

<b>Taxon:</b> <i>Cestrum aurantiacum</i> Lindl.	<b>Family:</b> Solanaceae
<b>Common Name(s):</b> orange cestrum yellow cestrum	<b>Synonym(s):</b> <i>Cestrum chaculanum</i> Loes. <i>Cestrum paucinervium</i> Francey <i>Cestrum pedunculare</i> Pav. ex Dunal <i>Cestrum regelii</i> Planch. <i>Cestrum warszewiczii</i> Klotzsch <i>Habrothamnus aurantiacus</i> Regel

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Assessor Approved	<b>End Date:</b> 18 Mar 2020
<b>WRA Score:</b> 18.0	<b>Designation:</b> H(HPWRA)	<b>Rating:</b> High Risk

**Keywords:** Ornamental Shrub, Toxic, Dense Thickets, Suckering, Bird-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	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	y
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	y
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	y=1, n=-1	n
405	Toxic to animals	y=1, n=0	y
406	Host for recognized pests and pathogens		

Qsn #	Question	Answer Option	Answer
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	y=1, n=0	y
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	n
412	Forms dense thickets	y=1, n=0	y
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	y=1, n=-1	y
605	Requires specialist pollinators		
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	y
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	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
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	y=-1, n=1	y
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
	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.	[No evidence] "Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2020). 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. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 16 Mar 2020]	"Native Northern America NORTHERN MEXICO: Mexico [San Luis Potosí] SOUTHERN MEXICO: Mexico [Chiapas (s.)] Southern America CENTRAL AMERICA: Costa Rica, Guatemala, Honduras, Nicaragua"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 16 Mar 2020]	

Qsn #	Question	Answer
203	<b>Broad climate suitability (environmental versatility)</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Dave's Garden. (2020). <i>Cestrum</i> Species, Orange <i>Cestrum</i> , Yellow Shrub Jessamine - <i>Cestrum aurantiacum</i> . <a href="https://davesgarden.com/guides/pf/go/51480/">https://davesgarden.com/guides/pf/go/51480/</a> . [Accessed 16 Mar 2020]	"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)"
	Tropicos.org. (2020). Missouri Botanical Garden. <a href="http://www.tropicos.org/">http://www.tropicos.org/</a> . [Accessed 17 Mar 2020]	[Elevation range exceeds 1000 m, demonstrating environmental versatility] Collected from 600 m [08°27'00"N] to 2950 m [14°49'58"N]

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 16 Mar 2020]	"Native Northern America NORTHERN MEXICO: Mexico [San Luis Potosí] SOUTHERN MEXICO: Mexico [Chiapas (s.)] Southern America CENTRAL AMERICA: Costa Rica, Guatemala, Honduras, Nicaragua"

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>
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	" <i>Cestrum aurantiacum</i> Lindl. is exotic species in Kenya and native to Central America [43] [44]) and is known as an escape species from living collection and has an invasive potential in many forest areas [45]. It has been identified as a wide-spread and well established invasive species in many countries around the world [11]."
	D'Arcy, W.G. 1986. <i>Solanaceae, Biology and Systematics</i> . Columbia University Press, New York, NY	"Escaped from gardens and naturalized around Darjeeling. Dist: Central America. Young leaves are injurious to sheep."
	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, Animals, Wind, Escapee"
	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.	"Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."
	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	"native to Mexico and Central America, is occasionally grown for its attractive flowers."

