

Assessment date 9 August 2016

<i>Passiflora foetida</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	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	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	y	1
4.07	Causes allergies or is otherwise toxic to humans	y	1
4.08	Creates a fire hazard in natural ecosystems	unk	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.	y	1
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	y	1
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	n	-1
6.07	Minimum generative time (years)	unk	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y	1
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	unk	-1
7.05	Propagules water dispersed	?	
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	unk	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)	y	1
8.03	Well controlled by herbicides	n	1
8.04	Tolerates, or benefits from, mutilation or cultivation	unk	-1
8.05		?	
Total Score			21
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		11 yes
B		10 yes
C		17 yes
total		38 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%20lgnnd.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 (3-16-2016).</p>	<p>No computer analysis was performed. 1. Global hardiness zone: 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 Northern America Northern Mexico: Mexico - Chihuahua, - Coahuila, - Nuevo Leon, - San Luis Potosi, - Sinaloa, - Sonora, - Tamaulipas, - Zacatecas South-Central U.S.A.: United States - Texas Southern Mexico: Mexico - Chiapas, - Colima, - Guanajuato, - Guerrero, - Hidalgo, - Jalisco, - Mexico, - Michoacan, - Morelos, - Nayarit, - Oaxaca, - Puebla, - Queretaro, - Tabasco, - Veracruz, - Yucatan Southwestern U.S.A.: United States - Arizona Southern America Brazil: Brazil Caribbean: Antigua and Barbuda; Bahamas; Cuba; Dominica; Grenada; Guadeloupe; Hispaniola; Jamaica; Martinique; Montserrat; Puerto Rico; St. Lucia; St. Vincent and Grenadines; Trinidad and Tobago Mesoamerica: Belize; Costa Rica; El Salvador; Guatemala; Honduras; Nicaragua; Panama Northern South America: French Guiana; Guyana; Suriname; Venezuela Southern South America: Argentina; Chile; Paraguay; Uruguay Western South America: Bolivia; Colombia; Ecuador; Peru</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/2874211 (3-16-2016)</p>	<p>1. Distribution in the native/cultivated range occurs in Cfa, Aw, Af, Bsh, Bwh</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 regions with rainfall from 5 inches to 197 inches per year</p>
2.05	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-22-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. Introduced across the Pacific, as well as coastal South East Asia. 2. Introduced across the tropics</p>
3.01	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-22-2016)</p>	<p>1. Widely naturalised in northern and eastern Australia... Also naturalised on Christmas Island and in the Cocos Islands... Widely naturalised in other tropical regions of the world including south-eastern Asia (i.e. the Philippines, Singapore, Thailand, Vietnam, Malaysia, Brunei, Indonesia and Papua New Guinea), the Mascarenes (i.e. La Reunion) and many Pacific islands (e.g. American Samoa, Western Samoa, the Cook Islands, the Marshall Islands, Fiji, French Polynesia, Guam, Kiribati, Nauru, New Caledonia, Niue, Palau, Tonga and Hawaii). 2. Naturalized in Hawaii and Fiji</p>
3.02		no evidence

