

<b>Taxon:</b> <i>Solandra maxima</i> (Sessé & Moc.) P. S. Green	<b>Family:</b> Solanaceae
<b>Common Name(s):</b> chalice vine copa de oro cup-of-gold golden cup	<b>Synonym(s):</b> <i>Datura maxima</i> Sessé & Moc.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Approved	<b>End Date:</b> 13 Feb 1924
<b>WRA Score:</b> 5.0	<b>Designation:</b> EVALUATE	<b>Rating:</b> Evaluate

**Keywords:** Woody Climber, Possibly Naturalized, Toxic, Spreads Vegetatively, Rarely Seeds

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	y = 2*multiplier (see Appendix 2), n = 0	n
304	Environmental weed	y = 2*multiplier (see Appendix 2), n = 0	n
305	Congeneric weed	y = 1*multiplier (see Appendix 2), n = 0	n
401	Produces spines, thorns or burrs	y = 1, n = 0	n
402	Allelopathic	y = 1, n = 0	n
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	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	y
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		
707	Propagules dispersed by other animals (externally)	y = 1, n = -1	n
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m <sup>2</sup> )	y = 1, n = -1	n
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
	<b>Source(s)</b>	<b>Notes</b>
	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] "Solandra maxima is native to Mexico, Central America, and northern South America. This beautiful vine is often grown as an ornamental for its gigantic yellowish flowers, which become fragrant at night and may (in their homeland) attract bats as pollinators."
102	Has the species become naturalized where grown?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). Personal Communication	NA
103	Does the species have weedy races?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). 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
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 6 Feb 2024]	"Native Northern America NORTHERN MEXICO: Mexico [San Luis Potosí] SOUTHERN MEXICO: Mexico [Chiapas, Colima, Guerrero, Hidalgo, Jalisco, México, Oaxaca, Puebla, Veracruz de Ignacio de la Llave] Southern America CENTRAL AMERICA: Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama WESTERN SOUTH AMERICA: Ecuador"
	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	"Solandra maxima is native to Mexico, Central America, and northern South America."
202	Quality of climate match data	High
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 6 Feb 2024]	"Native Northern America NORTHERN MEXICO: Mexico [San Luis Potosí] SOUTHERN MEXICO: Mexico [Chiapas, Colima, Guerrero, Hidalgo, Jalisco, México, Oaxaca, Puebla, Veracruz de Ignacio de la Llave] Southern America CENTRAL AMERICA: Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Panama WESTERN SOUTH AMERICA: Ecuador"
203	Broad climate suitability (environmental versatility)	y

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	The National Gardening Association. (2024). Chalice Vine ( <i>Solandra maxima</i> ). <a href="https://garden.org/plants/view/92390/Chalice-Vine-Solandra-maxima/">https://garden.org/plants/view/92390/Chalice-Vine-Solandra-maxima/</a> . [Accessed 6 Feb 2024]	"Minimum cold hardiness: Zone 10a -1.1 °C (30 °F) to +1.7 °C (35 °F) Maximum recommended zone: Zone 11"
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Elevation range >1000 m] "Distribution. Native to Mexico, Central America and the northern of South America (Colombia and Venezuela), in mountain ranges from 500 to 2000 m."
	Tropicos.org. (2024). Tropicos v3.4.2. Missouri Botanical Garden. <a href="http://www.tropicos.org/">http://www.tropicos.org/</a> . [Accessed 6 Feb 2024]	Collected from an elevation of 5 m - 2800 m, and a latitudinal range of 03°23'S (at 2720 m) to 25°41'N (at 5 m)

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	"Distribution. Native to Mexico, Central America and the northern of South America (Colombia and Venezuela), in mountain ranges from 500 to 2000 m."
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	" <i>Solandra maxima</i> (Sesse & Moq.) P. Green ( <i>S. hartwegii</i> N. E. Brown, <i>S. nitida</i> Zuccagni, <i>S. guttata</i> sensu Hawaiian botanists, non <i>D. Don</i> ex Lindl.), a liana with elliptic leaves and yellow corollas up to 23 cm long with 5 purple lines, is cultivated in Hawai'i and sometimes persists, especially near Hilo, Hawai'i; however, it does not appear to be naturalized."
	Murphy, M. (2023). BIISC Plant Pono Specialist - Invasive Plant Prevention. personal communication. 09 Nov	[Possibly naturalizing on Hawaii Island] " <i>Solandra maxima</i> (Habit: Growing along both sides of the Kolekole River, up a 150 ft tall albizia, along both sides of the walkway, over a secondary river over at least 800 feet. Numerous vines present.) It covers much of the vegetation at Akaka Falls."