301	<b>Naturalized beyond native range</b>	<b>y</b>
-----	--	----------

Qsn #	Question	Answer
	Source(s)	Notes
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	" <i>Cestrum aurantiacum</i> Lindl. is exotic species in Kenya and native to Central America [43] [44]) and is known as an escape species from living collection and has an invasive potential in many forest areas [45]. It has been identified as a wide-spread and well established invasive species in many countries around the world [11]."
	D'Arcy, W.G. 1986. <i>Solanaceae, Biology and Systematics</i> . Columbia University Press, New York, NY	"Escaped from gardens and naturalized around Darjeeling."
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. <i>Manual of the flowering plants of Hawaii</i> . Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	"Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	"References: South Africa-CX-283, South Africa-X-278, Sri Lanka-E-268, New Zealand-W-165, New Zealand-EW-225, Australia-W-269, New Zealand-E-246, South Africa-X-63, Global-NW-85, South Africa-X-95, South Africa-CW-279, United States of America-N-101, New Zealand-N- 280, South Africa-AR-121, Australia-C- 401, Australia-N-945, Australia-E-380, New Zealand-NW-425, New Zealand-N- 534, New Zealand-N-15, Australia-EN- 310, South Africa-I-759, United States of America-N-301, Swaziland-N-825, United States of America-N-839, Australia-W-853, Australia-W-869, New Zealand-N-919, Australia-N-354, Australia-N-1049, New Zealand-E-505, South Africa-X-1112, Africa-X-1127, United States of America- Q-1197, United States of America-N-1292, New Zealand-X-1311, Zimbabwe-N-1365, Global-W-1376, Global-I-1404, New Zealand-X-1542, India-N-1601, Australia- A-87, New Zealand-A-87, South Africa-E- 1646, Global-CD-1611, Chile-I-1872, India-I-1904, Australia-WD-1934, -I, -I-, Indonesia-ID-2016, New Zealand-ED- 2023, New Zealand-N-2048, New Zealand- Q-2086, Australia-W-1977, Chile-W-1977, India-W-1977, New Zealand-W-1977, South Africa-W-1977, Sri Lanka-W-1977, Zimbabwe-W-1977."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Hyde, M.A., Wursten, B.T., Ballings, P. & Coates Palgrave, M. (2020). <i>Flora of Zimbabwe: Species information: <i>Cestrum aurantiacum</i></i> . <a href="https://www.zimbabweflora.co.zw">https://www.zimbabweflora.co.zw</a> . [Accessed 17 Mar 2020]	[Regarded as an environmental weed in parts of Africa and New Zealand] "It was introduced as a garden ornamental but is now a slightly invasive invasive weed in wetter parts of the country."

303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	D'Arcy, W.G. 1986. <i>Solanaceae, Biology and Systematics</i> . Columbia University Press, New York, NY	"Young leaves are injurious to sheep." [Could potentially impact ranching]
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	[Toxicity to animals could potentially impact ranching] " <i>C. aurantiacum</i> was identified as an exotic invasive plants causing several adverse impacts including displacement of native plants from their habitat in Malawi and South Africa [46] [47]. Secondly, <i>C. aurantiacum</i> is poisonous to humans and animals [46] [48] [49] [50]."

Qsn #	Question	Answer
304	Environmental weed	y
	Source(s)	Notes
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	" <i>Cestrum aurantiacum</i> Lindl. is exotic species in Kenya and native to Central America [43] [44]) and is known as an escape species from living collection and has an invasive potential in many forest areas [45]. It has been identified as a wide-spread and well established invasive species in many countries around the world [11]. <i>C. aurantiacum</i> was identified as an exotic invasive plants causing several adverse impacts including displacement of native plants from their habitat in Malawi and South Africa [46] [47]."
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 17 Mar 2020]	"Forms dense stands in forest understory, preventing native species from establishing. Poisonous berries and rotting vegetation may affect native fauna."
	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.	[Although considered an environmental weed elsewhere, impacts have not been reported from the Hawaiian Islands] "Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."
	Owen, S. J. (1996). Weeds of concern on conservation lands in New Zealand. Ecological weeds on conservation land in New Zealand: a database. Unpublished report. Department of Conservation, Wellington	Considered an environmental weed in New Zealand

