Taxon: Crinum × amabile Donn ex Ker Gawl. **Family:** Amaryllidaceae

Common Name(s): giant spider lily
Queen Emma-lily

Synonym(s): Crinum × augustum Roxb.
Crinum × superbum Roxb.
Crinum augustum Roxburgh

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 15 Jun 2021

WRA Score: **-5.0** **Designation:** L **Rating:** Low Risk

Keywords: Bulb-Forming, Ornamental, Toxic, Non-Seeding, Propagated Vegetatively

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)	Low
203	Broad climate suitability (environmental versatility)	y=1, n=0	n
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	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
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	y
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	y
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

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	n
411	Climbing or smothering growth habit	y=1, n=0	n
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	y
601	Evidence of substantial reproductive failure in native habitat		
602	Produces viable seed	y=1, n=-1	n
603	Hybridizes naturally		
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
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)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
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**
	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	[Not domesticated, but possibly a sterile hybrid] "Originally described from cultivated plants grown in the Calcutta Botanic Gardens, C. augustum was said to originate on Mauritius in the Indian Ocean. It is doubtful that the species currently grows on Mauritius, and there are no specimens to document that it ever grew there in the past. There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. (2021). Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. (2021). 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**
	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	[Area of origin uncertain, but presumably from a region with a tropical climate, and now cultivated in tropical areas worldwide] "Originally described from cultivated plants grown in the Calcutta Botanic Gardens, C. augustum was said to originate on Mauritius in the Indian Ocean. It is doubtful that the species currently grows on Mauritius, and there are no specimens to document that it ever grew there in the past. There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

202	**Quality of climate match data**	**Low**
	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	[Area of origin uncertain, but presumably from a region with a tropical climate, and now cultivated in tropical areas worldwide] "Originally described from cultivated plants grown in the Calcutta Botanic Gardens, C. augustum was said to originate on Mauritius in the Indian Ocean. It is doubtful that the species currently grows on Mauritius, and there are no specimens to document that it ever grew there in the past. There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

203	**Broad climate suitability (environmental versatility)**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Chicago Botanic Garden. (2021). Crinum augustum 'Queen Emma'. https://www.chicagobotanic.org. [Accessed 11 Jun 2021]	"Hardiness Zone 8 - 11"
	Dave's Garden. (2021). Giant Spider Lily, Queen Emma Lily - Crinum amabile. https://davesgarden.com/guides/pf/go/90355/. [Accessed 11 Jun 2021]	"Hardiness: 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 11: above 4.5 °C (40 °F)"

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	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	[Area of origin uncertain, but presumably from a region with a tropical climate, and now cultivated in tropical areas worldwide] "Originally described from cultivated plants grown in the Calcutta Botanic Gardens, C. augustum was said to originate on Mauritius in the Indian Ocean. It is doubtful that the species currently grows on Mauritius, and there are no specimens to document that it ever grew there in the past. There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

Qsn #	Question	Answer
205	**Does the species have a history of repeated introductions outside its natural range?**	**y**
	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	"Crinum augustum is rarely seen in home gardens here, for Its size limits its usefulness to more spacious sites."
	Dave's Garden. (2021). Giant Spider Lily, Queen Emma Lily - Crinum amabile. https://davesgarden.com/guides/pf/go/90355/. [Accessed 11 Jun 2021]	"This plant is said to grow outdoors in the following regions: Yuma, Arizona Huntington Beach, California Yorba Linda, California Boynton Beach, Florida Cape Coral, Florida(2 reports) Gainesville, Florida Jacksonville, Florida North Miami Beach, Florida Ocala, Florida Orlando, Florida(2 reports) Plant City, Florida Port Charlotte, Florida(2 reports) Saint Petersburg, Florida Satellite Beach, Florida Stuart, Florida Sun City Center, Florida Tampa, Florida Valrico, Florida West Palm Beach, Florida Winter Haven, Florida Brunswick, Georgia Hilo, Hawaii Honolulu, Hawaii Honomu, Hawaii KAILUA KONA, Hawaii Kapaa, Hawaii Wailua Homesteads, Hawaii Baton Rouge, Louisiana New Orleans, Louisiana Elizabeth City, North Carolina Philadelphia, Pennsylvania Cayce, South Carolina Sumter, South Carolina Bryan, Texas College Station, Texas Ennis, Texas Galveston, Texas(2 reports) Houston, Texas New Caney Texas Rockport, Texas San Antonio, Texas Spring, Texas Christiansted, Virgin Islands Cabin Creek, West Virginia"
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"widely cultivated in the tropics for its wine red flowers."