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Orchard, A.E. (ed.). (1994). Flora of Australia. Vol. 49, Oceanic islands 1. Australian Government Publishing Service, Canberra	"Norfolk Is. On Norfolk Is. an escape from cultivation. A native of Mexico now frequently planted in tropical and subtropical gardens."
	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	" <i>Solandra maxima</i> is native to Mexico, Central America, and northern South America. This beautiful vine is often grown as an ornamental for its gigantic yellowish flowers, which become fragrant at night and may (in their homeland) attract bats as pollinators."

301	<b>Naturalized beyond native range</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	State Herbarium of South Australia. (2024). Electronic Flora of South Australia species Fact Sheet. <i>Solandra</i> . <a href="http://www.flora.sa.gov.au/efsa/lucid/Solanaceae/Solanaceae%20species/key/Australian%20Solanaceae%20species/Media/Html/Solandra.htm">http://www.flora.sa.gov.au/efsa/lucid/Solanaceae/Solanaceae%20species/key/Australian%20Solanaceae%20species/Media/Html/Solandra.htm</a> . [Accessed 7 Feb 2024]	"A genus of c. 10 species native to South America. One species originally cultivated and now naturalised in southern Australia."
	Orchard, A.E. (ed.). (1994). Flora of Australia. Vol. 49, Oceanic islands 1. Australian Government Publishing Service, Canberra	"Norfolk Is. On Norfolk Is. an escape from cultivation. A native of Mexico now frequently planted in tropical and subtropical gardens."