305	Congeneric weed	y
	Source(s)	Notes
	Stewart-Howie, M. (2003). Environmental weed treatment in Melbourne's water catchment. <i>Plant Protection Quarterly</i> 18(2): 70-71	" <i>C. elegans</i> is considered to be the worst weed at Yarra Ranges National Park, Australia. It can invade undisturbed bush and mixed species forest, outcompeting ground cover plants and threatens to form a monoculture. The park has used hand-pulling and herbicide treatments to manage the infestation."
	Weber, E. 2017. <i>Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds</i> . CAB International, Wallingford, UK	" <i>Cestrum diurnum</i> ... The species is shade tolerant and also to some extent salt tolerant. It is mostly found on dry soils and it forms dense thickets that crowd out native vegetation and prevent the regeneration of native shrubs and trees. Seeds are dispersed by frugivorous birds. The fruits are attractive to birds but poisonous to humans and other mammals (Langeland and Craddock Burks, 1998)." ... " <i>Cestrum laevigatum</i> ... The plant has become invasive in southern Africa and is considered a habitat transformer. It is capable of building dense stands shading out native plants and preventing the natural regeneration of shrubs and trees (Fourie, 2011 ). Seeds are dispersed by frugivorous birds. Young leaves and berries are poisonous to livestock (Fourie, 2011)."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes

Qsn #	Question	Answer
	De Rojas, C., & D'Arcy, W. (1998). The Genera <i>Cestrum</i> and <i>Sessea</i> (Solanaceae: Cestreae) in Venezuela. <i>Annals of the Missouri Botanical Garden</i> , 85(2), 273-351	[No evidence] "Shrub or tree 1-3 m tall, branched, older trunks gnarled, conspicuously lenticellate, stems terete, flexible, soon glabrate, pubescence of reduced, glandular, perhaps branched, crumpled hairs. Leaves sometimes malodorous, narrowly ovate, 7.5-10 X 4.5-6.8 cm, apically acuminate, basally attenuate, margins undulating, sometimes appearing ciliolate, subcoriaceous to membranous, matte bright green, glabrous, veins 7-9 on each side, strongly ascending, slightly sunken above, main veins elevated beneath, minor veins plane, reticulate, drying conspicuous; petiole canaliculate, 2.3-3 cm long, glabrous; minor leaves wanting."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	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.	"Large shrubs 3-4 m tall, sprawling, clambering, and suckering, sparsely pubescent with minute crisped hairs, soon glabrate." [Solanaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Hutcheon, D. (1904). Two garden plants suspected of being poisonous to stock. <i>Agricultural Gazette of N.S. W.</i> June 2, 1904: 544	"In the Gazette for October, 1895, p. 676, I reported a suspected case- of cattle-poisoning near Sydney through eating the leaves of the orange-flowered <i>Cestrum</i> ( <i>C. aurantiacum</i> , Lindl.) All the <i>Cestrums</i> should, in my opinion, be put on the suspected list, and domestic animals should be kept from them. I would point out that as a matter of common observation stock will often not touch a green plant, while leaves of the same tree which have been cut or broken off and allowed to wilt are acceptable to them. Whether a process of fermentation goes on in the fading leaf which renders it more palatable, I do not know, nor whether certain poisonous principles are formed in increased quantity in the leaf as it withers. It is better to be on the safe side with <i>Cestrum</i> ."
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Poisonous, not grazed."
	Paulsamy, S., Kil, B. S., Arumugasamy, K., & Padmathy, S. (2003). Strategy to control surface fire using vegetational fire breaks in rangelands of Nilgiris, southern India. <i>The Korean Journal of Ecology</i> , 26(5), 251-254	"Table 1. List of evergreen species and data on certain characters used to screen them for vegetational fire breaks in Nilgiris" [ <i>Cestrum aurantiacum</i> - Non-palatable]

405	Toxic to animals	y
-----	------------------	---

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	" <i>C. aurantiacum</i> is poisonous to humans and animals [46] [48] [49] [50]."
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Poisonous"
	D'Arcy, W.G. 1986. <i>Solanaceae, Biology and Systematics</i> . Columbia University Press, New York, NY	"Young leaves are injurious to sheep."

