

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>Besleria laxiflora</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)	?	
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?	?	
3.01	Naturalized beyond native range	n	-1
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	?	

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		
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	?	
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)		
7.02	Propagules dispersed intentionally by people	n	-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		
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			-3

Outcome	Accept
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section	# questions answered	satisfy minimum?
A	9	Yes
B	6	Yes
C	9	Yes
total	24	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	<p>1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20Ign.d.tif). 2. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 3. The New York Botanical Garden Virtual Herbarium (http://sweetgum.nybg.org/vh/). 4. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago. 5. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 6. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago. 7. Yuncker, TG (1940) Flora of the Aguan valley and the coastal regions near La Ceiba, Honduras. Publications of the Field Museum of Natural History. Botanical Series, Volume IX, Part IV. Field Museum of Natural History, Chicago. 8. Chautems, A (1991) A família Gesneriaceae na região cacauqueira da Bahia, Brasil. Revta brasil. Bot. 14: 51-59. 9. Wiehler, H (1983) A synopsis of the Neotropical Gesneriaceae. Selbyana 6(1): 1-219. 10. Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.</p>	<p>1. Global hardiness zones (10?-)11-13. 2. "Near El Achote". 3. Specimens have been collected from Bolivia, Brazil, Colombia, Costa Rica, French Guiana, Nicaragua, and Venezuela. 4. "Ranging to northern South America [from Honduras]". 5. "Alta Verapaz; Huehuetenango; Izabal; Petén. Mexico (Chiapas); British Honduras (Pueblo Viejo); Honduras to Panama, along the Atlantic Coast; northern South America, southward to the Amazon." 6. "Low elevations, Atlantic and Pacific coasts [Costa Rica]. Mexico to Brazil and Colombia." 7. "In forests on the lower slopes of Mt. Cangrejal." 8. <i>B. laxiflora</i> tem uma larga e contínua distribuição, das Guianas até o México." [<i>B. laxiflora</i> has a large and continuous distribution, from the Guianas to Mexico]. 9. "<i>B. laxiflora</i> Bentham is found from Amazonian Brazil, the Guianas, Venezuela, and Colombia north to Mexico". 10. "Distribution: From Mexico to Panama, Colombia, Ecuador and Venezuela. In Costa Rica, in humid and very humid rainforests along the Caribbean slope and in the Pacific Slope of the Guanacaste and Talamanca mountain ranges, in the lowlands south from about El Rodeo Protected Zone".</p>
2.02		

2.03	<p>1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 3. The New York Botanical Garden Virtual Herbarium (http://sweetgum.nybg.org/vh/). 4. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago. 5. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 6. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago. 7. Yuncker, TG (1940) Flora of the Aguan valley and the coastal regions near La Ceiba, Honduras. Publications of the Field Museum of Natural History. Botanical Series, Volume IX, Part IV. Field Museum of Natural History, Chicago. 8. Chautems, A (1991) A família Gesneriaceae na região cacauzeira da Bahia, Brasil. Revta brasil. Bot. 14: 51-59. 9. Wiehler, H (1983) A synopsis of the Neotropical Gesneriaceae. Selbyana 6(1): 1-219. 10. Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.</p>	<p>1. Uncertain about distribution range; possibly 3-4 climatic regions. 2. "Near El Achote". 3. Specimens have been collected from Bolivia, Brazil, Colombia, Costa Rica, French Guiana, Nicaragua, and Venezuela. 4. "Ranging to northern South America [from Honduras]". 5. "Alta Verapaz; Huehuetenango; Izabal; Petén. Mexico (Chiapas); British Honduras (Pueblo Viejo); Honduras to Panama, along the Atlantic Coast; northern South America, southward to the Amazon." 6. "Low elevations, Atlantic and Pacific coasts [Costa Rica]. Mexico to Brazil and Colombia." 7. "In forests on the lower slopes of Mt. Cangrejal." 8. <i>B. laxiflora</i> tem uma larga e contínua distribuição, das Guianas até o México." [<i>B. laxiflora</i> has a large and continuous distribution, from the Guianas to Mexico]. 9. "<i>B. laxiflora</i> Bentham is found from Amazonian Brazil, the Guianas, Venezuela, and Colombia north to Mexico". 10. "Distribution: From Mexico to Panama, Colombia, Ecuador and Venezuela. In Costa Rica, in humid and very humid rainforests along the Caribbean slope and in the Pacific Slope of the Guanacaste and Talamanca mountain ranges, in the lowlands south from about El Rodeo Protected Zone".</p>
2.04	<p>1. Atlapedia Online (http://www.atlapedia.com/online/countries/honduras.htm). 2. Atlapedia Online (http://www.atlapedia.com/online/countries/belize.htm). 3. Atlapedia Online (http://www.atlapedia.com/online/countries/venezual.htm). 4. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 5. Altapedia Online</p>	<p>1. For Honduras: Average annual precipitation varies from 1,770 mm (70 inches) to 2,540 mm (100 inches) in the north, while along the Pacific coastal plains it varies from 1,520 mm (60 inches) to 2,030 mm (80 inches). 2. For Belize: Average annual precipitation varies from 1,270 mm (50 inches) in the north to more than 3,810 mm (100 inches) in the south. 3. For</p>