Qsn #	Question	Answer
	<p>Heenan, P. B., de Lange, P. J., Cameron, E. K., &amp; Champion, P. D. (2002). Checklist of dicotyledons, gymnosperms, and pteridophytes naturalised or casual in New Zealand: additional records 199 -2000. <i>New Zealand Journal of Botany</i>, 40(2): 155-174</p>	<p>"<i>Solandra maxima</i> (Sesse &amp; Moc.) P.S.Green cup of gold NEW RECORD: AK 239534, E. K. Cameron 9713, 3 Jul 1999, Northland, Te Aupouri, Pukenui. NOTES: Established from garden refuse at base of cliff."</p>
	<p>Staples, G.W. &amp; 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</p>	<p>"<i>Solandra maxima</i> sometimes persists after cultivation, but it is apparently not naturalized in Hawai'i. Feral populations, though extensive, do not appear to set seed and spread farther, perhaps because of lack of a suitable pollinator."</p>
	<p>Kodela, P.G. &amp; Green, P.S. (2024). <i>Solandra maxima</i>, in P.G. Kodela (ed.), <i>Flora of Australia</i>. Australian Biological Resources Study, Department of Climate Change, Energy, the Environment and Water: Canberra. <a href="https://profiles.ala.org.au/opus/foa/profile/Solandra%20maxima">https://profiles.ala.org.au/opus/foa/profile/Solandra %20maxima</a>. [Accessed 7 Feb 2024]</p>	<p>"Sparingly naturalised. Distribution - Native range is Mexico to Colombia, now frequently planted in mainly tropical and subtropical gardens. An escape from cultivation on Norfolk Island. There are also occasional records of possible adventive plants from Brisbane in Queensland, the Sydney and Eurobodalla regions of New South Wales, and on Lord Howe Island."</p>
	<p>Salerno, G., &amp; Stinca, A. (2017). First European record of <i>Solandra maxima</i> (Sessé &amp; Moc.) PS Green (Solanaceae). <i>Annali di Botanica</i>, 7, 67-70</p>	<p>[Casual alien in Italy] "In the present work, <i>Solandra maxima</i> (Sessé &amp; Moc.) P.S.Green (Solanaceae), a neophyte native to Mesoamerica, is reported for the first time as spontaneous for Italy and Europe: some notes on the place of discovery are provided and the invasiveness status is discussed. According to our observations the species must be considered as a casual alien." ... "According to Pyšek et al. (2004), the observation period is too short to understand the success in vegetative propagation and to declare a state of naturalized species. Waiting for further field investigations to fully assess the proper status attribution, at this state of knowledge it must be considered a casual alien. Even if it cannot be reported as naturalized species in Italy at the present state of knowledge, it has to be considered in any case a potential threat as it may colonize natural and seminatural habitats."</p>
	<p>Rosati, L., et al. (2020). New chorological data for the Italian vascular flora. <i>Diversity</i>, 12(1), 22</p>	<p>[Casual] "<i>Solandra maxima</i> (Sessé and Moc.) P. S. Green [≡ <i>Datura maxima</i> Sessé and Moc.] Solanaceae Phanerophyte climbing Neophyte, Central America First record for Calabria (casual) and Sicilia (casual) Specimen: 9-8-2019, Ferrito (Villa San Giovanni, Reggio Calabria province), roadside, 34 m a.s.l., 38.23229° N-15.64493° E, leg. V.L.A. Laface, det. V.L.A. Laface, C.M. Musarella et G. Spampinato (REGGIO); 5-7-2019, Canalicchio (Catania), road escarpment, 91 m a.s.l., 37.53119° N-15.09410° E, leg. C.M. Musarella, det. C.M. Musarella et G. Spampinato (REGGIO). Note: <i>Solandra maxima</i> was recorded for the first time in Europe from the Campania region [ 92]. Our two records are therefore the second for the Italian peninsula and the first for Calabria and Sicilia respectively."</p>
	<p>Starr, F., Starr, K., &amp; Loope, L. L. (2005). Roadside survey and expert interviews for selected plant species on Molokai, Hawaii. Molokai, Hawaii, Pacific Cooperative Studies Unit, University of Hawaii, Honolulu, HI</p>	<p>[Cultivated on Molokai] "<i>Solandra maxima</i> is occasionally cultivated in the following areas: Papohaku, Hoolehua, Kalae, and Halawa. At Halawa, some questionably naturalized plants were observed spreading into nearby vegetation. <i>S. maxima</i>, native to Mexico, is occasionally cultivated for its large ornamental flowers. This species is grown in Hawaii and has been observed to show aggressive growth through vegetative means. It can be a nuisance when grown near natural areas."</p>
	<p>Verloove, F. (2017). New xenophytes from the Canary Islands (Gran Canaria and Tenerife; Spain). <i>Acta Botanica Croatica</i>, 76(2), 120-131</p>	<p>[Escaped from cultivation in the Canary Islands] "<i>Solandra maxima</i> (Sessé &amp; Moc.) P.S. Green (Solanaceae) New to the flora of Tenerife. Tenerife : San Lorenzo, barranco de Chija at TF-28, foot of bridge, escaped from cultivation, at least two individuals, 22.06.2014, F. Verloove 10876 (BR). <i>S. maxima</i> is native to Mexico, Central America and northern South America but widely cultivated as an attractive liana in (sub-) tropical regions of the world (Cullen and Knees 2011). It is a very vigorous species that was recently reported for the first time in the wild from the Canary Islands (La Palma; Otto and Verloove 2016). In 2014 it was recorded on several occasions in Tenerife as well, escaping from nearby gardens (often in barrancos). However, in some instances it was obviously no longer directly associated with gardens, apparently growing from washed-up rhizomes or perhaps even from seed."</p>

Qsn #	Question	Answer
	Murphy, M. (2023). BIISC Plant Pono Specialist - Invasive Plant Prevention. personal communication. 09 Nov	[Potentially naturalizing. Hawaii Island] "Solandra maxima (Habit: Growing along both sides of the Kolekole River, up a 150 ft tall albizia, along both sides of the walkway, over a secondary river over at least 800 feet. Numerous vines present.) It covers much of the vegetation at Akaka Falls. ... no fruit or seeds were observed."

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Starr, F., Starr, K., & Loope, L. L. (2005). Roadside survey and expert interviews for selected plant species on Molokai, Hawaii. Molokai, Hawaii, Pacific Cooperative Studies Unit, University of Hawaii, Honolulu, HI	[Nuisance plant] "Solandra maxima is occasionally cultivated in the following areas: Papohaku, Hoolehua, Kalae, and Halawa. At Halawa, some questionably naturalized plants were observed spreading into nearby vegetation. S. maxima, native to Mexico, is occasionally cultivated for its large ornamental flowers. This species is grown in Hawaii and has been observed to show aggressive growth through vegetative means. It can be a nuisance when grown near natural areas."
	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	[Possibly nuisance due to extensive growth habit] "plants are more likely to be seen in such places today than in home gardens because they are just too large for the average backyard. The floral fragrance, like that of many bat-pollinated species, is more musty than sweet and some people find it unpleasant. Solandra maxima sometimes persists after cultivation, but it is apparently not naturalized in Hawai'i. Feral populations, though extensive, do not appear to set seed and spread farther, perhaps because of lack of a suitable pollinator."

