UF IFAS UNIVERSITY of FLORIDA

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

assessment.ifas.ufl.edu

Assessment date 16 April 2015

	***Merremia umbellata*--hogvine: 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)	y	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	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	unk	
3.01	Naturalized beyond native range	unk	
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	y	4
3.04	Environmental weed	y	4
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	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	unk	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	n	0
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	unk	-1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	n	-1
6.07	Minimum generative time (years)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
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	unk	-1
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	unk	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	n	-1
8.03	Well controlled by herbicides	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation	unk	-1
8.05			
	Total Score	**1**	
	Implemented Pacific Second Screening	**yes**	
	Risk Assessment Results	**Evaluate**	

section	**# questions answered**	**satisfy minimum?**
A	9	yes
B	9	yes
C	16	yes
total	34	yes

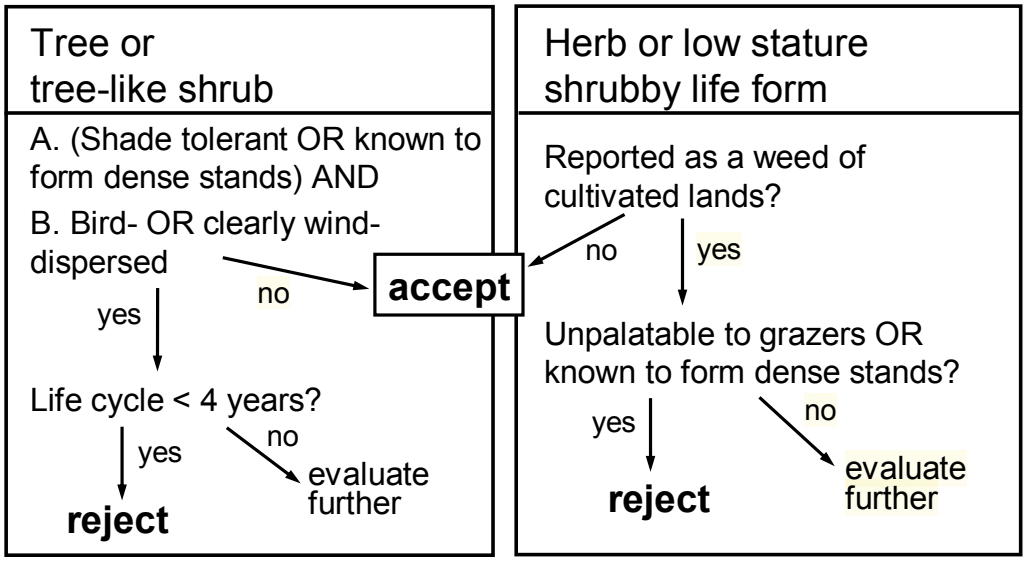
	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. USDA, ARS, National Genetic 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 (4-13-2015).	No computer analysis was performed. 1. Global hardiness zone: 7, 8, 9, 10, 11, 12, 13; equivalent to USDA Hardiness zones: USDA Zone 7b: to -14.9 °C (5 °F) 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 unknown (pantropic)
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 Main climates Af Am As Aw, Csa, Csb
2.04	World Bank http://data.worldbank.org/indicator/AG.LND.PRCP.MM (4-15-2015)	Spme areas in the tropics where this plant is evident exhibit rainfall averages within the range of all three zones.
2.05	1. GRIN http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?409896 (4-13-2015) 2. Yan, Jian; Bi, Hai-Hong; Liu, Yong-Zhu; Zhang, Mei; Zhou, Zhong-Yu; Tan, Jian-Wen. 2010. "Phenolic Compounds from Merremia umbellata subsp. orientalis and Their Allelopathic Effects on Arabidopsis Seed Germination." Molecules 15, no. 11: 8241-8250.	2. Pantropic, unknown origin. 2. In China, this plant was previously mainly distributed in Guangxi, Yunnan and Hainan provinces, while recently it was also found in some parts of Guangdong Province as an introduced harmful invasive plant
3.01		Native range unknown
3.02		no evidence
3.03	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015) 2. Backer, C.A. (1973) Atlas of 220 Weeds of sugarcane fields in Java. A reprint of an original publicaton from the early 1930s. 3. Acuna, G.J. (1974). Plantas Indeseables en Los Cultivos Cubanos. Academia de Ciencias, Insitituto de Investigaciones de Cuba, Havana.	1. As a vigorous perennial vine, M. umbellata causes problems in many annual and perennial crops, but especially in less intensively managed perennial crops and forest plantations. It is noted as one of the most damaging species in plantations of Swietenia macrophylla and Acacia spp. in South Kalimantan, Indonesia 2. Agricultural weed in sugarcane fields. 3. Weed of agriculture
3.04	1. Invasive Plant Field Guide http://science.nature.nps.gov/im/units/pacn/assets/docs/Invasive_Species_Cards_and_Calendars_PBIN/NPS_CARDS_NPSA_12112012_final.pdf (4-13-2015) 2. Yan, Jian; Bi, Hai-Hong; Liu, Yong-Zhu; Zhang, Mei; Zhou, Zhong-Yu; Tan, Jian-Wen. 2010. "Phenolic Compounds from Merremia umbellata subsp. orientalis and Their Allelopathic Effects on Arabidopsis Seed Germination." Molecules 15, no. 11: 8241-8250. 3. Staples, George W., Derral Herbst & Clyde T. Imada (2000). Survey of Invasive or Potentially Invasive Cultivated Plants in Hawaii. A Special Publication of the Records of the Hawaii Biological Survey for 1999. Honolulu, Hawaii.	1. Invasive in American Samoa 2. Harmful invasive, likley allelopathic 3. Environmental weed in Hawaii.
3.05	1. Holm, LeRoy G. A Geographical Atlas of World Weeds. Malabar, FL: Krieger Pub., 1991. Print.	1. Merremia aegyptia is a principle weed in Venezuela, Merremia emarginata is a principle weed in Sudan, Merremia quinquefolia is a principle weed in Australia
4.01	Flora of China http://efloras.org/florataxon.aspx?flora_id=2&taxon_id=210001271 (4-13-2015)	These features are not evident in the species description.

