

Taxon: Pseudogynoxys chenopodioides (Kunth) Cabrera **Family:** Asteraceae
Common Name(s): Mexican flamevine **Synonym(s):** Senecio chenopodioides Kunth
 Senecio confusus Britten
 Senecio kermesinus Hemsl.

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 19 Jul 2022
WRA Score: 10.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Tropical Vine, Naturalized, Allergenic, Spreads Vegetatively, Wind-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens	y=1, n=0	n
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	1
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[No evidence of domestication] "Exotic species, cultivated for its showy flowers; naturalized in more or less moist areas in Puerto Rico. Native to Central America, cultivated and naturalized in the tropics and subtemperate climates. Also on St. Croix and St. Thomas."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	"Native Northern America NORTHERN MEXICO: Mexico [Tamaulipas] SOUTHERN MEXICO: Mexico [Veracruz de Ignacio de la Llave] Southern America CENTRAL AMERICA: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama NORTHERN SOUTH AMERICA: Guyana, Suriname, Venezuela WESTERN SOUTH AMERICA: Colombia"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes

Qsn #	Question	Answer
	Nash, D.L. & Williams, L.O. 1976. Flora of Guatemala. Fieldiana: Botany. Vol. 24 - Part XII. Field Museum of Natural History	"Thickets and forest edges, commonly at 700-1,200 m, but found from near sea level to 2,200 m." [Senecio chenopodioides Kunth Synonym of Pseudogynoxys chenopodioides (Kunth) Cabrera]
	Gargiullo, M.B., Magnuson, B.L. & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Wet to seasonally dry regions, open woodland, second growth, draping over other vegetation. Altitude: 150–2100 m, Pacific slope." [Elevation range exceeds 1000 m, demonstrating environmental versatility]
	Missouri Botanical Garden. (2022). Pseudogynoxys chenopodioides. https://www.missouribotanicalgarden.org . [Accessed 11 Oct 2019]	"Zone: 9 to 10 ... Where not winter hardy, it may be grown as an annual."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Native to Central America, cultivated and naturalized in the tropics and subtemperate climates. Also on St. Croix and St. Thomas."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	"Native Northern America NORTHERN MEXICO: Mexico [Tamaulipas] SOUTHERN MEXICO: Mexico [Veracruz de Ignacio de la Llave] Southern America CENTRAL AMERICA: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama NORTHERN SOUTH AMERICA: Guyana, Suriname, Venezuela WESTERN SOUTH AMERICA: Colombia Cultivated (also cult.) Adventive Northern America SOUTHEASTERN U.S.A.: United States [Florida] Naturalized Southern America CARIBBEAN: Bahamas, Hispaniola, United States [Puerto Rico, Virgin Islands, U.S.]"

Qsn #	Question	Answer
205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Exotic species, cultivated for its showy flowers; naturalized in more or less moist areas in Puerto Rico. Native to Central America, cultivated and naturalized in the tropics and subtemperate climates. Also on St. Croix and St. Thomas."
	Flora of North America. (2022). <i>Pseudogynoxys chenopodioides</i> . http://www.efloras.org . [Accessed 19 Jul 2022]	" <i>Pseudogynoxys chenopodioides</i> is widely cultivated as an ornamental. In Florida, it persists after cultivation; it may be encountered elsewhere along the Gulf Coast (a report from southern Texas has not been confirmed)."
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"widely distributed through cultivation"