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
	CABI. (2024). CABI Compendium Invasive Species. <a href="https://www.cabidigitallibrary.org/product/qi">https://www.cabidigitallibrary.org/product/qi</a> . [Accessed 7 Feb 2024]	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	Cited as an environmental weed, but reference does not contain any evidence to support this listing.
	CABI. (2024). CABI Compendium Invasive Species. <a href="https://www.cabidigitallibrary.org/product/qi">https://www.cabidigitallibrary.org/product/qi</a> . [Accessed ]	No evidence

305	Congeneric weed	n
	Source(s)	Notes
	CABI. (2024). CABI Compendium Invasive Species. <a href="https://www.cabidigitallibrary.org/product/qi">https://www.cabidigitallibrary.org/product/qi</a> . [Accessed 7 Feb 2024]	No other Solandra species included in the invasive species compendium
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Solandra grandiflora categorized as a potential environmental weed, but the cited reference does not support this designation.

401	Produces spines, thorns or burrs	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	[No evidence] "High climbing hemi-epiphyte or cultivated as a scandent shrub to 1.5 m tall. Leaves broadly elliptic, to 14 cm long, apically acuminate, basally mostly obtuse, glabrous or with an occasional hair on the veins beneath; petioles slender, 2-5 cm long. Flowers solitary or several in a cluster, each terminal on a short stout peduncle; pedicels stout, 1-1.5 cm long, often with conspicuous tubercles; calyx tubular, 5-8 cm long, angled and sometimes inflated, appearing stout when dried, splitting $\frac{3}{4}$ - $\frac{1}{2}$ the way down into 3-5 lobes, the lobes slender or broad, apiculate, glabrous outside, sometimes fleshy; corolla fleshy, craterform, conspicuous, yellow, becoming darker with age, 5 conspicuous greenish ribs outside and 5 or 10 purplish ribs within in the tube and limb, the tube slender, 8--13 cm long, mostly abruptly expanded into a large limb (cup) 8-15 cm in diameter, the lobes rotund, crenate to entire margined, glabrous outside, pilose inside for a distance below the point of filament insertion; filaments geniculate at the point of insertion, glabrous, anthers 10-13 cm long; ovary mostly inferior in flower, the superior portion meniscoid, depressed in the center, the style sometimes purplish apically, the stigma green. Fruit (Martinez, 1966) ovoid, smooth, shiny, ca. 7 cm across, the calyx persistent."

402	Allelopathic	n
	Source(s)	Notes
	Ali, K. W., Shinwari, M. I., & Khan, S. (2019). Screening of 196 medicinal plant species leaf litter for allelopathic potential. Pakistan Journal of Botany, 51(6), 2169-2177	[No evidence] "Table 1. Allelopathic effect of 196 tested medicinal plants." [Solandra maxima was among the 196 species tested using the sandwich method to assess allelopathic effects of leaf leachates on <i>Lactuca sativa</i> L. (lettuce) seeds, but extracts did not show strong inhibitory effect on the radicle]

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	"High climbing hemi-epiphyte or cultivated as a scandent shrub to 1.5 m tall." [Solanaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Orchard Nursery and Florist. (2006). "Deer Resistant" Plant Guide. Orchard Gro-Sheet #10. <a href="http://www.orchardnursery.com/pdfs/nurserycare/10-deerlist.pdf">www.orchardnursery.com/pdfs/nurserycare/10-deerlist.pdf</a>	"Deer, like all animals, have certain food preferences and dislikes. Home gardeners living near deer habitat can often take advantage of this fact by using deer-resistant plants for ornamental planting." [Includes <i>Solandra maxima</i> . Potentially unpalatable]
	Forero, L., Nader, G., Craigmill, A., DiTomaso, J.M., Puschner, B. & Mass, J. (2010). Livestock-Poisoning Plants of California. Publication 8398. University of California Agriculture and Natural Resources, Richmond, CA	"Table 7. Vines that should not be planted around livestock and horses" [Includes goldcup, chalice vine <i>Solandra</i> spp., but does not discuss palatability of plants, or the likelihood or incidence of livestock poisoning]