406	Host for recognized pests and pathogens	
	<b>Source(s)</b>	<b>Notes</b>
	Shoot Gardening. (2020). <i>Cestrum aurantiacum</i> (Night-blooming jasmine). <a href="https://www.shootgardening.co.uk/plant/cestrum-aurantiacum">https://www.shootgardening.co.uk/plant/cestrum-aurantiacum</a> . [Accessed 18 Mar 2020]	"Pests: Generally pest free. Diseases: Generally disease free"

407	Causes allergies or is otherwise toxic to humans	y
	<b>Source(s)</b>	<b>Notes</b>
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	" <i>C. aurantiacum</i> is poisonous to humans and animals [46] [48] [49] [50]."
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Poisonous."

408	Creates a fire hazard in natural ecosystems	
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Forms dense stands in forest understory, preventing native species from establishing." [Unknown. Ability to form dense stands may increase risk in fire prone habitats or during periods of drought]



Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y
	<b>Source(s)</b>	<b>Notes</b>
	Shoot Gardening. (2020). <i>Cestrum aurantiacum</i> (Night-blooming jasmine). <a href="https://www.shootgardening.co.uk/plant/cestrum-aurantiacum">https://www.shootgardening.co.uk/plant/cestrum-aurantiacum</a> . [Accessed 18 Mar 2020]	"Light: Partial Shade, Full Sun"
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Moderate to high shade tolerance."
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Grows in fertile soils, damp, hot or cold."
	Shoot Gardening. (2020). <i>Cestrum aurantiacum</i> (Night-blooming jasmine). <a href="https://www.shootgardening.co.uk/plant/cestrum-aurantiacum">https://www.shootgardening.co.uk/plant/cestrum-aurantiacum</a> . [Accessed 18 Mar 2020]	"Soil type: Loamy, Sandy Soil drainage: Well-drained Soil pH: Acid, Alkaline, Neutral"
411	Climbing or smothering growth habit	n
	<b>Source(s)</b>	<b>Notes</b>
	De Rojas, C., & D'Arcy, W. (1998). The Genera <i>Cestrum</i> and <i>Sessea</i> (Solanaceae: Cestreae) in Venezuela. <i>Annals of the Missouri Botanical Garden</i> , 85(2), 273-351	"Shrub or tree 1-3 m tall, branched, older trunks gnarled, conspicuously lenticellate, stems terete, flexible, soon glabrate, pubescence of reduced, glandular, perhaps branched, crumpled hairs."
412	Forms dense thickets	y
	<b>Source(s)</b>	<b>Notes</b>
	Healy, A. J. (1958). Contributions to a knowledge of the adventive flora of New Zealand, No. 6. <i>Transactions of the Royal Society of New Zealand</i> 85(4): 531-549	" <i>C. aurantiacum</i> Lindl occurs as "A garden escape forming thickets"
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Forms dense, shady masses, and produces many long-lived and widely-dispersed seeds."
	Makokha, J. (2018). Invasion of <i>Cestrum aurantiacum</i> Lindl. in Kenya. <i>Journal of Environmental Protection</i> , 9(6), 671-690	"Just like <i>Cestrum aurantiacum</i> , <i>Cestrum nocturnum</i> is known to aggressively colonize disturbed areas [130] and is capable of forming dense impenetrable thickets in the undergrowth of some forest systems"
501	Aquatic	n

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	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.	[Terrestrial] "Large shrubs 3-4 m tall, sprawling, clambering, and suckering,"

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 18 Mar 2020]	Family: Solanaceae Subfamily: Browallioideae Tribe: Cestreeae

503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 18 Mar 2020]	Family: Solanaceae Subfamily: Browallioideae Tribe: Cestreeae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Large shrubs 3-4 m tall, sprawling, clambering, and suckering,"

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 18 Mar 2020]	[No evidence] "Native Northern America NORTHERN MEXICO: Mexico [San Luis Potosí] SOUTHERN MEXICO: Mexico [Chiapas (s.)] Southern America CENTRAL AMERICA: Costa Rica, Guatemala, Honduras, Nicaragua Cultivated (also cult.) Naturalized (natzd. elsewhere)"