4.02	Yan, Jian; Bi, Hai-Hong; Liu, Yong-Zhu; Zhang, Mei; Zhou, Zhong-Yu; Tan, Jian-Wen. 2010. "Phenolic Compounds from Merremia umbellata subsp. orientalis and Their Allelopathic Effects on Arabidopsis Seed Germination." Molecules 15, no. 11: 8241-8250.	Likely, but insufficient evidence 1. Eight phenolic compounds, including a new salicylic acid-derived natural product SA 2-O-β-D-(3',6'-dicaffeoyl)-glucopyranoside, and seven known ones were isolated from the invasive plant M. umbellata subsp. orientalis (Hall. f.), and some of them showed inhibitory bioactivities on the germination of Arabidopsis seeds. Our study provides new data to support the idea that phenolic compounds could play a role as allelochemicals in helping invasive plants achieve their invasion success.
4.03	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 (4-13-2015).	Family: Convolvulaceae --not a parasitic family
4.04	Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015)	Merremia species can be palatable to livestock and may also be kept in check through grazing
4.05		no evidence
4.06		no evidence
4.07	1. Dave's Garden http://davesgarden.com/guides/pf/go/53478/#b (4-13-2015)	Seed is poisonous if ingested
4.08		no evidence
4.09	1. Dave's Garden http://davesgarden.com/guides/pf/go/53478/#b (4-13-2015) 2. Georgia Vines http://www.georgiavines.com/cart/index.php?main_page=product_info&products_id=1167 (4-15-2015)	1. Sun Exposure: Full Sun Sun to Partial Shade 2. will grow in full sun or part shade, producing more blossoms in full sun.
4.10	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015)	1. Favors sandy soil [Soil information lacking]
4.11	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015) 2. Encyclopedia of Life http://eol.org/pages/580861/details (4-13-2015) 3. Plantwise Knowlegde Bank http://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=33477 (4-15-2015)	1. M. umbellata is a vigorous perennial vine with climbing or trailing stems 2. Habit: Climbing Herb 3. climbing vine
4.12		no evidence
5.01	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 (4-13-2015).	Family: Convolvulaceae
5.02	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 (4-13-2015).	Family: Convolvulaceae
5.03		no evidence
5.04		no evidence of these structures
6.01		no evidence

