer analysis was performed. Native range is well
		known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	1. Distribution in the native range occurs in more than 3 climatic groups. 2. Bambusa bambos prefers a humid tropical climate and grows best along river valleys and in other moist conditions. It is found most abundantly in mixed moist deciduous forest, and not so commonly in mixed dry deciduous forest and in semi-evergreen forest on hills up to 1000 m altitude.
2.04	1. World Climate Maps. http://www.climate-charts.com/World-	1. Native areas: (75 mm?-)125 mm-2475 mm(-4974 mm?) [(3.0"?-
	Climate-Maps.html. Accessed 5 February 2014.)5.0"-97.4"(-195.9"?)].
2.05	1. 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?409896 (3 February 2014).	Cultivated in: Asia-Tropical (Indonesia [Java], Malaysia, Philippines, Singapore; North America (United States); South America (Costa Rica).
3.01	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland.	Naturalized in: Australia. 2. South Eastern Queensland. Terrestrial, not cultivated; densely tufted branches with culms up to 60 feet. Specimens from clumps cut down and with numerous.
	http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (3 February 2014). 2. Australia's Virtual Herbarium (AVH). http://avh.chah.org.au/. Accessed 10 February 2014.	flowering shoots.
3.02		No evidence found.
3.03		No evidence found.
3.04		No evidence found.
3.05	1&sts=sss⟨=EN [Accessed 3 February 2014].	1. Bambusa vulgaris is listed as being present as a weed in Jamaica. 2. Bambusa vulgaris is the most widespread member of its genus, and has long been cultivated across the tropics and subtropics. It prefers lowland humid habitats, but tolerates a wide range of climatic conditions and soil types. It commonly naturalizes, forming monospecific stands along river banks, roadsides and open ground.
4.01	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	Branches develop from all nodes, lower branches spreading, spine-like, bearing recurved spines; upper leafy branches horizontal or ascending and bearing small spines (usually in groups of 3), or spineless.
4.02		No evidence found.

4.02	4 LICDA ADC Alational Countie Bossessa Business Counselous	A Family Danier (act a manifely family)
	Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (3 February 2014).	Family: Poaceae (not a parasitic family).
	1.a-b. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014. 2. Prasad SN. 1985. Impact of grazing, fire and extraction on the bamboo (Dendrocalamus strictus and Bambusa arundinaceae) populations of Karnataka. Agriculture, Ecosystems and Environment, 14: 1-14.	natural grazing areas for domestic animals. A decline of those forests can be prevented by regulating the grazing periods. 1.b. Flowering is followed by profuse seeding after which the old clump dies. In bamboo areas protected from fire and grazing natural regeneration occurs without difficulty. 2. Populations have significantly declined, especially since the last flowering. This decline parallels increasing incidence of grazing (amongst other pressures, i.e., fire & extraction). New shoots of bamboo are destroyed by insects and a variety of herbivorous mammals.
	1.a-b. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	natural grazing areas for domestic animals. A decline of those forests can be prevented by regulating the grazing periods. 1.b. Flowering is followed by profuse seeding after which the old clump dies. In bamboo areas protected from fire and grazing natural regeneration occurs without difficulty.
4.06	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	1. Bambusa bambos is usually only locally seriously damaged by diseases and pests. Most of these diseases and pests can be controlled satisfactorily by treatment with chemicals. Major diseases reported from India are damping-off (Rhizoctonia sp., Fusarium spp.), culm rot (Fusarium spp., Arthrinium sp., Craterellus sp.), and rhizome and root rot (Merulius eurocephalus). Major pests recorded in India are the bamboo leaf roller (Pyrausta coclesalis), the bamboo hispine borer (Estigmena chinensis), the bamboo aphid (Oregma bambusae) and the bamboo culm borer (Cyrtotrachelus dux).
4.07		No evidence found.
4.08	1. Prasad SN. 1985. Impact of grazing, fire and extraction on the bamboo (Dendrocalamus strictus and Bambusa arundinaceae) populations of Karnataka. Agriculture, Ecosystems and Environment, 14: 1-14.	1. Populations have significantly declined, especially since the last flowering. This decline parallels increasing incidence of fire (amongst other pressures, i.e., grazing/herbivory & extraction). However, fire appeared to enhance seedling survival, presumably by reducing competition of less fire-resistant species. Villagers and pastoralists set forest fires to induce a fresh flush of grass growth at the onset of the monsoon.