3.03	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016) 3. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. A weed of plantation crops (e.g. sugarcane) 2. It is found most often in plantation crops, grows vigorously in neglected plantings, and because it tends to infest work roads and field borders the wee may spread into crops... In plantation crops of the tree habit, the weed tends to be most severe in mature plantings where there is some shade 3. It is the most serious weed in maize in some parts of Malaysia and is a serious weed of rubber there, and in Indonesia. It is also especially serious in coconut in the Pacific, in maize and sugarcane in Thailand, in cotton in Thailand and Peru, in oilpalm in Indonesia, in taro in Samoa, and in various crops in Sarawak.</p>
3.04	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-22-2016)</p>	<p>1. Stinking passionflower (<i>Passiflora foetida</i>) is regarded as an environmental weed in Queensland, the Northern Territory and northern Western Australia. 2. forms a dense ground cover which prevents or delays the establishment of other species. (Invasive across the Pacific as well as parts of South East Asia such as Vietnam)</p>
3.05	<p>1. Holm, LeRoy G. A Geographical Atlas of World Weeds. Malabar, FL: Krieger Pub., 1991. Print.</p>	<p>1. <i>Passiflora suberosa</i> is a serious weed in Melanesia and a common weed in Thailand and Hawaii.</p>
4.01	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016)</p>	<p>1. No evidence of these features</p>
4.02		<p>no evidence</p>
4.03		<p>no evidence</p>
4.04	<p>1. 2009. Lima dos Santos, L./Ramos, M.A./Izidio da Silva, S./Ferreira de Sales, M./Paulino de Albuquerque, U.. Caatinga ethnobotany: anthropogenic landscape modification and useful species in Brazil's semi-arid northeast. Economic Botany. 6: 363-374</p>	<p>1. Used as forage in Brazil</p>
4.05	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016)</p>	<p>1. While its ripe fruit are edible, its leaves contain cyanic acid and are thought to be poisonous to people and livestock.</p>
4.06	<p>Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. It is an alternate host for a number of diseases which affect cultivated passionfruit, including <i>Passiflora</i> ringspot virus. Passion fruit Sri Lankan mottle virus. <i>Fusarium oxysporum</i> f.sp. <i>passiflorae</i>. Cucumber mosaic virus, a lepidopterous Pterophoridae, Passionfruit woodiness virus, <i>Agraulis vanillae</i> <i>vanillae</i>, and <i>Colletotrichum gleosporoides</i>.</p>
4.07	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. Dave's Garden http://davesgarden.com/guides/pf/go/1194/#b (3-23-2016)</p>	<p>1. While its ripe fruit are edible, its leaves contain cyanic acid and are thought to be poisonous to people and livestock. 2. Parts of plant are poisonous if ingested</p>
4.08		<p>no evidence</p>
4.09	<p>1. Dave's Garden http://davesgarden.com/guides/pf/go/1194/#b (3-23-2016) 2. Tropilab http://www.tropilab.com/passi-foetida.html (3-23-2016)</p>	<p>1. Sun to Partial Shade 2. Full sun to light shade</p>
4.10	<p>1. 1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016) 2. University of Texas at Austin http://www.wildflower.org/plants/result.php?id_plant=PAFO2 (3-23-2016) 3. USDA Global Soil Regions http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/use/?cid=nrcs142p2_054013 (3-23-2016)</p>	<p>1. The plant grows on a wide range of soils from peats through loams to sands, as well as on soils derived from corals and volcanic debris. 2. Soil Description: Sandy Loam, Medium Loam, Sandy, Saline tolerant, Calcareous 3. Native to regions with similar soil to all three zones of Florida</p>

4.11	1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a-8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016) 3. Australian Weeds Committee http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&state=&s=&ibra=all&card=V26 (3-23-2016)	1. a climbing or scrambling vine with sticky hairs over most of the plant. 2. scrambling or climbing to 5 m or more by axillary, unbranched, coiling tendrils 3. Climbing or scrambling vine up to 9 m high.
4.12	1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016)	1. forms a dense ground cover which prevents or delays the establishment of other species.
5.01		Family: Passifloraceae
5.02		Family: Passifloraceae
5.03		Family: Passifloraceae
5.04	1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016)	1. No evidence of these traits
6.01		no evidence
6.02	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016) 2. Brisbane City Council Weed Identification Tool http://weeds.brisbane.qld.gov.au/weeds/white-passionflower (3-23-2016)	1. Seeds obtained by spontaneous self-pollination, induced self-pollination, geitonogamous pollination and natural pollination were viable and the major germination percentage occurred 2 months after sowing 2. This species reproduces by seed
6.03	1. 1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI. 2. Conceição, Léo Duc Haa Carson Schwartzhaupt da, Souza, Margarete Magalhães, Belo, Gabriela de Oliveira, Santos, Sheila Félix dos, & Freitas, Jôsie Cloviane Oliveira de. (2011). Hybridization among wild passionflower species. Brazilian Journal of Botany, 34(2), 237-240.	1. Killip (1938) recognized 38 varieties of this species, and more than one may have been introduced to Hawaii, where extensive hybridization has occurred. 2. Hybridizes in the wild
6.04	1. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)	1. P. foetida is self-compatible
6.05	1. Dave's Garden http://davesgarden.com/guides/pf/go/1194/#b (3-23-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)	1. This plant is attractive to bees, butterflies and/or birds 2. P. foetida is self-compatible, pollinated mainly by Ptiloglossa tarsata and rarely by Pseudaugochloropsis sp. in Chaco, Argentina (Amela Garcia and Hoc, 1998). Janzen (1968) cited several species of Ptiloglossa as pollinators in Central America and Frankie et al. (1983) noted the constancy of this visitor. However, Gottsberger et al. (1988) observed species of Centris and Xylocopa pollinating in Brazil. Amela Garcia and Hoc (2001) compared the pollinators of six species of Passiflora and concluded that P. foetida is served by pollinators of medium size, in contrast to species with bigger and stronger flowers. Besides, the early and short anthesis of P. foetida is correlated with the mainly matinal activity of its most important pollinator, Ptiloglossa tarsata.
6.06	1. 1997. Holm, L.G.. World weeds: natural histories and distribution. John Wiley and Sons, Inc., New York, NY	1. Only produces by seeds
6.07		no evidence

