

Assessment date 27 April 2016

<i>Pyrostegia venusta</i> 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?	y	
3.01	Naturalized beyond native range	y	2
3.02	Garden/amenity/disturbance weed	unk	
3.03	Weed of agriculture	y	4
3.04	Environmental weed	y	4
3.05	Congeneric weed	unk	
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	unk	-1
4.05	Toxic to animals	unk	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	unk	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	unk	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	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	unk	-1
6.07	Minimum generative time (years)	1	1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	unk	-1
7.04	Propagules adapted to wind dispersal	y	1
7.05	Propagules water dispersed	unk	-1
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)	unk	-1
8.03	Well controlled by herbicides	?	
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score			8
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		9 yes
B		5 yes
C		15 yes
total		29 yes

	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
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%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 (1-8-2016).</p>	<p>No computer analysis was performed. 1. Global hardiness zone: 8, 9, 10, 11, 12, 13 ; equivalent to USDA Hardiness zones: 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 Brazil: Brazil - Acre, - Amazonas, - Bahia, - Ceara, - Espirito Santo, - Goias, - Mato Grosso, - Mato Grosso do Sul, - Minas Gerais, - Para, - Parana, - Pernambuco, - Rio de Janeiro, - Rio Grande do Sul, - Santa Catarina, - Sao Paulo, - Rondonia, - Roraima, - Tocantins Mesoamerica: Costa Rica; El Salvador; Guatemala; Honduras; Panama Northern South America: Guyana; Suriname; Venezuela - Bolivar, Amazonas, - Miranda, - Sucre, - Federal District, - Tachira, - Delta Amacuro Southern South America: Argentina - Corrientes, - Jujuy, - Misiones, - Tucuman; Paraguay - Alto Parana, - Amambay, - Caaguazu, - Caazapa, - Central, - Concepcion, - Cordillera, - Guaira, - Itapua, - Misiones, - Paraguari, - San Pedro, - Canendiyu Western South America: Bolivia - Beni, - La Paz, - Pando, - Santa Cruz; Colombia - Caqueta, - Meta, - Valle; Peru - Cuzco, - Huanuco, - La Libertad, - Lambayeque, - Lima, - Loreto, - Madre de Dios, - Pasco, - San Martin, - Ucayali</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. GBIF http://www.gbif.org/species/2867866 (1-8-2015)</p>	<p>1. Distribution in the native/cultivated range occurs in Af, Aw, Am, Cfa</p>
2.04	<p>1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (8-19-2015)</p>	<p>Native to areas with 39 to 196 inches of precipitation yearly.</p>
2.05	<p>1. PIER http://www.hear.org/pier/species/pyrostegia_venusta.htm (1-15-2016) 2. Adams, C.D. 1972. Flowering plants of Jamaica. University of the West Indies, Mona</p>	<p>1. Yes, introduced across multiple pacific islands. 2. Occasional relict from cultivation in Jamaica</p>
3.01	<p>1. Queensland Government http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Pyrostegia_venusta.htm (1-15-2016) 2. PIER http://www.hear.org/pier/species/pyrostegia_venusta.htm (1-15-2016)</p>	<p>1. Occasionally naturalised in eastern Australia (i.e. in south-eastern Queensland and the coastal districts of central and northern New South Wales). Also naturalised overseas in eastern Africa 2. Invasive in Hawaii</p>
3.02		no evidence
3.03	<p>Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of pyrostegia venusta ker. gawl miers bignoniaceae. Revista Brasileira de Botanica 15(1): 37-41</p>	<p>This ornamental climber has become an invasive weed in São Paulo crops and studies of its reproductive cycle were conducted as part of a program to investigate its control.'</p>

3.04	1. Kew http://www.kew.org/science-conservation/plants-fungi/pyrostegia-venusta-flame-vine (1-15-2015) 2. Hutchinson, CAIP University of Florida http://www.se-eppc.org/wildlandweeds/pdf/Fall2005-Hutchinson-pp7-11.pdf (1-29-2016) 3. Gilman, 1999 UF/IFAS Extension https://edis.ifas.ufl.edu/fp496 (1-29-2016)	1. In some parts of the world, such as in Queensland (Australia), south-eastern USA and on some Pacific islands, it has become naturalised and is considered a weed, smothering native vegetation. There is a risk that it could become invasive in other countries where it has been introduced. 2. Once established, flame vine spreads vertically creating a closed canopy cover and altering the structure and composition of the area it has invaded. Its horizontal matrix of roots and nodes makes control very difficult once the plant is established. 3. Covering everything that can offer a good support, flame vine should be planted with caution because it has been known to cover, then strangle, trees with its rampant growth.
3.05		no evidence
4.01	1. Gilman, 1999 UF/IFAS Extension https://edis.ifas.ufl.edu/fp496 (1-29-2016)	These features are not evident in the species description
4.02		no evidence
4.03		no evidence
4.04		no evidence
4.05		no evidence
4.06	1. Gilman, 1999 UF/IFAS Extension https://edis.ifas.ufl.edu/fp496 (1-29-2016)	1. Pest resistance: no serious pests are normally seen on the plant
4.07		no evidence
4.08		no evidence
4.09	1. Hutchinson, CAIP University of Florida http://www.se-eppc.org/wildlandweeds/pdf/Fall2005-Hutchinson-pp7-11.pdf (1-29-2016)	1. appears to require moisture or shade for initial establishment.
4.10		insufficient evidence
4.11	1. Kew http://www.kew.org/science-conservation/plants-fungi/pyrostegia-venusta-flame-vine (1-15-2015) 2. Egardens http://www.egardens.co.za/landscaping-plant-database/pyrostegia-venusta (1-20-2016)	1. <i>Pyrostegia venusta</i> climbs up to 6 m or more. 2. robust, exotic climber capable of very tall growth; specimens in excess of 10m are not uncommon as long as they have a strong support structure on which to climb; individual plants can cover large areas with spreads in excess of 3m; take note that these plants are capable of collapsing weaker structures due to the heavy weight they develop;
4.12		no evidence
5.01		Family: Bignoniaceae
5.02		Family: Bignoniaceae
5.03		no evidence
5.04	1. Gilman, 1999 UF/IFAS Extension https://edis.ifas.ufl.edu/fp496 (1-29-2016)	These features are not evident in the species description
6.01		no evidence
6.02	1. Singh S., Rana A. & Chauhan S. V. S. (2009) Impact of environmental changes on the reproductive biology in <i>Pyrostegia venusta</i> Presl. <i>Journal of Environmental Biology</i> 30: 271–273. 2. Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of <i>pyrostegia venusta</i> ker. gawl miers bignoniaceae. <i>Revista Brasileira de Botanica</i> 15(1): 37-41	1. produces well developed fruits with winged seeds. 2. <i>P. venusta</i> is a self-compatible weed, with facultative outbreeding and its reproduction is solely through seed production.
6.03		
6.04	1. Galetto, L., & Bernardello, G. (1995). Characteristics of nectar secretion by <i>Lycium cestroides</i> , <i>L. ciliatum</i> (Solanaceae), and their hybrid. <i>Plant Species Biology</i> , 11, 157–163. 2. Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of <i>pyrostegia venusta</i> ker. gawl miers bignoniaceae. <i>Revista Brasileira de Botanica</i> 15(1): 37-41	1. blooms over a period of several months and is self-compatible 2. <i>P. venusta</i> is a self-compatible weed, with facultative outbreeding and its reproduction is solely through seed production.