	<p>(http://www.atlapedia.com/online/countries/guyana.htm). 6. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 7. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 8. Atlapedia Online (http://www.atlapedia.com/online/countries/frenguin.htm). 9. Atlapedia Online (http://www.atlapedia.com/online/countries/costa.htm) . 10. World Trade Press (http://www.worldtradePress.com/Precipitation_Map_Colombia.html). 11. Atlapedia Online (http://www.atlapedia.com/online/countries/brazil.htm) . 12. Altapedia Online (http://www.atlapedia.com/online/countries/suriname.htm).</p>	<p>Venezuela: the wet season is from May to November with an average annual precipitation varying from 1,400 mm (55 inches) in the Andes to 280 mm (11 inches) on the coast. 4. Ranges from under 10 inches to over 80 inches. 5. Average annual precipitation in Georgetown is 2,280 mm (90 inches) with less rainfall occurring on the higher plateau. 6. For Nicaragua, average annual precipitation ranges from 60 inches/year to 80+ inches/year. 7. For Bolivia, the average annual precipitation ranges from under 10 inches/year to 80 inches/year. 8. Average annual precipitation is more than 2,500 mm (100 inches). 9. For Costa Rica: average annual precipitation is 3,300 mm (130 inches) and rainfall patterns vary from region to region. 10. Most of Colombia receives between 49.2 and 98.4 inches of rainfall per year, depending upon the region. 11. For Brazil: "the nationwide average annual precipitation varies between 1,010 mm (40 inches) and 2,030 mm (80 inches)." 12. Average annual precipitation in Paramaribo is 2,200 mm (87 inches).</p>
2.05		no evidence
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	<p>1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History,</p>	no description of these traits

	Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago.	
4.02		
4.03	1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago.	no description of parasitism
4.04		
4.05	1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago.	no evidence
4.06		
4.07	1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago.	no evidence
4.08		
4.09	Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago.	"Usually dense, mixed forest".
4.1	USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html).	Belize: mollisols, inceptisols, ultisols; Venezuela: alfisols, entisols, inceptisols, and ultisols (oxisols are present in the southern half of the country); Guyana: entisols, inceptisols, and ultisols (oxisols are present in the southern half of the country); Mexico: alfisols, inceptisols, and ultisols are the predominant soil order types in the southern region (including

		<p>Chiapas); Nicaragua: predominantly inceptisols and ultisols, with a very small amount of alfisols (also a very small distribution of andisols on the west coast); Bolivia: ultisols, alfisols, mollisols, and inceptisols, with a relatively small amount of entisols and aridisols (with a small region of andisols); French Guiana: some ultisols and some entisols along the Atlantic Coast (but the remaining area is comprised of oxisols; Costa Rica: almost entirely ultisols with small regions of inceptisols and mollisols (and a small region of andisols); Colombia: alfisols, ultisols, and entisols are a large proportion of the soil order types, but almost the entire southern region is comprised of oxisols and there are oxisols and andisols on the Pacific coast; Brazil: large regions of ultisols and alfisols are present, as well as regions of entisols and smaller areas of inceptisols and mollisols, but the largest represented soil order type is oxisols; Suriname: consists of primarily ultisols, with some regions of entisols (and oxisols).</p>
4.11	<p>1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago. 3. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 4. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago. 5. Yuncker, TG (1940) Flora of the Aguan valley and the coastal regions near La Ceiba, Honduras. Publications of the Field Museum of Natural History. Botanical Series,</p>	<p>1. "A shrub 1-2 meters tall". 2. "A shrub about a meter high with brittle stems". 3. "Shrubs or suffrutescent herbs, 0.5-1.5 m tall, sparsely branched". 4. "A shrub or suffrutescent herb". 5. "Low shrub 1 meter tall or less." 6. "Herb or shrub to 3 m tall".</p>

