UF IFAS UNIVERSITY of FLORIDA

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

assessment.ifas.ufl.edu

Assessment date: 11 March 2015

***Canavalia brasiliensis* (*Canavalia anomala, Canavalia campylocarpa, Canavalia caribaea, Canavalia fendleri, Canavalia leptophylla*)-Brazilian jack bean**		**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?	n	
3.01	Naturalized beyond native range	n	0
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	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens	y	1
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.	y	1
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets		
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	n	-1
6.05	Requires specialist pollinators	n	0

6.06	Reproduction by vegetative propagation		
6.07	Minimum generative time (years)		
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	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	n	-1
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	**4**	
	Implemented Pacific Second Screening	**Yes**	
	Risk Assessment Results	**Evaluate**	

section	**# questions answered**	**satisfy minimum?**
A	11	yes
B	7	yes
C	13	yes
total	31	yes

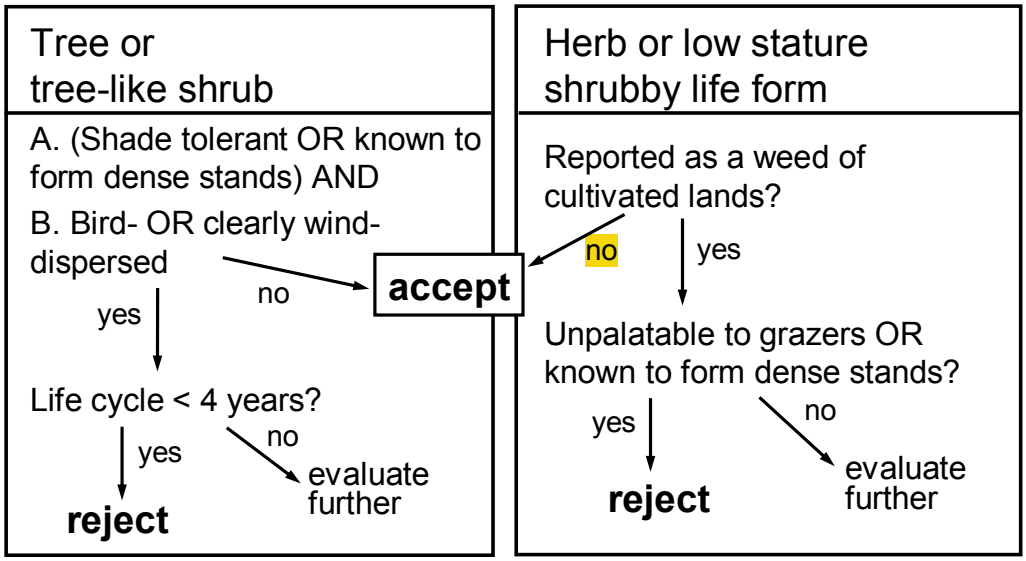
	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. USDA, ARS, National Genetic 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 (15 March 2015).	No computer analysis was performed. 1. Global hardiness zone: 8, 9, 10, 11, 12, 13; equivalent to USDA Hardiness zones: USDA Hardiness zones: USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15°F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11a: to USDA Zone (40 °F) USDA Zone 11b: to (45 °F) USDA Zone 12a: to (50 °F) USDA Zone 12b: to (55 °F). . 2. Native to NORTHERN AMERICA Northern Mexico: Mexico - Sinaloa, Tamaulipas Southern Mexico: Mexico - Campeche, Chiapas, Guerrero, Michoacan, Nayarit, Oaxaca, Quintana Roo, Veracruz, Yucatan SOUTHERN AMERICA Caribbean: Antigua and Barbuda; Barbados; Cuba; Haiti; Martinique; St. Vincent and Grenadines - St. Vincent; Trinidad and Tobago; Virgin Islands (U.S.) Mesoamerica: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama Northern South America: Venezuela [n.] Brazil: Brazil Western South America: Colombia; Ecuador Southern South America: Argentina [n.e.]; Paraguay
2.02		
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 Af, Am, Aw, Cfa, Cfb Cwb, Bsh, Bwh, Bsk
2.04	1. Lorrain Giddings, Margarita Soto. Rhythms of Precipitation in the Yucatán Peninsula http://www.reservaeleden.org.mx/publicaciones/libro_el_eden/Capitulos/Capitulo%205.pdf (3-14-2015)	[In the Yucatan Penninsula, where this species is native, annual rainfall averages from 20in to 60in]
2.05		no evidence
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	Holm, LeRoy G. A Geographical Atlas of World Weeds. Malabar, FL: Krieger Pub., 1991. Print.	Canavalia maritima is a common weed in Puerto Rico and Trinidad
4.01	Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015)	These traits are not mentioned in the description of the species
4.02		no evidence
4.03		no evidence
4.04	1. 1F. M.BAGARAMA*, 2A.E.MAJULE, 3A. J.MWILAWA (2012) DAPTATION TO DRY SEASON LIVESTOCK FODDER SCARCITY THROUGH CANAVALIA BRASILIENSIS INTEGRATION IN THE&CEREAL SYSTEMS IN THE MIOMBO WOODLAND ECOSYSTEM IN TANZANIA Institute of Resource Assessment (IRA), University of Dar es Salaam, 2. Tropical Forages http://www.tropicalforages.info/key/Forages/Media/Html/Canavalia_brasiliensis.htm (3-14-2015)	In Central America, cattle readily use crop residues improved with C. brasiliensis in the dry season. There is a report from Nicaragua that herbage is well accepted by sheep and goats.
4.05		no evidence
4.06	Grassland Index http://www.fao.org/ag/AGP/AGPC/doc/gbase/data/canbras.htm (3-14-2015)	C. brasiliensis is a host plant for white fly.

