

Taxon: *Cestrum elegans* (Brongn. ex Neumann) Schltldl.

Family: Solanaceae

Common Name(s): bastard jasmine
crimson cestrum
purple cestrum

Synonym(s): *Cestrum purpureum* (Lindl.) Standl.
Habrothamnus elegans Brongn. ex
Habrothamnus purpureus Lindl.

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 27 May 2019

WRA Score: 19.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Tropical Shrub/Climber, Environmental Weed, Toxic, Dense Thickets, 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	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	y
302	Garden/amenity/disturbance weed		
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	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		
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	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	y
411	Climbing or smothering growth habit	y=1, n=0	y
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		
605	Requires specialist pollinators		
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
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/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
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
	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	"Cestrum elegans (Neumann) Schlechtendal is sparingly cultivated in Hawaii. It can be distinguished by its pubescent leaves and stems, dark red or purple corollas with the tube inflated below the lobes, reddish berries, and somewhat climbing habit. it is native to Mexico." [No evidence of domestication]

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2019). 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, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 May 2019]	"Native Northern America SOUTHERN MEXICO: Mexico [Oaxaca, Puebla, Veracruz de Ignacio de la Llave]"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 May 2019]	

Qsn #	Question	Answer
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 26 May 2019]	"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. 2019. Missouri Botanical Garden. http://www.tropicos.org/ . [Accessed 26 May 2019]	Collected at higher elevations over a range of 1000 m: 1250 m - 2260 m

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 May 2019]	"Native Northern America SOUTHERN MEXICO: Mexico [Oaxaca, Puebla, Veracruz de Ignacio de la Llave]"

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	" <i>Cestrum elegans</i> (Neumann) Schlechtendal is sparingly cultivated in Hawaii. It can be distinguished by its pubescent leaves and stems, dark red or purple corollas with the tube inflated below the lobes, reddish berries, and somewhat climbing habit. It is native to Mexico."
	Webb, C. J., Sykes, W. R., & Garnock-Jones, P. J. 1988. Flora of New Zealand Volume IV. Botany Division, DSIR, Christchurch, New Zealand	"N.: Clevedon (S. Auckland), Hunua Range (Franklin County), Stratford area (Taranaki); S.: Pelorus Sound (Marlborough), and around Karamea (Buller County). Forest margins, modified scrub."
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 26 May 2019]	"This plant has been said to grow in the following regions: Granada Hills, California Martinez, California Redondo Beach, California San Francisco, California (2 reports) Santa Barbara, California Stockton, California Vista, California Jacksonville, Florida Keystone Heights, Florida Navarre, Florida Port Saint Lucie, Florida Sarasota, Florida Wilkes Barre, Pennsylvania"
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Yunnan [native to Mexico]. Cultivated for ornament."

301	Naturalized beyond native range	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."
	Williams, P.A. & Hayes, L.M. 2007. Emerging weed issues for the West Coast Regional Council and their prospects for biocontrol. Landcare Research Contract Report: LC0607/109. Landcare Research, Lincoln, NZ	"Localised infestations from Karamea to Hokitika"
	Webb, C. J., Sykes, W. R., & Garnock-Jones, P. J. 1988. Flora of New Zealand Volume IV. Botany Division, DSIR, Christchurch, New Zealand	"N.: Clevedon (S. Auckland), Hunua Range (Franklin County), Stratford area (Taranaki); S.: Pelorus Sound (Marlborough), and around Karamea (Buller County). Forest margins, modified scrub."
	Queensland Government. (2019). Weeds of Australia. <i>Cestrum elegans</i> . http://keyserver.lucidcentral.org . [Accessed 26 May 2019]	"Naturalised mainly in Victoria, but also occasionally found in the coastal and sub-coastal districts of central and northern New South Wales and in south-eastern Queensland."
	Moktan, S., & Das, A. P. (2013). Diversity and distribution of invasive alien plants along the altitudinal gradient in Darjiling Himalaya, India. <i>Pleione</i> 7(2): 305-313	"Table 1: Summary of the Invasive alien plants in Darjiling Himalaya" [Cestrum elegans (Neumann) Schlechtendal included in list]