	Volume IX, Part IV. Field Museum of Natural History, Chicago. 6. Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.	
4.12	Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago.	Shrubs or suffrutescent herbs, 0.5-1.5 m tall, sparsely branched.
5.01		terrestrial
5.02	Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago.	Gesneriaceae
5.03	Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago.	Gesneriaceae
5.04	1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2. Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago. 3. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 4. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago. 5. Yuncker, TG (1940) Flora of the Aguan valley and the coastal regions near La Ceiba, Honduras. Publications of the Field Museum of Natural History. Botanical Series, Volume IX, Part IV. Field Museum of Natural History, Chicago. 6. Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.	1. "A shrub 1-2 meters tall". 2. "A shrub about a meter high with brittle stems". 3. "Shrubs or suffrutescent herbs, 0.5-1.5 m tall, sparsely branched". 4. "A shrub or suffrutescent herb". 5. "Low shrub 1 meter tall or less." 6. "Herb or shrub to 3 m tall".
6.01	1. Yuncker, TG (1938) A contribution to the flora of Honduras. Publications of the Field Museum of Natural History. Botanical Series volume XVII, No. 4. Field Museum of Natural History, Chicago. 2.	no evidence

	Standley, PC (1931) Flora of Lancetilla Valley, Honduras. Field Museum of Natural History, Botanical Series, Volume 10. Publication 283. Field Museum of Natural History, Chicago.	
6.02		
6.03		
6.04		
6.05	Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.	"The hummingbird <i>Phaethornis striigularis</i> has been seen frequently visiting the flowers of this species and most probably pollinates it (pers. obs.)".
6.06		
6.07		
7.01		
7.02		no evidence
7.03		no evidence
7.04	1. Hooker, WJ (1846) The London Journal of Botany. Volume V. Hippolyte Bailliere, Publisher, London. 2. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 3. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago.	1. "Fructus globosus...pericarpium carnosum; semina minuta, numerosissima, albuminosa" [Fruit globose...pericarp fleshy, succulent, soft but firm; seeds small, numerous, with endosperm]. 2. "Fruits orange" [species description]; "fruit berrylike, globose, the exocarp thick, verrucose or almost smooth; seeds numerous, minute, red, spirally striate" [genus description]. 3. "Fruit a fleshy berry" [genus description]. [no evidence of adaptations to wind dispersal].
7.05		
7.06	1. Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 2. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago. 3. Haehner, RK (2006) Gesneriaceas de Costa Rica. INBio, Santo Domingo de Heredia, Costa Rica.	1. Fruits orange [species description]; "fruit berrylike, globose, the exocarp thick, verrucose or almost smooth; seeds numerous, minute, red, spirally striate" [genus description]. 2. "Fruit a fleshy berry" [genus description]. 3. "Fruit orange."
7.07	1. Hooker, WJ (1846) The London Journal of Botany. Volume V. Hippolyte Bailliere, Publisher, London. 2.	1. "Fructus globosus...pericarpium carnosum; semina minuta,

	<p>Gentry, JL and Standley, PC (1974) Flora of Guatemala. Fieldiana: Botany, Volume 24, Part X, Numbers 1 and 2. Field Museum of Natural History, Chicago. 3. Standley, PC (1938) Flora of Costa Rica. Publications of the Field Museum of Natural History. Botanical Series, Volume XVIII, Parts III and IV. Field Museum of Natural History, Chicago.</p>	<p>numerosissima, albuminosa" [Fruit globose...pericarp fleshy, succulent, soft but firm; seeds small, numerous, with endosperm]. 2. "Fruits orange" [species description]; "fruit berrylike, globose, the exocarp thick, verrucose or almost smooth; seeds numerous, minute, red, spirally striate" [genus description]. 3. "Fruit a fleshy berry" [genus description]. [no evidence of adaptations to external dispersal].</p>
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		