301	Naturalized beyond native range	y
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	"Naturalized Southern America CARIBBEAN: Bahamas, Hispaniola, United States [Puerto Rico, Virgin Islands, U.S.]"
	Otto, R., & Verloove, F. (2018). New xenophytes from La Palma (Canary Islands, Spain), with emphasis on naturalized and (potentially) invasive species—Part 2. <i>Collectanea Botánica</i> , 37: e005	" <i>Pseudogynoxys chenopodioides</i> (Kunth) Cabrera in <i>Brittonia</i> 7(1): 56 (1950) (Fig. 10) (Asteraceae). ≡ <i>Senecio chenopodioides</i> Kunth New to the flora of the Canary Islands. Spain, La Palma: Breña Alta, San Pedro, Camino Barranco de Aguacencio, foot of wall, a single flowering and fruiting plant, also seen cultivated in a garden nearby, 06.08.2014, R. Otto 21206 (pers. herb RO, dupl. BR)."
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Status: Naturalized exotic, uncommon. Distribution: Exotic species, cultivated for its showy flowers; naturalized in more or less moist areas in Puerto Rico. Native to Central America, cultivated and naturalized in the tropics and subtemperate climates. Also on St. Croix and St. Thomas. Public forests: El Yunque, Río Abajo, and Vega."
	Faccenda, K. (2022). UH Botany Dept. Pers. Comm. 17 Jul	[Cultivated and possibly naturalized or escaped on Oahu, Hawaiian Islands. Report submitted to 643Pest online reporting system] " Location: See location on iNaturalist (both are from the same spot at the crouching lion trail at Apuhua'a o kahana state park) " ... "Comments: Not 100% sure about this species ID, it may be something else in the same genus? This species is currently known only from Hawai'i island. Regardless, it seems to be a new weed for the island. https://www.inaturalist.org/observations/126757201 https://www.inaturalist.org/observations/20773311 "

Qsn #	Question	Answer
	Parker, J.L. & Parsons, B. (2012). New plant records from the Big Island for 2009. Bishop Museum Occasional Papers 113: 55–63	[Hawaii Island] "Pseudogynoxys chenopodioides (Kunth) cabrera New naturalized record Mexican flame vine has long been known as Senecio confusus in the horticultural literature, even though the name P. chenopodioides has been applied to this species since 1950 (Staples & Herbst 2005). With its orange to red ray flowers, this attractive vine often escapes cultivation and spreads extensively over all vegetation, thriving in full sun and dry climates. This specimen was growing in a hedge of Thevetia peruviana. on our surveys this plant was seen naturalized more often than cultivated. Material examined. HAWAII: North Kona distr. Kaloko Mauka, 2180451N 188663E. orange-red ray flowers with yellow-orange disc flowers 6cm in diameter. climber with semi-woody stems, 4 Feb 2009, J. Parker & R. Parsons BIED71."

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Dave's Garden. (2022). Pseudogynoxys Species, Mexican Flame Vine, Orange Glow Vine - Pseudogynoxys chenopodioides. https://davesgarden.com/guides/pf/go/1329/ . [Accessed 19 Jul 2022]	[Potentially weedy in yards and landscapes] "On Oct 13, 2012, abken from New Orleans, LA wrote: Ver-r-r-ry pretty. But take care...notice the posts about how easy it is to propagate. I know first-hand why it's considered invasive in many areas. Came up between the porch floorboards after a long trip under the house. Still, 4 years after thinking I'd banished it from the yard forever, I find it lurking in the grass on the other side of the yard, far from it's original location. Be warned...."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	
	Source(s)	Notes
	Pruski, J. (1996). Pseudogynoxys lobata (Compositae: Senecioneae), a New Species from Bolivia and Brazil. Systematic Botany, 21(1), 101-105	"Previous to this article (1996) only Pseudogynoxys chenopodioides and the rarely collected Pseudogynoxys fragrans were known in cultivation with P. chenopodioides the sole species of the genus known to be cultivated in the United States (out-of-doors in California, S. Florida, S. Texas, and Hawaii)."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Pseudogynoxys oerstedii cited as a weed. Impacts unknown

