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

Cupania cinerea			
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)	1	
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	n	0
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	y	1
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	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	y	1
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			1

Outcome	Evaluate

section	# questions answered	satisfy minimum?
A	9	Yes
B	7	Yes
C	11	Yes
total	27	yes

Data collected 2008

Question number	Reference	Source data
1.01		cultivated, but no evidence of significant modification
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. Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540. 3. CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	1. Global hardiness zones (7-8?-)9-13. 2. "The species ranges from Costa Rica to Venezuela, Colombia, Peru, and Bolivia. It also occurs in the West Indies." 3. Grows in areas with average temperatures between 15 and 24°C.
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	1. Distribution range is not specific enough to determine; possibly three climatic regions. 2. "The species ranges from Costa Rica to Venezuela, Colombia, Peru, and Bolivia. It also occurs in the West Indies."
2.04	1. World Trade Press (http://www.worldtradepress.com/Precipitation_Map_Colombia.html). 2. CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	1. Most of Colombia receives between 49.2 and 98.4 inches of rainfall per year, depending upon the region. 2. Grows in areas with between 1,000 and 1,500 mm [39.4 inches -- 59.1 inches] annual rainfall.
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	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	no description of these traits
4.02		
4.03	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	no description of parasitism
4.04		
4.05		no evidence
4.06		
4.07		no evidence
4.08		
4.09	CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	it is a light-demanding species
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). 2. CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	1. Costa Rica: mostly ultisols with a small amount of inceptisols (also with a small amount andisols); Panama: almost entirely ultisols with a very small amount of inceptisols (and a very small amount of andisols); Colombia: mostly ultisols, entisols, and alfisols (but oxisols and andisols are present in the south and along the Pacific Coast); Venezuela: mostly ultisols and inceptisols with some alfisols, a very small amount of mollisols and entisols (also primarily oxisols in southern Venezuela); Peru: ultisols (mostly in central Peru), some inceptisols and mollisols, entisols all along the Pacific Coast (also oxisols in the north, a very small amount of andisols, and some rocky land along the border of the Pacific Coast entisols); Bolivia: mostly ultisols, alfisols, and inceptisols, some mollisols, aridisols, and entisols (also a small amount of andisols). 2. Grows well in deep, well-drained sandy soil.

4.11	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	Trees to ca. 8(-10) m tall.
4.12		
5.01		terrestrial
5.02	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	Sapindaceae
5.03	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	Sapindaceae
5.04	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	woody tree
6.01		no evidence
6.02	CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	Seeds germinate 3 weeks after planting.
6.03	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	"Unusually dark-leaved specimens such as *White 259* with pubescence similar to *Cupania latifolia* may represent hybrids with that species."
6.04		
6.05		
6.06		
6.07		
7.01		
7.02	CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	planted for fuelwood
7.03		no evidence
7.04	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	"Capsules obovate, rounded to 3-lobed, short-stipitate, ca. 1.5 cm long and 1 cm wide…seeds oblong, more than 1 cm long…the lower half covered with an orange aril." [no evidence of adaptations to wind dispersal]
7.05		

7.06	1. Foster, SA and Janson, CH (1985) The relationship between seed size and establishment conditions in tropical woody plants. Ecology 66(3): 773-780. 2. CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	1. Disperser = bird. 2. The fruits are eaten by birds.
7.07	Croat, TB (1976) Flora of Panama, part VI. Family 108. Sapindaceae. Annals of the Missouri Botanical Garden 63: 419-540.	"Capsules obovate, rounded to 3-lobed, short-stipitate, ca. 1.5 cm long and 1 cm wide…seeds oblong, more than 1 cm long…the lower half covered with an orange aril." [no evidence of any means of attachment]
7.08	CENICAFE (http://orton.catie.ac.cr/cgi-bin/wxis.exe/?IsisScript=FLORA.xis&method=post&formato=2&cantidad=1&expresion=mfn=000242).	The fruits are eaten by fish. [but no evidence of post-dispersal viability]
8.01		
8.02		
8.03		
8.04		
8.05		