4.07		no evidence
4.08		no evidence
4.09		no evidence
4.10	1. Tropical Forages http://www.tropicalforages.info/key/Forages/Media/Html/Canavalia_brasiliensis.htm (3-14-2015) 2. USDA Natural Resource Conservation Service Soils, Global Soil Regions Map http://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050722.jpg (3-11-2015)	1. Grows well on a wide range of soils, from very acid (pH 4.3) to alkaline (pH 8.0) and is adapted to low fertility conditions 2. Native to areas with congruent soil conditions to the three soil zones in Florida.
4.11	1. International Legume Database & Information Service http://www.ildis.org/LegumeWeb?sciname=Canavalia+brasiliensis (3-14-2015) 2. Legumes Online http://www.legumes-online.net/ildis/aweb/td074/td_15690.htm (3-14-2015) 3. Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015)	1. Perennial climbing shrub 2. Climbing 3. Vine trailing or climbing on herbs and shrubs, rarely high climbing
4.12		no evidence
5.01		Family: Fabaceae
5.02		Family: Fabaceae
5.03	1. International Legume Database & Information Service http://www.ildis.org/LegumeWeb?sciname=Canavalia+brasiliensis (3-14-2015) 2. Legumes Online http://www.legumes-online.net/ildis/aweb/td074/td_15690.htm (3-14-2015) 3. 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 (15 March 2015).	1. Family: Fabaceae, leguminous, nitrogen fixing family
5.04	1. Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015)	1. no evidence of these structures
6.01		no evidence
6.02	Grassland Index http://www.fao.org/ag/AGP/AGPC/doc/gbase/data/canbras.htm (3-14-2015) 2. Cruz et al. (1995) Factors affecting germination of Canavalia brasiliensis, Leucaena leucocephala, Clitoria ternatea and Calopogonium mucunoides seeds. Seed Science and Technology 23:447-454.	1. Requires scarification. With 75 minutes sulphuric acid or 30 minutes hot water (80 °C) treatment, germination rates of 80% and 50%, respectively, can be achieved. 2. Germination after breaking primary dormancy.
6.03		no evidence
6.04	1. Guedes et al. (2009) Reproductive phenology and pollination biology of Canavalia brasiliensis Mart. ex Benth (Fabaceae). Biotemas 22:27-37	Flowers that self pollinated do not form fruit.
6.05	1. Guedes et al. (2009) Reproductive phenology and pollination biology of Canavalia brasiliensis Mart. ex Benth (Fabaceae). Biotemas 22:27-37	1. Visits by bees (Xylocopa frontalis, X. suspecta and Xylocopa sp., Apis mellifera and Centris similis) and birds (Phaethornis ruber, Chlorostilbon aureoventris, Eupetomena macroura and Coereba flaveola) were observed.
6.06		no evidence
6.07		no evidence
7.01		No evidence of growth outside of natural or agricultural areas.

7.02	1. Oliveira, J.T.A.; Vasconcelos, I.M.; Gondim, M.J.L.; Cavada, B.S.; Moreira, R.A.; Santos, C.F.; Moreira, L.I.M. (1994): Canavalia brasiliensis seeds. Protein quality and nutritional implications of dietary lectin. Journal of the Science of Food and Agriculture 64 (4): 417-424 2. Tropical Forages http://www.tropicalforages.info/key/Forages/Media/Html/Canavalia_brasiliensis.htm (3-14-2015) 3. Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015) 4. Grassland Index http://www.fao.org/ag/AGP/AGPC/doc/gbase/data/canbras.htm (3-14-2015)	1. In poor regions of NE Brazil, seed is used as food in times of low food availability. 2. Mainly used as green manure, fallow and erosion control. 3. Planted in some countries as a cover crop. 4. In Central America, C. brasiliensis is also used to improve the value of stubble grazing during the dry season.
7.03	1. Tropical Forages http://www.tropicalforages.info/key/Forages/Media/Html/Canavalia_brasiliensis.htm (3-14-2015) 2. Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015)	[Possible, because this species is grown as green manure over crops, and the pods look like common edible pea pods]
7.04	Grassland Index http://www.fao.org/ag/AGP/AGPC/doc/gbase/data/canbras.htm (3-14-2015)	no evidence. Pods are glabrous, 12-20 cm long and approx. 1 cm wide, of brown to dark-brown color, dehiscent with an average of 12 seeds. Seeds are light-brown to brown, approx. 11 mm long and 8 mm wide, with a black hilum, 6 mm long.
7.05		no evidence
7.06		no evidence
7.07	Flora of Panama http://www.tropicos.org/Name/13027784?projectid=56 (3-14-2015)	Seed description does not indicate attachment mechanisms.
7.08		no evidence
8.01	Grassland Index http://www.fao.org/ag/AGP/AGPC/doc/gbase/data/canbras.htm (3-14-2015)	[Unlikey given seed description]: Pods are glabrous, 12-20 cm long and approx. 1 cm wide, of brown to dark-brown color, dehiscent with an average of 12 seeds. Seeds are light-brown to brown, approx. 11 mm long and 8 mm wide, with a black hilum, 6 mm long.
8.02		no evidence
8.03		no evidence of control programs
8.04		no evidence
8.05		no evidence

Pacific second screening: decision rules for species with WRA scores between 1 and 6

(from Daehler *et al*. 2004)



Vines must pass both tests

not enough information to answer questions on the tree side…therefore the result of the SS is EVALUATE