401	Produces spines, thorns or burrs	n
-----	----------------------------------	---

Qsn #	Question	Answer
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[No evidence] "Herbaceous vine, twining, 10-12 m in length. Stems striate, subcylindrical, glabrous or puberulous. Leaves alternate; blades 5-8 × 2.5-5 cm, lanceolate, membranaceous, the apex acuminate or acute, the base truncate, obtuse, or slightly cordiform, frequently unequal, the margins dentate-mucronate; upper surface dull, glabrous; lower surface dull, glabrous, with prominent venation; petioles 1.5-2.2 cm long. Capitula 2-6, pedunculate, in terminal corymbiform cymes; peduncles 2-5 cm long, puberulous; involucre crateriform, ca. 6 mm long, the phyllaries green, lanceolate, ca. 4 mm long. Disc flowers with yellow tubular corollas, 9-10 mm long; stigmatic branches yellow. Ray flowers with orange corollas, ligulate, the ligule elliptical, retuse at the apex, 2-2.5 cm long. Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous."
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[No evidence] "Lvs petiolate; ovate to ovate-lanceolate 1.5-4" x 0.66-2", light green, rather thick, glabrous, margins coarsely toothed."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Vine, stem eventually becoming woody, deeply grooved, reaching 4-5 m high, most parts hairy, young stems slender, green." [Asteraceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown

405	Toxic to animals	n
	Source(s)	Notes
	Burrows, G. E., & Tyrl, R. J. (2013). Toxic Plants of North America. Second Edition. Wiley-Blackwell, Hoboken, NJ	No evidence
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

Qsn #	Question	Answer
	Romo de Vivar, A., Pérez-Castorena, A. L., Arciniegas, A., & Villaseñor, J. L. (2007). Secondary metabolites from Mexican species of the tribe Senecioneae (Asteraceae). <i>Journal of the Mexican Chemical Society</i> , 51(3), 160-172	This review deals with the chemical studies of 44 Mexican species belonging to the subtribes Senecioninae and Tussilagininae. The chemical studies of species of Senecio and Packera show the pyrrolizidine alkaloids (PA's) and eremophilane derivatives as their main metabolites. PA's are responsible for health problems and for numerous deaths of cattle and human beings. <i>Pseudogynoxys chenopodioides</i> has a special chemical composition in which no PA nor eremophilane was found.

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Dave's Garden. (2022). <i>Pseudogynoxys</i> Species, Mexican Flame Vine, Orange Glow Vine - <i>Pseudogynoxys chenopodioides</i> . https://davesgarden.com/guides/pf/go/1329/ . [Accessed 19 Jul 2022]	"It has high heat tolerance, low water requirements and is seldom bothered by pests. "
	Missouri Botanical Garden. (2022). <i>Pseudogynoxys chenopodioides</i> . https://www.missouribotanicalgarden.org . [Accessed 19 Jul 2022]	"No serious insect or disease problems."
	Thomas, M. C. (2016). A Flower Beetle, <i>Euphorbia sepulcralis</i> (Fabricius) (Insecta: Coleoptera: Scarabaeidae). EENY-416. Revised. UF/IFAS Extension Service, University of Florida, Gainesville, FL	<i>Pseudogynoxys chenopodioides</i> is a host for a flower beetle, <i>Euphorbia sepulcralis</i> . This beetle is common in Florida and the eastern United States. It occasionally achieves pest status because of the damage it does to corn, roses, and the flowers of blooming trees. There are records of the beetles invading bee hives and damaging combs.

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Monaco Nature Encyclopedia. (2022). <i>Pseudogynoxys chenopodioides</i> . https://www.monaconatureencyclopedia.com . [Accessed 19 Jul 2022]	"All parts of the plant are toxic when ingested; it may cause contact dermatitis in the most sensitive subjects."
	Betrock's Allergenica. (2022). <i>Pseudogynoxys chenopodioides</i> . http://www.allergenica.com . [Accessed 11 Oct 2019]	"ALLERGENIC COMPONENTS: All parts ALLERGENIC PRINCIPLES: Unknown ALLERGENIC PROPERTIES: Dermatological COMMENTS: An itching rash has been reported after handling this ornamental vine."
	Tucker, A. O., & Janick, J. (2019). <i>Flora of the Voynich Codex</i> . Springer Nature, Cham, Switzerland	"This species is sometimes reputed to cause contact dermatitis in humans,"

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). <i>A Field Guide to Plants of Costa Rica</i> . Oxford University Press US, New York, NY	[Fire ecology unknown. Could contribute to fuel load and act as a fuel ladder during dry season] "Wet to seasonally dry regions, open woodland, second growth, draping over other vegetation."