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base. Seeds not seen."
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Forms dense, shady masses, and produces many long-lived and widely-dispersed seeds."
	Harrison, M. 2009. Flowering Shrubs and Small Trees for the South. Pineapple Press Inc, Sarasota, FL	"Propagation: Cuttings; seeds"

603	Hybridizes naturally	
	Source(s)	Notes
	Griesel, W. O. (1966). Inheritance of factors affecting floral primordia initiation in <i>Cestrum</i> ; hybrids of <i>C. elegans</i> and <i>C. nocturnum</i> . <i>Plant Physiology</i> , 41(1), 111-114	[Unknown. Hybrids were developed from <i>Cestrum elegans</i> and <i>Cestrum nocturnum</i> under laboratory conditions.] "Hybridizing Techniques. Corollas and the attached stamens of flowers used as female parents were removed prior to the maturing of the anthers. As this time pollen from the male parent was placed on the stigma with a small brush. Flowers not hand pollinated on the female parent were continually removed until the fruit was harvested. No pollinating agents are present in the laboratories used, negating the necessity for bagging the flowers or using other such precautions. The hybrid plants are easily distinguished from the species by the color and shape of the corollas and fruit. and the shape and surface of the leaves."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Rambuda, T. D., & Johnson, S. D. (2004). Breeding systems of invasive alien plants in South Africa: does Baker's rule apply?. <i>Diversity and Distributions</i> , 10(5-6), 409-416	"Table 2. Results of experiments to determine the breeding systems of invasive alien plant species in South Africa." [ <i>Cestrum aurantiacum</i> capable of autogamy]

605	Requires specialist pollinators	
	Source(s)	Notes
	Partida-Lara, R., Enríquez, P. L., Vázquez-Pérez, J. R., de Bonilla, E. P. D., Martínez-Ico, M., & Rangel-Salazar, J. L. (2018). Pollination syndromes and interaction networks in hummingbird assemblages in El Triunfo Biosphere Reserve, Chiapas, Mexico. <i>Journal of Tropical Ecology</i> , 34 (5), 293-307	"Appendix 1. Plant species visited by hummingbirds according to their pollination syndrome (Ornit: ornithophilous plants; NonOrnit: nonornithophilous plants) at three altitudes: high (>2000–2500 m asl), middle (>1000–2000 m asl) and low (30–1000 m asl) in El Triunfo Biosphere Reserve, Chiapas, Mexico." [ <i>Cestrum aurantiacum</i> classified as ornithophilous]
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base. Seeds not seen." [Reduced or absent seed set in Hawaii may be due to pollinator limitations]

Qsn #	Question	Answer
606	<b>Reproduction by vegetative fragmentation</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Large shrubs 3-4 m tall, sprawling, clambering, and suckering"

607	<b>Minimum generative time (years)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Benson, D. & McDougall, L. 2001. Ecology of Sydney plant species. Part 8. Dicotyledon families Rutaceae to Zygophyllaceae. <i>Cunninghamia</i> 7(2): 255-462	"Primary juvenile period:" [Unknown]

701	<b>Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"How does it spread? Birds, also in water during flooding, soil movement, and dumping of greenwaste."

702	<b>Propagules dispersed intentionally by people</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Jarrett, A. 2003. Ornamental Tropical Shrubs. Pineapple Press Inc., Sarasota, FL	"An attractive plant that produces large flower clusters in abundance."
	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.	"Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."
	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	"occasionally grown for its attractive flowers."

703	<b>Propagules likely to disperse as a produce contaminant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base. Seeds not seen." [No evidence. Unlikely given limited or absent seed production in the Hawaiian Islands]
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"How does it spread? Birds, also in water during flooding, soil movement, and dumping of greenwaste."