301	Naturalized beyond native range	n
	Source(s)	**Notes**
	Guézou, A., Trueman, M., Buddenhagen, C. E., Chamorro, S., Guerrero, A. M., Pozo, P., & Atkinson, R. (2010). An extensive alien plant inventory from the inhabited areas of Galapagos. PLoS One, 5(4), e10276	"Table S1" [Crinum x amabile var. augustum (Roxb.) Ker Gawl. - Cu) Cultivated (introduced for cultivation, not naturalized)]
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Reported to be naturalized in the Galapagos, citing Guézou et al. (2010) as evidence. However, this reference lists Crinum x amabile var. augustum (Roxb.) Ker Gawl. as "Cu) Cultivated (introduced for cultivation, not naturalized)".

302	Garden/amenity/disturbance weed	n
	Source(s)	**Notes**
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
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**
	Binggeli, P. (1999). Pitcairn Invasives. http://www.mikepalmer.co.uk/woodyplantecology/pitcairn/invasive.htm. [Accessed 11 Jun 2021]	[Unidentified Crinum species potentially invasive] "As far as introduced plant species are concerned the threats to native biodiversity is mainly posed by the widespread species (e.g. Lantana camara, Canna indica, etc.) or as yet poorly dispersed species (e.g. Crinum sp., Carpobrotus edulis, Leucaena leucocephala, etc.). Most of these species are not considered by Pitcairners to be a problem in agricultural areas."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Several Crinum species listed as naturalized and/or weeds of unspecified impacts

401	Produces spines, thorns or burrs	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	[No evidence] "Plant 3-5' call and as broad, sparingly proliferating offsets. Lvs 25-32, spreading to arching; blades lanceolate, 3-5' x 6-8", green, both ends tapered, apex acute. Infl falling sideways, a 15-25-flwd umbel, scape to 2.5' tall, often curved; pedicels 1-1.2" long. Flws radially symmetrical, erect, salver-shaped, deep red-purple outside, white to pinkish inside, fragrant; cor tube 3-4" long, lobes lanceolate, 6-7" long, 0.8-1" wide; style shorter than stam. Frt not formed."

402	Allelopathic	
	Source(s)	**Notes**
	WRA Specialist. (2021). Personal Communication	Unknown. No evidence found

403	Parasitic	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	"Plant 3-5' call and as broad, sparingly proliferating offsets." [Amaryllidaceae. No evidence]

Qsn #	Question	Answer
404	**Unpalatable to grazing animals**	
	Source(s)	**Notes**
	NC State Extension. (2021). Crinum. https://plants.ces.ncsu.edu/plants/crinum/. [Accessed 14 Jun 2021]	"This plant is moderately salt tolerant, and is seldom damaged by deer."
	Nelson, L., Shih, R.D. & Balick, M.J. 2007. Handbook of Poisonous and Injurious Plants, The New York Botanical Garden. Springer, New York, NY	"Toxic Part: All parts of the plant are toxic, particularly the bulb. Toxin: Lycorine and related phenanthridine alkaloids" [Toxins may make plants unpalatable]

Qsn #	Question	Answer
405	**Toxic to animals**	**y**
	Source(s)	**Notes**
	Dave's Garden. (2021). Giant Spider Lily, Queen Emma Lily - Crinum amabile. https://davesgarden.com/guides/pf/go/90355/. [Accessed 14 Jun 2021]	"Danger: Parts of plant are poisonous if ingested"
	Nelson, L., Shih, R.D. & Balick, M.J. 2007. Handbook of Poisonous and Injurious Plants, The New York Botanical Garden. Springer, New York, NY	"Toxic Part: All parts of the plant are toxic, particularly the bulb. Toxin: Lycorine and related phenanthridine alkaloids"

Qsn #	Question	Answer
406	**Host for recognized pests and pathogens**	
	Source(s)	**Notes**
	Plant Care Today. (2021). Queen Emma Crinum Lily [Crinum Augustum] Growing And Care. https://plantcaretoday.com/queen-emma-crinum-lily.html. [Accessed 14 Jun 2021]	"Spider Lily Pests or Diseases The leaves, flowers, and fleshy fruits of the plant attract quite a lot of insects. Among these are chewing insects like grasshoppers. These may attack and chew the foliage. Additionally, mealybugs, nematodes, slugs, and snails may attack the plant occasionally."