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Rauch, F.D. & Weissich, P.R. (2000). Plants for Tropical Landscapes: A Gardener's Guide. University of Hawaii Press, Honolulu, HI	"It grows easily in sun or partial shade in most soils."
	Missouri Botanical Garden. (2022). Pseudogynoxys chenopodioides. https://www.missouribotanicalgarden.org . [Accessed 19 Jul 2022]	"Sun: Full sun" ... "Tolerates some light shade, particularly in hot summer climates."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Missouri Botanical Garden. (2022). Pseudogynoxys chenopodioides. https://www.missouribotanicalgarden.org . [Accessed 19 Jul 2022]	"Grow in average to organically rich, medium moisture, well-drained soils in full sun."
	Rauch, F.D. & Weissich, P.R. (2000). Plants for Tropical Landscapes: A Gardener's Guide. University of Hawaii Press, Honolulu, HI	"It grows easily in sun or partial shade in most soils."
	Dave's Garden. (2022). Pseudogynoxys Species, Mexican Flame Vine, Orange Glow Vine - Pseudogynoxys chenopodioides. https://davesgarden.com/guides/pf/go/1329/ . [Accessed 19 Jul 2022]	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Herbaceous vine, twining, 10-12 m in length."
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Vine, stem eventually becoming woody, deeply grooved, reaching 4-5 m high, most parts hairy, young stems slender, green."

412	Forms dense thickets	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Climbing] "Pruning is necessary to keep the plant within bounds, and this is not a good choice for small spaces that the vine can easily outgrow."

Qsn #	Question	Answer
501	Aquatic	n
	Source(s)	Notes
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	[Terrestrial] "Wet to seasonally dry regions, open woodland, second growth, draping over other vegetation."

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Senecioneae Subtribe: Senecioninae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	Family: Asteraceae (alt.Compositae) Subfamily: Asteroideae Tribe: Senecioneae Subtribe: Senecioninae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Vine, stem eventually becoming woody, deeply grooved, reaching 4–5 m high, most parts hairy, young stems slender, green. Leaves alternate, stalk 1–3 cm long, blade 3–12 cm long, 1–7 cm wide, triangular to egg-shaped, about 10 cm long, 4.5 cm across base, tip pointed, base truncate to slightly lobed, margin coarsely toothed."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes

Qsn #	Question	Answer
	USDA, Agricultural Research Service, National Plant Germplasm System. (2022). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 19 Jul 2022]	[No evidence. Wide distribution] "Native Northern America NORTHERN MEXICO: Mexico [Tamaulipas] SOUTHERN MEXICO: Mexico [Veracruz de Ignacio de la Llave] Southern America CENTRAL AMERICA: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama NORTHERN SOUTH AMERICA: Guyana, Suriname, Venezuela WESTERN SOUTH AMERICA: Colombia Cultivated (also cult.) Adventive Northern America SOUTHEASTERN U.S.A.: United States [Florida] Naturalized Southern America CARIBBEAN: Bahamas, Hispaniola, United States [Puerto Rico, Virgin Islands, U.S.]"

602	Produces viable seed	y
	Source(s)	Notes
	Missouri Botanical Garden. (2022). <i>Pseudogynoxys chenopodioides</i> . https://www.missouribotanicalgarden.org/ . [Accessed 19 Jul 2022]	"May be grown from seed. Where not winter hardy, this vine may be grown as an annual due in part to its rapid growth rate. Seed can easily be collected from the plant when ripe for planting in spring of the following year."
	Staples, G.W. & Herbst, D.R. (2005). <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Mexican flame vine is usually propagated by cuttings, although seeds sprout readily."