405	Toxic to animals	y
	Source(s)	Notes

Qsn #	Question	Answer
	Knight, A. (2007). A Guide to Poisonous House and Garden Plants. CRC Press, Boca Raton, FL	"Risk Assessment - Chalice vines are common in tropical gardens and consequently, the flowers and leaves are accessible to pets. Poisoning has not been reported in domestic animals, although its hallucinogenic properties have led people to consume the plant. Clinical Signs - Signs of poisoning are due to the effects of tropane alkaloids and generally consist of dilation of the pupils, restlessness, increased heart rate, dyspnea, dry mouth, and intestinal stasis leading to constipation. In severe cases, abnormal behavior due to hallucinations, convulsions, and seizures may occur."
	Forero, L., Nader, G., Craigmill, A., DiTomaso, J.M., Puschner, B. & Mass, J. (2010). Livestock-Poisoning Plants of California. Publication 8398. University of California Agriculture and Natural Resources, Richmond, CA	"Table 7. Vines that should not be planted around livestock and horses" [Includes goldcup, chalice vine <i>Solandra</i> spp.]

406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Online Flower Garden. (2024). <i>Solandra maxima</i> . <a href="https://www.onlineflowergarden.com/2021/06/26/gardening/climbers/solandra-maxima/">https://www.onlineflowergarden.com/2021/06/26/gardening/climbers/solandra-maxima/</a> . [Accessed 12 Feb 2024]	"Disease and Pest Resistance: <i>Solandra maxima</i> is generally resistant to diseases and pests. However, it's essential to keep an eye out for potential issues such as root rot. Regular inspection and proper care will help maintain the plant's overall health and vigor."
	GardensOnline. (2024). <i>Solandra maxima</i> . <a href="https://www.gardensonline.com.au/gardenshed/plantfinder/show_1591.aspx">https://www.gardensonline.com.au/gardenshed/plantfinder/show_1591.aspx</a> . [Accessed 12 Feb 2024]	"Diseases: None of note."
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	"no serious pests or diseases reported."

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Scott, S. & Thomas, C. (2000). Poisonous Plants of Paradise: First Aid and Medical Treatment of Injuries from Hawaii's Plants. University of Hawaii Press, Honolulu, HI	"Both cup of gold and silver cup contain either the glycoalkaloid toxin solanine, or atropine. Solanine damages the lining of the digestive tract and can also depress the central nervous system, thus slowing the heart rate and lowering blood pressure. Atropine also affects the central nervous system. Rarely, both toxins are present, which can lead to confusing and contradictory symptoms, appearing one after another. For example, solanine can cause people to salivate excessively, but the atropine-like toxin causes dry mouth."
	Fuller, T.C. & McClintock, E.M. (1986). Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	"Entire plant has the toxic alkaloids hyoscyamine, norhyos-cyamine, and noratropine. Symptoms produced are similar to those following ingestion of Belladonna, including dry mouth, difficulty in swallowing and speaking, rapid heartbeat, hot dry flushed skin, fever, blurred vision and sometimes dilation of the pupils, excitement, delirium, headache, and hallucinations, particularly in small children. Poisonings in children have resulted from sucking the nectar from the corolla tube of the flower."
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[ <i>Solandra maxima</i> ] "Leaves and flowers poisonous, highly toxic if eaten, may be fatal."

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes



Qsn #	Question	Answer
	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, but might act as a fuel ladder during dry periods or if cultivated in fire prone areas] "Climbing or scrambling shrub." ... "Hardy and adaptable, it can thrive with almost no care in sunny, drier habitats on nutrient-poor, well-drained soils, but it does even better when provided with water, fertilizer, and judicious pruning to control and shape its rampant growth."