6.05	1. Kew http://www.kew.org/science-conservation/plants-fungi/pyrostegia-venusta-flame-vine (1-15-2015) 2. Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of pyrostegia venusta ker. gawl miers bignoniaceae. Revista Brasileira de Botanica 15(1): 37-41 3. Dave's Garden http://davesgarden.com/guides/pf/go/53032/#ixzz3xoraLrPM (1-20-2016)	1. In the wild, <i>P. venusta</i> is pollinated by hummingbirds. 2. <i>P. venusta</i> is here identified as an ornithophilous species due to its flower morphological features which fit the visiting hummingbirds. The effective pollinator are the hummingbirds <i>Eupetomena macroura</i> and <i>Phaethornis pretrei</i> . 3. This plant is attractive to bees, butterflies and/or birds
6.06		no evidence
6.07	1. Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of pyrostegia venusta ker. gawl miers bignoniaceae. Revista Brasileira de Botanica 15(1): 37-41	1. The complete reproductive cycle, from flower initiation to fruit maturity, lasted 96 plus or minus 14 days and generally began in Apr. at the sites studied.
7.01		no evidence
7.02	1. Invasive Plant Field Guide Kalaupapa National Historical Park https://science.nature.nps.gov/im/units/pacn/assets/docs/Invasive_Species_Cards_and_Calendars_PBIN/NPS_CARDS_KALA_12_112012_final.pdf (1-20-2016) 2. Pool, Amy 2008. A Review Of the Genus <i>Pyrostegia</i> (Bignoniaceae) Annals of the Missouri Botanical Garden 95(3):495-510. 2008	1. Flame vine (<i>Pyrostegia venusta</i>) is a popular, nonnative ornamental vine with orange to red trumpet-shaped flowers. 2. <i>Pyrostegia venusta</i> (Ker Gawl.) Miers, a popular ornamental, is cultivated throughout the tropics
7.03		no evidence
7.04	Gobatto-Rodrigues, A. A.; Stort, M. N. S., 1992: Floral biology and reproduction of pyrostegia venusta ker. gawl miers bignoniaceae. Revista Brasileira de Botanica 15(1): 37-41	1. The seeds were dispersed by wind at the end of Nov.
7.05		No evidence, but possibly given the seeds are light enough for wind dispersal
7.06		no evidence
7.07		no evidence of mechanism for attachment
7.08		no evidence
8.01		no evidence
8.02		no evidence
8.03	1. Hutchinson, CAIP University of Florida http://www.se-eppc.org/wildlandweeds/pdf/Fall2005-Hutchinson-pp7-11.pdf (1-29-2016)	1. Garlon 4 (triclopyr, 10% product) mixed with Veg Oil (90%) was successful in controlling flame vine. No resprouts (n = 25) were recorded for stems cut and treated at the node with 10% Garlon 4. Vines growing vertically above the cut were not treated and died. However, resprouts were observed on untreated nodes > 0.75 m from the treated node attached to the same root, indicating that herbicide translocation may not occur from node to node. Thus, every node, possibly thousands per hectare, must be treated for complete control. Foliar spraying of flame vine along a fence line in the northeast section of ABS with Roundup (glyphosate, 3% product) or Weedmaster (2,4-D and dicamba, 3% product) was successful in defoliating the vine, but the vine resprouted in < 6 months. A second treatment along the fence line with each herbicide again resulted in defoliation, but subsequent resprouting occurred again within 6 months. Thus, foliar spraying is not recommended unless followed with herbicide treatment of the nodes.
8.04	1. Hutchinson, CAIP University of Florida http://www.se-eppc.org/wildlandweeds/pdf/Fall2005-Hutchinson-pp7-11.pdf (1-29-2016)	Flame vine re-sprouted within 7 days from all root nodes that were cut (n = 25). Prescribed burning resulted in 19 resprouts (76%; n = 25) with resprouts being observed after 25 days. This indicates that flame vine is tolerant to fire... the spread of flame vine was probably facilitated by the spread of root fragments with nodes during disking of fire-lanes.
8.05		no evidence