

<i>Pseudosasa japonica</i> syn <i>Arundinaria japonica</i>, <i>Sasa japonica</i> (ARROW BAMBOO)		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 FL 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)	y	1
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	y	2
3.02	Garden/amenity/disturbance weed		
3.03	Weed of agriculture		
3.04	Environmental weed	y	4
3.05	Congeneric weed		
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	n	0
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	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	y	1
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		
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	y	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	?	
6.03	Hybridizes naturally	n	-1
6.04	Self compatible or apomictic		
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	4	-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		
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed		
7.07	Propagules dispersed by other animals (externally)		
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		8	
Implemented Pacific Second Screening		No	
Risk Assessment Results		High Risk	

section	# questions answered	satisfy minimum?
A	8	yes
B	9	yes
C	12	yes
total	29	yes

completed 12/4/2014

	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%20lnd.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 (00 Month 0000). Dave's Garden (http://davesgarden.com/ [accessed 21/10/2014])	No computer analysis was performed. 1. Global hardiness zone: 6-10 ; USDA Hardiness zones: 7A-10B . 2. Native to Korea and Japan
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).	1. Distribution in the native/cultivated range occurs in Cfa, Cwa, Dfb, Csb, Cfb
2.04	1 World climate maps .(http://www.climate-charts.com/World-Climate-Maps.html [accessed 24 oct 2014]) 2. Swearingen, J. 2006. WeedUS database, Alien Plant Invaders of Natural Areas. Plant Conservation Alliance, Alien Plant Working Group. (http://www.invasive.org/weedus/index.html [accessed 24 Oct 2014]). 3. Western Regional Climate Data Center [accessed 24 Oct 2014]). http://www.wrcc.dri.edu	1. <i>P. japonica</i> is native to Asian temperate region where annual rainfall typically ranges from 38-90 inches. 2&3. Considered invasive in PA, MD, and WV where average ppt ranges from 36 to 48 inches.
2.05	1. eg. http://www.shweeashbamboo.com/pseudosasa%20japonica.htm ; http://www.lewisbamboo.com/arrow.html ; http://www.palmcentre.co.uk/products/jap/pseudosasa-japonica-arrow-bamboo	Readily available from internet nurseries.
3.01	1. Swearingen, J. 2006. WeedUS database, Alien Plant Invaders of Natural Areas. Plant Conservation Alliance, Alien Plant Working Group. (http://www.invasive.org/weedus/index.html [accessed 24 Oct 2014]). 2. USDA Plants Database (http://plants.usda.gov/java/ {accessed 24 Oct 2014}). 3. Flora of New Zealand (http://www.nzflora.info/factsheet/Weed/Pseudosasa_japonica.html [accessed 24 Oct 2014]). 3. Fern, K. (1992-97). Plants for a Future. A resource centre for edible and other useful plants.	1. Considered invasive in PA, MD, and WV 2. Present in CA, FL, NY, NC, SC, NY, PA, VA, CT, DE, MD, NJ, TN. 3. naturalized in New Zealand. Naturalized in England.
3.02		no evidence
3.03		no evidence