4.09		Many nursery sites indicate grows in full sun to partial shade, but no definitive evidence of shade tolerance.
4.10		No evidence found.
	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	
4.12	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	1. Branches develop from all nodes, lower branches spreading, forming a dense, nearly impenetrable thicket in the lower part of the clump. Undisturbed clumps are almost impenetrable after some years because of the interlacing thorny branches.

5.01	1. USDA, ARS, National Genetic Resources Program. Germplasm	1. Family: Poaceae. 2. Grows best along river valleys and in other
	Resources Information Network - (GRIN) [Online Database].	moist conditions.
	National Germplasm Resources Laboratory, Beltsville, Maryland.	
	http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (3	
	February 2014). 2. Duriyaprapan, S. & Jansen, P.C.M., 1995.	
	Bambusa bambos (L.) Voss[Internet] Record from Proseabase.	
	Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources	
	of South-East Asia) Foundation, Bogor, Indonesia.	
	http://www.proseanet.org. Accessed from Internet: 27 January	
	2014.	
5.02	1. USDA, ARS, National Genetic Resources Program. Germplasm	1. Family: Poaceae. 2. Culm erect, up to 30 m tall and 15—18 cm
	Resources Information Network - (GRIN) [Online Database].	in diameter.
	National Germplasm Resources Laboratory, Beltsville, Maryland.	
	http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (3	
	February 2014). 2. Duriyaprapan, S. & Jansen, P.C.M., 1995.	
	Bambusa bambos (L.) Voss[Internet] Record from Proseabase.	
	Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources	
	of South-East Asia) Foundation, Bogor, Indonesia.	
	http://www.proseanet.org. Accessed from Internet: 27 January	
	2014.	
5.03	1. USDA, ARS, National Genetic Resources Program. Germplasm	1. Family: Poaceae.
	Resources Information Network - (GRIN) [Online Database].	
	National Germplasm Resources Laboratory, Beltsville, Maryland.	
	http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (3	
	February 2014). 2. Duriyaprapan, S. & Jansen, P.C.M., 1995.	
	Bambusa bambos (L.) Voss[Internet] Record from Proseabase.	
	Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources	
	of South-East Asia) Foundation, Bogor, Indonesia.	
	http://www.proseanet.org. Accessed from Internet: 27 January	
	2014.	
5.04	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.)	1. Densely tufted, sympodial bamboo.
	Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja,	
	E.A. (Editors). PROSEA (Plant Resources of South-East Asia)	
	Foundation, Bogor, Indonesia. http://www.proseanet.org.	
	Accessed from Internet: 27 January 2014.	
6.01	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.)	1. Readily establishes from seed. Flowering is followed by
	Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja,	profuse seeding after which the old clump dies. As fruits are
	E.A. (Editors). PROSEA (Plant Resources of South-East Asia)	abundant, seed is seldom the limiting factor for propagation. In
	Foundation, Bogor, Indonesia. http://www.proseanet.org.	bamboo areas protected from fire and grazing natural
L	Accessed from Internet: 27 January 2014.	regeneration occurs without difficulty.
6.02	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.)	Readily establishes from seed. Flowering is followed by
	Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja,	profuse seeding after which the old clump dies. As fruits are
	E.A. (Editors). PROSEA (Plant Resources of South-East Asia)	abundant, seed is seldom the limiting factor for propagation. In
	Foundation, Bogor, Indonesia. http://www.proseanet.org.	bamboo areas protected from fire and grazing natural
	Accessed from Internet: 27 January 2014.	regeneration occurs without difficulty.
6.03	1. John CK et al. 1994. Selection - A valuable method for bamboo	The peculiar flowering behaviour in bamboos make genetic
	improvement. Current science (Bangalore), 66(11): 822-824.	improvement by hybridizations very difficult. The flowering and
		seeding at long intervals (7-120 years) render the overlapping of
		flowering in more than one species, in the same locality very
		difficult to obtain, making attempts at hybridizations impossible.