Qsn #	Question	Answer
407	**Causes allergies or is otherwise toxic to humans**	**y**
	Source(s)	**Notes**
	Dave's Garden. (2021). Giant Spider Lily, Queen Emma Lily - Crinum amabile. https://davesgarden.com/guides/pf/go/90355/. [Accessed 14 Jun 2021]	"Danger: Parts of plant are poisonous if ingested"
	Nelson, L., Shih, R.D. & Balick, M.J. 2007. Handbook of Poisonous and Injurious Plants, The New York Botanical Garden. Springer, New York, NY	"Toxic Part: All parts of the plant are toxic, particularly the bulb. Toxin: Lycorine and related phenanthridine alkaloids (see Narcissus). Clinical Findings:Toxicity is uncommonly reported in humans.Ingestion of small amounts produces few or no symptoms.Large exposures may cause nausea, vomiting, abdominal cramping, diarrhea, dehydration, and electrolyte imbalance."

Qsn #	Question	Answer
408	**Creates a fire hazard in natural ecosystems**	**n**
	Source(s)	**Notes**
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"HERB, perennial, coarse, to 1.5 m high (5 ft) or more, with a thick stem arising from a bulb." [No evidence. Unlikely given habit and habitat where grown]

409	**Is a shade tolerant plant at some stage of its life cycle**	**y**
	Source(s)	**Notes**
	Chicago Botanic Garden. (2021). Crinum augustum 'Queen Emma'. https://www.chicagobotanic.org. [Accessed 14 Jun 2021]	"Exposure Full Sun, Partial Shade"
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Fertile, moist soils in partially shaded places are preferred."
	Plant Care Today. (2021). Queen Emma Crinum Lily [Crinum Augustum] Growing And Care. https://plantcaretoday.com/queen-emma-crinum-lily.html. [Accessed 14 Jun 2021]	"If the sun gets too hot, provide some shade for the plant."

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**n**
	Source(s)	**Notes**
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Fertile, moist soils in partially shaded places are preferred."
	Learn 2 Grow. (2021). Crinum augustum 'Queen Emma'. http://www.learn2grow.com/plants/crinum-augustum-queen-emma/. [Accessed 14 Jun 2021]	"Queen Emma crinum lily grows and flowers best in full sun on well-drained, moist, non-alkaline soil that is rich in organic matter."

411	**Climbing or smothering growth habit**	**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	"Plant 3-5' call and as broad, sparingly proliferating offsets."

412	**Forms dense thickets**	**n**
	Source(s)	**Notes**
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Crinum augustum is native to the Seychelles and Mauritius, and perhaps elsewhere in the region, but is widely cultivated in the tropics for its wine red flowers." [No evidence]
	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	"Crinum augustum is rarely seen in home gardens here, for Its size limits its usefulness to more spacious sites." [Large plant, but no evidence that dense stands have been formed in the Hawaiian Islands]

501	**Aquatic**	**n**

Qsn #	Question	Answer
	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	[Terrestrial] "Plant 3-5' call and as broad, sparingly proliferating offsets."

502	Grass	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 9 Jun 2021]	Family: Amaryllidaceae Subfamily: Amaryllidoideae Tribe: Amaryllideae Subtribe: Crininae

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2021). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/. [Accessed 9 Jun 2021]	Family: Amaryllidaceae Subfamily: Amaryllidoideae Tribe: Amaryllideae Subtribe: Crininae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y
	Source(s)	**Notes**
	Chicago Botanic Garden. (2021). Crinum augustum 'Queen Emma'. https://www.chicagobotanic.org. [Accessed 10 Jun 2021]	"The handsome, strappy foliage arises from giant fleshy bulbs, which can weigh as much as 20 pounds."

601	Evidence of substantial reproductive failure in native habitat	
	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	[Unknown. Possibly a sterile hybrid] "Originally described from cultivated plants grown in the Calcutta Botanic Gardens, C. augustum was said to originate on Mauritius in the Indian Ocean. It is doubtful that the species currently grows on Mauritius, and there are no specimens to document that it ever grew there in the past. There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

Qsn #	Question	Answer
602	**Produces viable seed**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

603	**Hybridizes naturally**	
	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	"There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." [No evidence that it hybridizes with other Crinum species]

604	**Self-compatible or apomictic**	**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	[Presumably No] "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

605	**Requires specialist pollinators**	**n**
	Source(s)	**Notes**
	Singh, V. & Jain, D.K. (2008). Text Book of Botany: Angiosperms. Third Edition. Rastogi Publications, Meerut, India	[Generic description] "The white and sweet scented flowers of Crinum are pollinated by butterflies and honey -sucking birds."
	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	[Pollinators irrelevant for this plant] "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed."

606	**Reproduction by vegetative fragmentation**	**y**
	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	"Because no seed is produced, propagation is by removal of offsets from the base of mature plants."
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Propagate by bulb offsets or clump division."