603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. No evidence found

604	Self-compatible or apomictic	
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). <i>Vines and Climbing Plants of Puerto Rico and the Virgin Islands</i> . Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[Unknown. Perfect disc flowers, so the potential for selfing exists] "Disc flowers bisexual; corollas actinomorphic, yellow, long-tubular, 5-lobed; stamens 5, the anthers connate, sagittate; ovary inferior, the style filiform, with 2 hirsute stigmatic branches on the distal portion. Ray flowers pistillate; corollas zygomorphic, ligulate, the ligules orange."

605	Requires specialist pollinators	n
	Source(s)	Notes

Qsn #	Question	Answer
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Disc flowers with yellow tubular corollas, 9-10 mm long; stigmatic branches yellow. Ray flowers with orange corollas, ligulate, the ligule elliptical, retuse at the apex, 2-2.5 cm long."
	Dave's Garden. (2022). Pseudogynoxys Species, Mexican Flame Vine, Orange Glow Vine - Pseudogynoxys chenopodioides. https://davesgarden.com/guides/pf/go/1329/ . [Accessed 19 Jul 2022]	"This plant is attractive to bees, butterflies and/or birds"

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Missouri Botanical Garden. (2022). Pseudogynoxys chenopodioides. https://www.missouribotanicalgarden.org . [Accessed 19 Jul 2022]	"Stems root in the soil where they touch the ground."

607	Minimum generative time (years)	1
	Source(s)	Notes
	Missouri Botanical Garden. (2022). Pseudogynoxys chenopodioides. https://www.missouribotanicalgarden.org . [Accessed 19 Jul 2022]	"Where not winter hardy, this vine may be grown as an annual due in part to its rapid growth rate. Seed can easily be collected from the plant when ripe for planting in spring of the following year."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." [Unknown. Pappus could allow achenes to adhere to clothing or footwear]

Qsn #	Question	Answer
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Rauch, F.D. & Weissich, P.R. (2000). Plants for Tropical Landscapes: A Gardener's Guide. University of Hawaii Press, Honolulu, HI	"A trailing shrub or smooth, twining vine growing 40 feet in length, this Mexican evergreen plant displays its brilliant clusters of flowers from spring to fall. It grows easily in sun or partial shade in most soils. It has good drought and wind tolerance and moderate salt tolerance. It is used to cover fences and pergolas and, if unsupported, makes a good ground or bank cover."
	Pruski, J. (1996). <i>Pseudogynoxys lobata</i> (Compositae: Senecioneae), a New Species from Bolivia and Brazil. Systematic Botany, 21(1), 101-105	"The only well-known species of <i>Pseudogynoxys</i> is <i>P. chenopodioides</i> (H.B.K.) Cabrera (n.v. Mexican flame vine; Bailey Hortorium Staff 1976), a native of the Neotropics that is widely cultivated for its large showy capitula with bright orange ray corollas."
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"widely distributed through cultivation"

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[No evidence found, but possible if cultivated with or near other ornamental or potted plants] "Mexican flame vine is usually propagated by cuttings, although seeds sprout readily."

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." [Pappus presumably facilitates wind dispersal]
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Fruit dry, 1-seeded, with a tuft of soft, white bristles."

705	Propagules water dispersed	n
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[Wind-dispersed. Not reported to be common in riparian areas where water could secondarily disperse seeds] "Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." ... "Exotic species, cultivated for its showy flowers; naturalized in more or less moist areas in Puerto Rico."