7.01	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016) 2. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016) 3. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. a weed of roadsides, disturbed sites, waste areas, watercourses (i.e. riparian habitats), closed forests, open woodlands, plantation crops (e.g. sugarcane) and coastal environs in tropical and sub-tropical regions. 2. It is common on seashores, river banks, bushland, highway borders, wastelands, and seeks out disturbed areas. 3. It reproduces solely by seed which is probably spread by small mammals (MacDougal, 1994), because of its fruit features (Amela Garcia, unpublished data), and in contaminated trash and soil after the fruits have been allowed to mature. Dormant, but viable seeds are able to survive in the soil for many years. Germination most commonly occurs in cropland after cultivation where the soil has been disturbed and is moist and warm. It is also commonly seen in uncultivated and neglected areas such as along roadsides and fencelines, riverbanks, and other occasionally disturbed sites.</p>
7.02	<p>1. University of Texas at Austin http://www.wildflower.org/plants/result.php?id_plant=PAFO2 (3-23-2016) 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. Introduced as an ornamental 2. <i>P. foetida</i> has been used as ground cover for smothering weeds in Malaysia and East Africa and to promote organic matter production; however, it is seldom used today as it is difficult to control and rapidly forms a soil seed bank. It has also been planted as an ornamental vine (probably the reason for its widespread distribution). The seeds are sold for this purpose, specially in Europe, where there are many <i>Passiflora</i> fans that cultivate <i>Passiflora</i> species. <i>P. foetida</i> is an edible plant: the aril is eaten in Colombia, the fruits are used to make refreshments in Venezuela, the row fruits (both seeds and arils) and the young cooked leaves are eaten in Thailand. Voon and Kueh (1999) studied the nutritional value of the leaves: the protein content is high (6-7 %). The production of fruits per ha reaches 2500 kg. <i>P. foetida</i> is also a medicinal plant: it is used to treat diseases affecting women in Costa Rica, the leaves are employed in baths for skin affections, the roots have antispasmodic properties and the flowers have beneficial effects for breast illnesses.</p>
7.03		no evidence
7.04		no evidence
7.05	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016)</p>	1. common along riverbanks which may indicate water dispersal
7.06	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016) 2. Australian Weeds Committee http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&state=&s=&ibra=all&card=V26 (3-23-2016)</p>	<p>1. Seed, commonly eaten and dispersed by birds and mammals 2. Spread by seed dispersed by birds and mammals.</p>
7.07	<p>1. Queensland Governemnt http://keyserver.lucidcentral.org/weeds/data/03030800-0b07-490a8d04-0605030c0f01/media/Html/Passiflora_foetida.htm (3-16-2016)</p>	<p>1. The fruit are dry berries (1.5-4 cm long) partially enclosed by the persistent, deeply-divided, sticky bracts. These fruit are somewhat hairy and turn from green to yellow or orange in colour as they mature.</p>
7.08	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-16-2016) 2. Australian Weeds Committee http://www.weeds.org.au/cgi-bin/weedident.cgi?tpl=plant.tpl&state=&s=&ibra=all&card=V26 (3-23-2016)</p>	<p>1. Seed, commonly eaten and dispersed by birds and mammals 2. Spread by seed dispersed by birds and mammals.</p>
8.01		no evidence
8.02	<p>1. Hopkins 1983. The Species Composition of Soil Seed Banks Beneath Lowland Tropical Rainforests in North Queensland, Australia. Biotropica, Vol. 15, No. 2 (Jun., 1983), pp. 90-99 2. Invasive Species Compendium http://www.cabi.org/isc/datasheet/38800 (3-16-2016)</p>	<p>1. Identified in Australia as contributing to a soil seed bank. 2. Dormant, but viable seeds are able to survive in the soil for many years.... it is difficult to control and rapidly forms a soil seed bank.</p>
8.03	<p>1. PIER http://www.hear.org/pier/species/passiflora_foetida.htm (3-22-2016) 2. Read 2015, Passionflower weed causing a stink in the environment, http://www.news-mail.com.au/news/stinking-passionflower-weed/2703765/ (3-23-2016)</p>	<p>1. Herbicides like triclopyr (Garlon 4) or glyphosate (Roundup) at recommended rates can be used. 2. Hand pulling vines when the soil is moist is the most reliable form of control... Herbicide control is difficult due to the sticky hairs on the leaves, stems, and fruit.</p>

8.04		no evidence
8.05		no evidence