6.02	1. Dave's Garden http://davesgarden.com/guides/pf/go/53478/#b (4-13-2015) 2. http://www.hear.org/pier/species/merremia_umbellata.htm 3. Rare Palm Seeds http://www.rarepalmseeds.com/pix/MerUmb.shtml (4-15-2015) 4. PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org.	1. Propagated by seed 2. Propagation: Seed 3. produces viable seeds 4. Merremia is mainly propagated by seed, sometimes from stem cuttings.
6.03		no evidence
6.04		no evidence
6.05	1. Dave's Garden http://davesgarden.com/guides/pf/go/53478/#b (4-13-2015) 2. GBIF http://www.gbif.org/species/3678484 (4-13-2015)	1. This plant is attractive to bees, butterflies and/or birds 2. The flowers attract bees, butterflies and birds.
6.06		no evidence
6.07		no evidence
7.01	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015) 2. Botany.cz http://botany.cz/en/merremia-umbellata/ (4-13-2015) 3. Encyclopedia of Life http://eol.org/pages/580861/details (4-13-2015)	1. M. umbellata is a plant of the humid tropics occurring along the edges of forests, in grasslands, along field edges, roadsides and waterways. Although it is common in forest situations, it favours more open situations along the edges of fields, plantations and water bodies. 2. It grows in tropical forests, grasslands, pastures, along field edges, roadsides and watercourse 3. Distribution: In disturbed areas, on roadsides and in pastures and vacant lots, at lower to middle elevations.
7.02		no evidence
7.03	Invasive Species Compendium http://www.cabi.org/isc/datasheet/33477 (4-13-2015)	The young leaves of M. umbellata may be mixed with vegetables and eaten
7.04		no evidence
7.05		no evidence (known to be found around bodies of water, see source data for 7.01)
7.06		no evidence
7.07		no evidence
7.08		no evidence
8.01	Flora of China http://efloras.org/florataxon.aspx?flora_id=2&taxon_id=210001271 (4-13-2015)	Ovary glabrous or sparsely pubescent apically. Capsule conical-ovoid, 0.7-1.3 cm X 7-8 mm, glabrous or sparsely pubescent apically, apiculate. Seeds ca. 5 mm, densely spreading long pubescent.
8.02		no evidence
8.03	1. Nazif M, 1992. Efficacy test of some herbicides to control weeds under mahogany (Swietenia macrophylla King). Buletin Penelitian Hutan, No. 547:13-31; [With English figures and tables]; 5 ref. 2. Colon C, Almarales P, 1985. Control of weeds in rice with mixtures of propanil and residual herbicides. Ciencia y Tecnica en la Agricultura, Arroz, 8(1):43-61	1. Details are given of weed species found in the understorey of 2-yr-old plantations of Swietenia macrophylla in South Kalimantan. The dominant species were Imperata cylindrica, Merremia umbellata, Clibadium surinamense and Eupatorium palescens. Chemical control tests were carried out using 5 herbicides - Garlon 480 EC [triclopyr], Indamin 720 HC [?], Tordon 101 [2,4-D + picloram] and Starane 200 EC [fluroxypyr] at 1 and 2 litre/ha; and Roundup [glyphosate] at 4 and 6 litre/ha. Best control was achieved using Roundup at 4 litre/ha; this was not toxic to S. macrophylla. 2. In rice, Colon and Almaraz (1985) achieved temporary control of M. umbellata in dry-sown rice with post-emergence application of thiobencarb or propanil and more prolonged control with a mixture of propanil plus oxadiazon. I
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