409	Is a shade tolerant plant at some stage of its life cycle	
	<b>Source(s)</b>	<b>Notes</b>
	Cutler, K.D. (1999). Flowering Vines: Beautiful Climbers, Issue 158. Brooklyn Botanic Garden, Brooklyn, NY	"Chalice vine needs full sun in coastal settings, partial shade in hot areas,"
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	"Full sun, in well-drained fertile moist soils; tolerates seaside and salt spray, strong winds, and summer heat"
	Online Flower Garden. (2024). Solandra maxima. <a href="https://www.onlineflowergarden.com/2021/06/26/gardening/climbers/solandra-maxima/">https://www.onlineflowergarden.com/2021/06/26/gardening/climbers/solandra-maxima/</a> . [Accessed 12 Feb 2024]	"Light Requirements: Solandra maxima thrives in both full sun and partial shade. However, it is important to note that excessive exposure to intense sunlight may cause leaf burn. Providing some protection from scorching midday sun can help maintain the plant's health and appearance."
	Dave's Garden. (2024). Solandra maxima. <a href="https://davesgarden.com/guides/pf/go/31444">https://davesgarden.com/guides/pf/go/31444</a> . [Accessed 12 Feb 2024]	"Sun Exposure Full Sun"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	<b>Source(s)</b>	<b>Notes</b>
	Floridata. (2024). Solandra maxima. <a href="https://floridata.com/plant/889">https://floridata.com/plant/889</a> . [Accessed 12 Feb 2024]	"Cup of gold is a fast growing vine that thrives in most any well-drained soil."
	PictureThis. (2024). Cup of gold vine. Solandra maxima. <a href="https://www.picturethisai.com/wiki/Solandra_maxima.html">https://www.picturethisai.com/wiki/Solandra_maxima.html</a> . [Accessed 12 Feb 2024]	"Soil Care Loam, Sand, Chalky, Clay, Neutral "
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	Full sun, in well-drained fertile moist soils; tolerates seaside and salt spray, strong winds, and summer heat; no serious pests or diseases reported."

411	Climbing or smothering growth habit	y
	<b>Source(s)</b>	<b>Notes</b>
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	"High climbing hemi-epiphyte or cultivated as a scandent shrub to 1.5 m tall."

412	Forms dense thickets	n
	<b>Source(s)</b>	<b>Notes</b>
	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 or scrambling shrub." [Climbing and potentially smothering. No evidence of dense stand formation]

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Terrestrial] "Distribution. Native to Mexico, Central America and the northern of South America (Colombia and Venezuela), in mountain ranges from 500 to 2000 m. It grows in the "Selva Baja Caducifolia", "Selva Mediana Subperennifolia", "Bosque de Pino-Encino", "Bosque de Encino" from Mexico (ecological concepts after Flores Mata & al. 1971), and in "Bosque Humedo Tropical" from Venezuela (ecological concepts after Ewe1 & Madriz 1968)"

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 6 Feb 2024]	"Genus: <i>Solandra</i> Family: Solanaceae Subfamily: Solanoideae"

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 6 Feb 2024]	"Genus: <i>Solandra</i> Family: Solanaceae Subfamily: Solanoideae"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. <i>Annals of the Missouri Botanical Garden</i> , 60(3), 573-780	"High climbing hemi-epiphyte or cultivated as a scandent shrub to 1.5 m tall."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[No evidence] "Distribution. Native to Mexico, Central America and the northern of South America (Colombia and Venezuela), in mountain ranges from 500 to 2000 m."

602	Produces viable seed	y
	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	"Chalice vine is easily propagated from cuttings; seed is rarely produced."
	Dehgan, B. (2023). <i>Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots)</i> . Springer Nature, Cham, Switzerland	"PROPAGATION: Seed, cuttings." [If bat pollinators are present, seed is produced]

Qsn #	Question	Answer
603	Hybridizes naturally	
	<b>Source(s)</b>	<b>Notes</b>
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	Unknown. No evidence documented

604	Self-compatible or apomictic	
	<b>Source(s)</b>	<b>Notes</b>
	East, E. M. (1940). The distribution of self-sterility in the flowering plants. <i>Proceedings of the American Philosophical Society</i> 82: 449-518	[Possible. Genus mentioned as including self-fertile species] "From one to many species have been shown to be self-fertile very definitely in the following genera: Nicandreae-Nicandra; Solanaceae-Lycium, Dunalia, Atropa, Scopalia, Hyocyarnus, Physalis, Capsicum, Solanum, Jaborosa, Mandragora; Datureae -Solandra, Datura; Cestreae-Cestrum, Nicotiana, Petunia, Nierembergia; Salpiglossideae-Salpiglossis, Schizanthus, Browallia, Brunfelsia. There is much autogamy."