Qsn #	Question	Answer
	Howell, C. J., & Sawyer, J. W. (2006). New Zealand naturalised vascular plant checklist. New Zealand Plant Conservation Network, Wellington, NZ	<i>Cestrum elegans</i> - Fully naturalised

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 26 May 2019]	"Disturbed and open forest and margins, streamsides, shrublands, and dry gullies." [Invades disturbed habitats with negative environmental impacts]
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 26 May 2019]	[Reported to be a landscaping weed] "On Jan 30, 2014, flyingfishie wrote: I live in South Africa, in the KwaZulu Midlands. This plant has invaded my property and taken over at least 4000m2 of the 9000m2. I would suggest container planting only especially in areas that they flourish. It takes continued maintenance to pull out and cut down and they keep coming up every where - plant with discretion. Beautiful evergreen and stunning show when flowering but invasive in ideal environment and left unchecked."

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	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."
	Queensland Government. (2019). Weeds of Australia. <i>Cestrum elegans</i> . http://keyserver.lucidcentral.org . [Accessed 26 May 2019]	"This shrub is a significant environmental weed in Victoria, where it is actively managed by community groups. It was also recently listed as a priority environmental weed in two Natural Resource Management regions. Red cestrum (<i>Cestrum elegans</i>) invades disturbed rainforest margins, moist and wet sclerophyll forests, urban bushland and creek banks. In these situations it takes over and displaces indigenous shrubs and small trees and restricts the habitat of native wildlife. In New South Wales it has also escaped from gardens in the Wollongong district, in the Southern Highlands, and at Deervale on the north coast."

Qsn #	Question	Answer
	<p>Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i>. https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/. [Accessed 26 May 2019]</p>	<p>"Why is it weedy? Produces many long-lived and widely dispersed seeds and forms dense, shady masses. Moderate to highly shade tolerant, and grows in most soil types, damp or dry conditions, and hot or cold temperatures. Poisonous, not grazed. How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds. What damage does it do? Forms dense (occasionally pure) stands in forest understorey and shrubland. Prevents the establishment of native plant seedlings. Poisonous berries and rotting vegetation may affect native fauna. Which habitats is it likely to invade? Disturbed and open forest and margins, streamsides, shrublands, and dry gullies."</p>

305	Congeneric weed	y
	Source(s)	Notes
	<p>Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CAB International, Wallingford, UK</p>	<p>"<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)."</p>
	<p>Global Invasive Species Database. (2019). Species profile: <i>Elettaria Cestrum nocturnum</i>. http://www.iucngisd.org/gisd/. [Accessed 26 May 2019]</p>	<p>"<i>Cestrum nocturnum</i> commonly known as queen of the night, is a popular ornamental species widely distributed for its strongly fragrant flowers that bloom at night. Having bird-dispersed seeds and the ability to reproduce vegetatively has resulted in escapes from cultivation, where in some areas it aggressively colonises disturbed sites such as road edges and forest gaps forming dense impenetrable thickets and resulting in competition with and displacement of native plant species. <i>C. nocturnum</i> is also known to be poisonous if ingested, forming a risk to grazing livestock and has been known to produce hay-fever like symptoms in some people"</p>

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	<p>Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.</p>	<p>[No evidence] "Shrubs. Stem copiously pubescent. Petiole 6–12 mm; leaf blade ovate or elliptic, ca. 8 × 3 cm. Inflorescences erect, terminal or axillary, congested racemose panicles; bracts ovate, minutely tomentose, 4–5 mm."</p>

Qsn #	Question	Answer
402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Shrubs. Stem copiously pubescent." [Solanaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Stewart-Howie, M. (2003). Environmental weed treatment in Melbourne's water catchment. Plant Protection Quarterly 18(2): 70-71	"Cestrum elegans is toxic to animals. When ingested by stock they die within an hour from internal haemorrhaging." [May be unpalatable, but accidentally ingested by animals]
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 26 May 2019]	"Poisonous, not grazed."