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6.04	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014. 2.a-b. Nadgauda RS et al. 1997. A comparison of in vitro and in vivo flowering in bamboo: Bambusa arundinaceae. Plant Cell, Tissue and Organ Culture, 48: 181-187. 3. Indira EP. 1988. Short Note: Albino Gene Carriers and Mating System in Bambusa arundinacea (Retz.) Willd. Silvae Genetica, 37: 5-6.	male) and 1—3 imperfect florets. 2. Florets of Bambusa arundinacea are chasmogamous (flower opens at maturity, exposing stamens and style to allow fetilization; the style receives pollen from another individual), lemma and palea openup to expose androecium and gynoecium to pollinating agents. Both male and female reproductive structures mature nearly at
6.05	1. Nadgauda RS et al. 1997. A comparison of in vitro and in vivo flowering in bamboo: Bambusa arundinaceae. Plant Cell, Tissue and Organ Culture, 48: 181-187.	In general, members of the grass family are wind pollinated. Pollen is shed in a highly dehydrated condition; essential for buoyancy in the air.
6.06	1.a-b. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014. 2. Prasad SN. 1985. Impact of grazing, fire and extraction on the bamboo (Dendrocalamus strictus and Bambusa arundinaceae) populations of Karnataka. Agriculture, Ecosystems and Environment, 14: 1-14.	
6.07	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014. 2. Prasad SN. 1985. Impact of grazing, fire and extraction on the bamboo (Dendrocalamus strictus and Bambusa arundinaceae) populations of Karnataka. Agriculture, Ecosystems and Environment, 14: 1-14.	1. Twelve-year-old clumps are regarded as mature. Bambusa bambos flowers gregariously over a region at intervals of (16-)32(-45) years. A complete flowering period of the whole clump takes as long as 3 years. 2. B. arundinacea is monocarpic and the flowering cycle has been estimated at 45 years.
7.01		No evidence found, but transportation of rhizome pieces in garden refuse could spread plants as is the case with other rhizomatous plants (i.e. Arundo donax).
7.02	1. 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?409896 (3 February 2014). 2. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	Economic importance: environmental (erosion control); food (animal - forage, human - vegetable); materials (cane, fiber); medicines (folklore). 2. It is often planted as wind-breaks around farms and along rivers to check floods.
7.03 7.04		Contamination unlikely based on the growth form, biology, ecology, or habitat of the species. No morphological features (i.e., wings) that would suggest seeds are adapted for wind.

7.05	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	No evidence that propagules can float but it grows best along river valleys and in other moist conditions.
7.06	·	No evidence found.
7.07		No morphological features that would suggest seeds are adapted for attachment to fur or able to come into contact with hooves of animals due to the biology of the species (forms a dense, nearly impenetrable thicket in the lower part of the clump. Undisturbed clumps are almost impenetrable after some years because of the interlacing thorny branches).
7.08		No evidence found.
	1. Nadgauda RS et al. 1997. A comparison of in vitro and in vivo flowering in bamboo: Bambusa arundinaceae. Plant Cell, Tissue and Organ Culture, 48: 181-187.	1. In nature, due to the anemophilous (wind) pollination, a large number of florets opening at the same time is a pre-requisite for profuse seed production in this species.
8.02	1. Shanmughavel P & Francis K. 1997. Balance and turnover of nutrients in a bamboo plantation (Bambusa bambos) of different ages. Biological Fertile Soils, 25: 69-74.	Bamboo seeds possess a short period of viability (a few days to 1 month).
8.03		No evidence found.
8.04	1. Duriyaprapan, S. & Jansen, P.C.M., 1995. Bambusa bambos (L.) Voss[Internet] Record from Proseabase. Dransfield, S. & Widjaja, E.A. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 27 January 2014.	1. Normally 3—4 year old culms are harvestable. They are cut 2—3 m above the ground. This should be done after the growing season in order to avoid damaging young shoots and young culms. Selective felling of individual culms results in better regeneration of the clump. Preferably, only culms older than 2 years are cut at 15—30 cm from ground level and if possible not from the periphery of the clump, so as to prevent congestion.
8.05		No evidence found.