605	Requires specialist pollinators	y
	<b>Source(s)</b>	<b>Notes</b>
	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	"The floral fragrance, like that of many bat-pollinated species, is more musty than sweet and some people find it unpleasant. <i>Solandra maxima</i> sometimes persists after cultivation, but it is apparently not naturalized in Hawai'i. Feral populations, though extensive, do not appear to set seed and spread farther, perhaps because of lack of a suitable pollinator."
	Aguilar-Rodríguez, P. A., Tschapka, M., García-Franco, J. G., Krömer, T., & MacSwiney G, M. C. (2019). Bromeliads going batty: pollinator partitioning among sympatric chiropterophilous Bromeliaceae. <i>AoB Plants</i> , 11(2), plz014	"Together with chiropterophilous plants of other families, e.g. <i>Marcgravia mexicana</i> (Marcgraviaceae), <i>Mucuna argyrophylla</i> (Leguminosae) and <i>Solandra maxima</i> (Solanaceae) (CONANP 2006; P. A. Aguilar-Rodríguez, pers. obs.), these bromeliad species may provide nectar throughout the year as food for a local nectarivorous bat community, which comprises at least three species at the studied site (but see Coates et al. 2017)."

606	Reproduction by vegetative fragmentation	y
	<b>Source(s)</b>	<b>Notes</b>
	Haynes, J., McLaughlin, J., Vasquez, L. & Hunsberger, A. (2001). Low-maintenance landscape plants for south Florida ENH854. Institute of Food and Agricultural Sciences, University of Florida. <a href="https://sfyl.ifas.ufl.edu/">https://sfyl.ifas.ufl.edu/</a> . [Accessed 12 Feb 2024]	"Heavy, woody, evergreen vine with ropelike stems that branch frequently and root at nodes."
	Floridata. (2024). <i>Solandra maxima</i> . <a href="https://floridata.com/plant/889">https://floridata.com/plant/889</a> . [Accessed 12 Feb 2024]	"The thick and woody ropelike stems branch frequently and root at their nodes, and can run for more than 200 ft (61 m), clinging with aerial rootlets and scrambling over everything in the way."

Qsn #	Question	Answer
607	Minimum generative time (years)	
	Source(s)	Notes
	Haynes, J., McLaughlin, J., Vasquez, L. & Hunsberger, A. (2001). Low-maintenance landscape plants for south Florida ENH854. Institute of Food and Agricultural Sciences, University of Florida. <a href="https://sfyl.ifas.ufl.edu/">https://sfyl.ifas.ufl.edu/</a> . [Accessed 12 Feb 2024]	"Growth Rate = Fast"
	WRA Specialist. (2024). Personal Communication	Time to maturity not specified. May be irrelevant as plants in Hawaii rarely, if ever set seed due to pollinator limitations. May be able to spread vegetatively in the absence of seed production.

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	"Major Pathway/s: Herbal, Ornamental Dispersed by: Humans, Escapee"
	Orchard, A.E. (ed.). (1994). <i>Flora of Australia</i> . Vol. 49, Oceanic islands 1. Australian Government Publishing Service, Canberra	"Norfolk Is. On Norfolk Is. an escape from cultivation. A native of Mexico now frequently planted in tropical and subtropical gardens."
	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	" <i>Solandra maxima</i> is native to Mexico, Central America, and northern South America. This beautiful vine is often grown as an ornamental for its gigantic yellowish flowers, which become fragrant at night and may (in their homeland) attract bats as pollinators."

703	Propagules likely to disperse as a produce contaminant	n
	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	"Chalice vine is easily propagated from cuttings; seed is rarely produced." [No evidence of produce contamination]
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

705	Propagules water dispersed	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."
	WRA Specialist. (2024). Personal Communication	Not a riparian species, and fruits rarely produced in the absence of bat pollinators

706	Propagules bird dispersed	
	<b>Source(s)</b>	<b>Notes</b>
	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	"Chalice vine is easily propagated from cuttings; seed is rarely produced." [May limit or prevent dispersal by birds and other vertebrates in the Hawaiian Islands]
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

707	Propagules dispersed by other animals (externally)	n
	<b>Source(s)</b>	<b>Notes</b>
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

708	Propagules survive passage through the gut	
	<b>Source(s)</b>	<b>Notes</b>
	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	"Chalice vine is easily propagated from cuttings; seed is rarely produced."
	Bernardello, L. M., & Hunziker, A. T. (1987). A synoptical revision of <i>Solandra</i> (Solanaceae). <i>Nordic Journal of Botany</i> , 7(6), 639-652	[Presumably adapted for frugivory by birds or mammals. Rarely produced in the Hawaiian Islands] "Berry mostly conical, leathery; the calyx persisting and splitting in the fruit. Seeds compressed, discoidal or kidney-shaped, 4-6.5 mm long x 2.5-4 mm wide."