3.04	1. Howell (2008) Consolidated list of environmental weeds in New Zealand. DOC ReseaRCh & DevelOpment seRies 292 Department of Conservation, Wellington NZ. 2. Hawaiian Ecosystems at Risk project (HEAR) (www.hear.org [accessed 11/3/2014]).	1. Listed as an environmental weed in New Zealand. 2. Various sources list as environmental weed in US. "This list of invasive plants affecting natural areas in the U.S. (including Hawaii) has been compiled from a wide variety of publications, reports, surveys, and occasional personal observations. Sources of plant lists include the National Park Service and other federal agencies, state and local natural resource and related departments, Exotic Pest Plant Councils and related organizations, The Nature Conservancy, and universities. Sources for each plant listed are provided on the table (a legend for the source code is provided from the REFERENCE(S) header). The current list includes over 1000 plants and is updated as needed. Please contact Jil Swearingen (jil_swearingen@nps.gov) regarding any errors, omissions or potential additions to the list. (environmental weed)"
3.05		No evidence, but some <i>Arundinaria</i> spp are listed as weeds.
4.01		no evidence
4.02		no evidence
4.03	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 (00 Month 0000).	1. Family: Poaceae (not a parasitic family).
4.04		no evidence
4.05		no evidence
4.06	1. Royal Horticulture Society (www.rhs.org.uk [accessed 11/3/2014])	no evidence. 1. described as "generally pest free"
4.07		no evidence
4.08		no evidence
4.09	1. Smith & Mack (2013) Shade tolerance of temperate bamboos: a harbinger of their naturalization in Pacific Northwest Coniferous forests? <i>Biol Inv</i> 15:2081-2093. 2. Plants for a Future (www.pfaf.org [accessed 11/4/2014])	1. <i>Pseudosasa japonica</i> display strong tolerance of low light. 2. "It can grow in full shade (deep woodland) semi-shade (light woodland) or no shade."
4.10		no evidence
4.11		no evidence
4.12	1. NPS Alien Plant Invaders of Natural Areas (http://www.nps.gov/plants/alien/pubs/midatlantic/bamboos.htm [accessed 11/4/2014]). 2. New York Non-native Plant Invasiveness Ranking Form, <i>Pseudosasa japonica</i> (http://www.nyis.info/user_uploads/8725f_Pseudosasa.japonica.NYS.pdf [accessed 11/4/2014]).	1. "form very dense single-species thickets that displace native plant species and create dense shade that makes it difficult for seedlings of native species to survive. Once established, they can be very difficult to eradicate." 2. Observed to form a monoculture, significantly reducing the number of native species growing in the community.
5.01	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 (00 Month 0000).	1. Family: Poaceae.
5.02	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 (00 Month 0000).	1. Family: Poaceae.

5.03	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 (00 Month 0000).	1. Family: Poaceae.
5.04	1. Wang, K. et al. 2010. Identification of genes related to the development of bamboo rhizome bud. <i>Journal of Experimental Botany</i> , 61(2): 551–561.	1. According to the type of the rhizome, bamboos have been divided into three groups: scattered bamboos with a monopodial rhizome, caespitose bamboos with a sympodial rhizome, and pluricaespitose bamboos with a monopodial and sympodial rhizome. The rhizome bud can either develop into a bamboo shoot which will grow into a bamboo culm in a very short period, or develop into a new rhizome which will enable the sustainable production of the bamboo grove.
6.01		no evidence
6.02	1. Plants for a Future (http://www.pfaf.org [accessed 11/4/2014])	1. Small quantities of seed are produced in many years but it is seldom viable.
6.03	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. The peculiar flowering behaviour in bamboos make genetic 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.
6.04	1. Plants for a Future (http://www.pfaf.org [accessed 11/4/2014])	1. Flowers have both male and female parts, but are listed as wind pollinated. Cannot find data definitive to answer "no"
6.05	1. Shor, B., Southern California Chapter. From Flowers to Seedlings. American Bamboo Society. Accessed: 18 March 2014. http://www.bamboo.org/GeneralInfoPages/FromFlowersToSeedlings.html	1. Most bamboos are wind-pollinated. Insects may be involved with some species.
6.06	1. Wang, K. et al. 2010. Identification of genes related to the development of bamboo rhizome bud. <i>Journal of Experimental Botany</i> , 61(2): 551–561.	1. The rhizome bud can either develop into a bamboo shoot which will grow into a bamboo culm in a very short period, or develop into a new rhizome which will enable the sustainable production of the bamboo grove.
6.07	1. Long intermast period for all bamboos.	
7.01		no evidence
7.02	1. Scurlock et al. 2000 Bamboo: an overlooked biomass resource? <i>Biomass and Bioenergy</i> , 19:229-244.	1. Cultivated for erosion control, windbreaks, building material, food, bamboo fiber clothes, etc.
7.03	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. Very unlikely. The longevity of the seeds varies from species to species, but usually only last 2-3 months under natural conditions. Furthermore, seeds must be sowed immediately in optimal conditions to prevent damping off.
7.04		no evidence
7.05		no evidence
7.06		no evidence
7.07		no evidence
7.08		no evidence
8.01		no evidence
8.02	1. John, CK et al. 1994. Selection - A valuable method for bamboo improvement. <i>Current Science (Bangalore)</i> , 66(11): 822-824.	1. The longevity of the seeds varies from species to species. Under natural conditions it is for 2-3 months.
8.03		no evidence
8.04		no evidence
8.05		No evidence