704	<b>Propagules adapted to wind dispersal</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base."
<b>705</b>	<b>Propagules water dispersed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"How does it spread? Birds, also in water during flooding, soil movement, and dumping of greenwaste."
<b>706</b>	<b>Propagules bird dispersed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	De Rojas, C., & D'Arcy, W. (1998). The Genera <i>Cestrum</i> and <i>Sessea</i> (Solanaceae: Cestreae) in Venezuela. <i>Annals of the Missouri Botanical Garden</i> , 85(2), 273-351	"Fruits of <i>Cestrum</i> are mostly juicy berries presumably dispersed by birds, but bat dispersal cannot be ruled out."
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"How does it spread? Birds, also in water during flooding, soil movement, and dumping of greenwaste."
<b>707</b>	<b>Propagules dispersed by other animals (externally)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base. Seeds not seen." [No means of external attachment]
<b>708</b>	<b>Propagules survive passage through the gut</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	De Rojas, C., & D'Arcy, W. (1998). The Genera <i>Cestrum</i> and <i>Sessea</i> (Solanaceae: Cestreae) in Venezuela. <i>Annals of the Missouri Botanical Garden</i> , 85(2), 273-351	[Presumably yes] "Fruits of <i>Cestrum</i> are mostly juicy berries presumably dispersed by birds, but bat dispersal cannot be ruled out."
<b>801</b>	<b>Prolific seed production (&gt;1000/m2)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Berries white, succulent, 8-12 mm long, enclosed by calyx at base. Seeds not seen." [Seed set apparently low or absent in the Hawaiian Islands]
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Forms dense, shady masses, and produces many long-lived and widely-dispersed seeds." [Seed production outside Hawaiian Islands may be prolific]

Qsn #	Question	Answer
802	<b>Evidence that a persistent propagule bank is formed (&gt;1 yr)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Forms dense, shady masses, and produces many long-lived and widely-dispersed seeds. "
	Royal Botanic Gardens Kew. (2020) Seed Information Database (SID). Version 7.1. Available from: <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a> . [Accessed 18 Mar 2020]	"Storage Behaviour: No data available for species. Of 4 known taxa of genus <i>Cestrum</i> , 100.00% Orthodox(p/?)"

803	<b>Well controlled by herbicides</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"What can I do to get rid of it? 1. Pull out small plants (all year round): leave to mulch. 2. Cut trunk and paint stump (all year round): cut trunk near to the ground, and swab freshly cut stump with a product containing 100g picloram+300g triclopyr/L (100ml/L); or triclopyr 600g/L (100ml/L). 3. Overall spray (spring-summer): triclopyr 600g/L (30ml/10L)."

804	<b>Tolerates, or benefits from, mutilation, cultivation, or fire</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	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.	"Large shrubs 3-4 m tall, sprawling, clambering, and suckering"
	Weedbusters. (2020). Orange cestrum - <i>Cestrum aurantiacum</i> . <a href="https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/">https://www.weedbusters.org.nz/weed-information/weed-list/orange-cestrum/</a> . [Accessed 18 Mar 2020]	"Replant bared sites to minimise regrowth. "
	Harrison, M. 2009. Flowering Shrubs and Small Trees for the South. Pineapple Press Inc, Sarasota, FL	"This woody shrub gets killed to the ground in winter in northern Florida, but recovers in the Spring."

805	<b>Effective natural enemies present locally (e.g. introduced biocontrol agents)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	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.	[Unknown] "Native to Central America; in Hawai'i cultivated prior to 1871 (Hillebrand, 1888) as an ornamental, persisting and perhaps naturalized at least on O'ahu, Maui, and Hawai'i."

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Naturalized on Oahu, Maui and Hawaii (Hawaiian Islands) and elsewhere worldwide
- An environmental weed in Africa and New Zealand
- Other *Cestrum* species are invasive
- Unpalatable
- Toxic to animals and people
- Shade tolerant
- Tolerates many soil types
- Forms dense thickets
- Reproduces by seeds and vegetatively by suckers
- Autogamous
- Dispersed by birds, water, dumped garden waste and intentionally cultivated
- Resprouts after cutting or top damage

Low Risk Traits

- Although naturalized, negative impacts have not been reported in the Hawaiian Islands
- Unarmed (no spines, thorns or burrs)
- Seed set in the Hawaiian Islands may be limited or absent
- Herbicides may provide effective control