801	Prolific seed production (>1000/m2)	n
	<b>Source(s)</b>	<b>Notes</b>
	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	"Feral populations, though extensive, do not appear to set seed and spread farther, perhaps because of lack of a suitable pollinator."
	Murphy, M. (2023). BIISC Plant Pono Specialist - Invasive Plant Prevention. personal communication. 09 Nov	" <i>Solandra maxima</i> (Habit: Growing along both sides of the Kolekole River, up a 150 ft tall albizia, along both sides of the walkway, over a secondary river over at least 800 feet. Numerous vines present.) It covers much of the vegetation at Akaka Falls. - ... no fruit or seeds were observed."

Qsn #	Question	Answer
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	<b>Source(s)</b>	<b>Notes</b>
	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	"Chalice vine is easily propagated from cuttings; seed is rarely produced." [Unknown. May be irrelevant in the Hawaiian Islands if seed is rarely produced]

803	Well controlled by herbicides	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	<b>Source(s)</b>	<b>Notes</b>
	Floridata. (2024). <i>Solandra maxima</i> . <a href="https://floridata.com/plant/889">https://floridata.com/plant/889</a> . [Accessed 12 Feb 2024]	"It tolerates severe pruning and blooms on new growth, so it can be cut back at any time of year."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	<b>Source(s)</b>	<b>Notes</b>
	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, but no pests, pathogens or other limited factors mentioned for plants cultivated in the Hawaiian Islands] "often planted along roadsides and on barren hills or banks for beautification; plants are more likely to be seen in such places today than in home gardens because they are just too large for the average backyard."

**Summary of Risk Traits:**

Summary of Risk Traits

*Solandra maxima* (cup of gold vine, golden chalice vine), is a vigorous woody vine native to Mexico, Central America, and northern South America. Often cultivated as an ornamental plant, it is now reported to be sparingly naturalized in Australia, and either naturalizing or persisting in the Hawaiian Islands. Its large yellow flowers are adapted for bat pollination, which likely accounts for its limited seed production where bat pollinators are absent. This lack of seed production may slow or prevent it from fully naturalizing in the Hawaiian Islands, but its aggressive growth, ability to spread vegetatively, and its toxic properties, may still create problems near natural or unmanaged areas.

High Risk / Undesirable Traits

- Broad elevation range in tropical climates, demonstrating environmental versatility
- Thrives and persists in regions with tropical climates
- Sparingly naturalized in Australia, and possibly naturalized or persisting in the Hawaiian Islands
- Aggressive and can be a nuisance when grown near natural or unmanaged areas.
- Possibly unpalatable.
- Toxic to animals and people.
- Tolerates many soil types.
- Climbing and potentially smothering growth habit
- Reproduces by seeds (rarely in cultivation without bat pollinators)
- Reproduces vegetatively by rooting at nodes
- Seeds if produced, are likely dispersed by birds and other frugivorous animals (based on fruit morphology)
- Tolerates and resprouts after severe pruning (likely making mechanical control difficult or ineffective)

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Prefers full sun or high light environments (dense shade may inhibit or prevent spread)
- Pollinated by bats within its native range, limiting seed set in regions (such as the Hawaiian Islands) where pollinators are absent
- Limited (or lack of) seed production minimizes the risk of long distance or accidental dispersal

Second Screening Results for Vines & Lianas

- (A) Reported as a weed of cultivated lands?> Unclear. Described as a nuisance.  
(B) Unpalatable to grazers Or known to form dense stands?> Probably unpalatable due to toxicity, but not confirmed.  
(C) Shade tolerant or known to form dense stands?> Unclear. Possibly tolerates partial shade.  
(D) Bird- Or clearly wind- dispersed?> Bird-dispersed, but fruit and seed production are limited or absent in cultivation.  
(E) Life cycle <4 years? Unknown  
Outcome = Evaluate