607	**Minimum generative time (years)**	
	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	"Because no seed is produced, propagation is by removal of offsets from the base of mature plants." [Time to maturity not relevant, although plants may be able to be propagated vegetatively at an early stage of growth]

Qsn #	Question	Answer
701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

702	**Propagules dispersed intentionally by people**	**y**
	Source(s)	**Notes**
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"widely cultivated in the tropics for its wine red flowers."
	Chicago Botanic Garden. (2021). Crinum augustum 'Queen Emma'. https://www.chicagobotanic.org. [Accessed 10 Jun 2021]	[Cultivated as an ornamental] "Crinum augustum 'Queen Emma', commonly known as Queen Emma giant spider lily, is a member of the Amaryllidaceae family. Native to tropical Southeast Asia, the plant is commonly grown in Mexico's hot lowlands. Its fragrant white, star-shaped flowers with purple on the back of the petals are borne on large inflorescences on red stems. The handsome, strappy foliage arises from giant fleshy bulbs, which can weigh as much as 20 pounds. The broad, dark maroon-tinted leaves are centered with a depressed midvein that runs the entire length of the leaf, which can reach 36 inches in height. This striking, exotic plant blooms best in full sunlight in USDA Zones 8 to 11, where it can grow to a height of 5 feet with a 3-foot spread. It requires very high moisture and should not be allowed to dry out between watering. The cultivar is named for humanitarian Queen Emma (Emma Rooke, 1836–85), the queen consort of Kamehameha IV), who ruled Hawaii from 1855 to 1863."
	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	[Cultivated rarely] "Crinum augustum is rarely seen in home gardens here, for Its size limits its usefulness to more spacious sites."

703	**Propagules likely to disperse as a produce contaminant**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

Qsn #	Question	Answer
704	**Propagules adapted to wind dispersal**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Fruit sometimes beaked, rarely succulent. Seeds large, subglobose, pale to dark." [No adaptations for wind dispersal in genus Crinum]

705	**Propagules water dispersed**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	[Genus description. Possible if fruits or seeds are ever produced] "Crinum has many species adapted to water dispersal (Arroyo and Cutler 1984; Howell and Prakash 1990), either along seasonal inland water systems or by offshore currents. Seeds of Crinum have been known to remain viable and afloat in salt water for more than 2 years (Koshimizu 1930). Biotic dispersal in Amaryllideae is unknown."

706	**Propagules bird dispersed**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Biotic dispersal in Amaryllideae is unknown." [Family trait]
	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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

Qsn #	Question	Answer
707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Biotic dispersal in Amaryllideae is unknown." [Family trait]
	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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

708	**Propagules survive passage through the gut**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). (1998). The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Biotic dispersal in Amaryllideae is unknown." [Family trait]
	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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

801	**Prolific seed production (>1000/m2)**	**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	"Frt not formed." ... "There has long been speculation that C. augustum is a sterile hybrid, since it is not known to produce seed." ... "Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**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	"Because no seed is produced, propagation is by removal of offsets from the base of mature plants."

803	**Well controlled by herbicides**	
	Source(s)	**Notes**
	WRA Specialist. (2021). Personal Communication	Unknown. No information on herbicide efficacy or use of chemicals to control this species

804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Miss Smarty Plants. (2014). How to Prune Crinum Lily. http://misssmartyplants.com/how-to-prune-crinum-lily/. [Accessed 14 Jun 2021]	"The final step to prune crinum lilies is to remove the green leaves that have visible crinum rust on the tips. It probably wouldn't hurt anything to leave them, but while going through the effort to clean these up it makes sense to do it really well and get as much as possible. I still use my folding saw for this; it cuts through really easily and doesn't leave gnarled edges on the leaves. My advice on this part is to be aggressive. Crinum lilies are very tough plants and will grow back quickly."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	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	[Unknown] "Crinum augustum is rarely seen in home gardens here, for Its size limits its usefulness to more spacious sites."

Summary of Risk Traits:

High Risk / Undesirable Traits
• Grows, and could spread, in regions with tropical climates.
• Other species may be weedy and invasive.
• Mildly toxic to animals and people if ingested.
• Shade-tolerant, although can grow in full sun.
• A bulb-forming geophyte; may allow plants to persist unless uprooted.
• Propagated, and could potentially spread, by vegetative offsets.
• Tolerates and can grow back after cutting and pruning.

Low Risk Traits
• No confirmed reports of naturalization or invasiveness
• Unarmed (no spines, thorns, or burrs)
• A putative sterile hybrid that does not produce seeds.
• Lack of seed productions limits the potential for inadvertent, or long-distance dispersal.