Qsn #	Question	Answer
706	Propagules bird dispersed	n
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." [Wind-dispersed. Birds may act as seed predators]
707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." [Unknown. Pappus could aid in attachment to fur]
	Staples, G.W. & Herbst, D.R. (2005). A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"The spread of many composites is aided by specialized structures on the fruit which facilitate dispersal by wind or animal (e.g., bristle-like papi that become attached or lodged in fur or clothing)"
708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Acevedo-Rodríguez, P. (2005). Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Achenes turbinate, hispidulous, ca. 4 mm long; pappus of numerous white bristles, 5-7 mm long, scabrous." [Wind-dispersed. Unlikely to be consumed and internally dispersed]
801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Gargiullo, M.B., Magnuson, B.L & Kimball, L.D. (2008). A Field Guide to Plants of Costa Rica. Oxford University Press US, New York, NY	"Fruit dry, 1-seeded, with a tuft of soft, white bristles." [Probably not, but densities unknown]
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown
803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2022). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y

Qsn #	Question	Answer
	Source(s)	Notes
	Dave's Garden. (2022). <i>Pseudogynoxys</i> Species, Mexican Flame Vine, Orange Glow Vine - <i>Pseudogynoxys chenopodioides</i> . https://davesgarden.com/guides/pf/go/1329/ . [Accessed 19 Jul 2022]	[Described as tolerating severe pruning] "On Apr 24, 2005, goodstoryteller from Sierra Vista, AZ (Zone 8a) wrote: Described well by others--mine blooms in about six flushes a year. I trim it back slightly after each flush has finished to get rid of the seed pods and tidy it up. I severely prune it in the spring---I have not had mine freeze back, but I know those who are more susceptible to freeze here, have--but it comes right back. I cut mine way back a month ago and it is starting to bloom now. Very fast growing, I have started a few from cuttings. I grow it on a trellis that shields my a/c and water treatment stuff. Wide variety of butterflies, bees, dragonflies nectar on it. "
	Staples, G.W. & Herbst, D.R. (2005). <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	[Tolerates frequent pruning] "Pruning is necessary to keep the plant within bounds, and this is not a good choice for small spaces that the vine can easily outgrow. Mexican flame vine is usually propagated by cuttings, although seeds sprout readily."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. (2005). <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"It has been recommended for xeriscape gardens in Hawaii." [Unknown. No pests or pathogens reported]
	Ramadan, M. M., Murai, K. T., & Johnson, T. (2011). Host range of <i>Secusio extensa</i> (Lepidoptera: Arctiidae), and potential for biological control of <i>Senecio madagascariensis</i> (Asteraceae). <i>Journal of Applied Entomology</i> , 135(4): 269-284	[Fed on by <i>Secusio extensa</i> larvae. Impacts unknown]. " <i>Secusio extensa</i> (Lepidoptera: Arctiidae) was evaluated as a potential biological control agent for Madagascar fireweed, <i>Senecio madagascariensis</i> (Asteraceae), which has invaded over 400 000 acres of rangeland in the Hawaiian Islands and is toxic to cattle and horses. The moth was introduced from southeastern Madagascar into containment facilities in Hawaii, and host specificity tests were conducted on 71 endemic and naturalized species (52 genera) in 12 tribes of Asteraceae and 17 species of non-Asteraceae including six native shrubs and trees considered key components of Hawaiian ecosystems." ... "Larvae also fed on the Mexican flame vine, <i>Senecio confusus</i> (DC)" [<i>Senecio confusus</i> Britten Synonym of <i>Pseudogynoxys chenopodioides</i> (Kunth) Cabrera]

Summary of Risk Traits:

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Naturalized on Hawaii and possibly Oahu (Hawaiian Islands), Puerto Rico, elsewhere in the Caribbean, possibly the Canary Islands, and adventive in Florida
- Regarded as aggressive, and potentially weedy in landscaping
- Handling may result in dermatitis and an itching rash
- Tolerates many soil types
- Climbing and smothering habit
- Reproduces by seeds and vegetatively by rooting stem fragments
- Able to reach maturity in <1 year
- Seeds dispersed by wind, and intentionally by people
- Able to resprout after cutting and severe pruning

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Values as an ornamental, despite potential weediness
- Grows best in full sun; dense shade may inhibit or prevent spread