405	Toxic to animals	y
	Source(s)	Notes
	Stewart-Howie, M. (2003). Environmental weed treatment in Melbourne's water catchment. Plant Protection Quarterly 18(2): 70-71	"Cestrum elegans is toxic to animals. When ingested by stock they die within an hour from internal haemorrhaging. "
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 26 May 2019]	"Poisonous, not grazed."

Qsn #	Question	Answer
406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 27 May 2019]	"On Oct 21, 2002, jkom51 from Oakland, CA (Zone 9b) wrote:" ... "Very self-cleaning, no pest problems so far, a very good perennial that deserves more notice."
	Grow Plants. (2019). <i>Cestrum elegans</i> . https://www.growplants.org/growing/cestrum-elegans . [Accessed 27 May 2019]	"Pests and diseases: Aphids"
	Shoot Gardening. (2019). <i>Cestrum elegans</i> (Red <i>cestrum</i>). https://www.shootgardening.co.uk/plant/cestrum-elegans . [Accessed 27 May 2019]	"Pests: Generally pest free. Diseases: Generally disease free."

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	T.E.R.R.A.I.N. (2019). <i>Cestrum elegans</i> (Red <i>Cestrum</i>). http://www.terrain.net.nz/ . [Accessed 27 May 2019]	"All parts of the plant are poisonous if ingested and are extremely toxic to farm animals if grazing."
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 27 May 2019]	"Danger: All parts of plant are poisonous if ingested"

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Weedbusters. (2019). Red <i>cestrum</i> - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"What damage does it do? Forms dense (occasionally pure) stands in forest understorey and shrubland. Prevents the establishment of native plant seedlings. Poisonous berries and rotting vegetation may affect native fauna. Which habitats is it likely to invade? Disturbed and open forest and margins, streamsides, shrublands, and dry gullies."
	WRA Specialist. (2019). Personal Communication	Increased fire risk generally not identified as an impact of this species, but its ability to form dense stands and climb into other vegetation could increase risk of fire during droughts, or in fire-prone habitats

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Weedbusters. (2019). Red <i>cestrum</i> - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"Moderate to highly shade tolerant, and grows in most soil types, damp or dry conditions, and hot or cold temperatures."

Qsn #	Question	Answer
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 27 May 2019]	"Sun Exposure: Sun to Partial Shade"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Weedbusters. (2019). Red <i>cestrum</i> - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"Moderate to highly shade tolerant, and grows in most soil types, damp or dry conditions, and hot or cold temperatures."
	Shoot Gardening. (2019). <i>Cestrum elegans</i> (Red <i>cestrum</i>). https://www.shootgardening.co.uk/plant/cestrum-elegans . [Accessed 27 May 2019]	"Soil type - Loamy, Sandy Soil drainage - Well-drained Soil pH - Acid, Alkaline, Neutral"

411	Climbing or smothering growth habit	y
	Source(s)	Notes
	Missouri Botanical Garden. (2019). <i>Cestrum elegans</i> . http://www.missouribotanicalgarden.org . [Accessed 27 May 2019]	" <i>Cestrum elegans</i> , commonly called purple <i>cestrum</i> , is a climbing shrub-like perennial native to southern Mexico. Its arching stems are covered in fine, dense hairs, and can reach 6-10' in height with an equal spread."
	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	"somewhat climbing habit."

412	Forms dense thickets	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>Cestrum elegans</i> is a shrub that reaches over 2 meters high and suckers well to form dense thickets."
	Weedbusters. (2019). Red <i>cestrum</i> - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"Produces many long-lived and widely dispersed seeds and forms dense, shady masses."

501	Aquatic	n
	Source(s)	Notes
	Webb, C. J., Sykes, W. R., & Garnock-Jones, P. J. 1988. <i>Flora of New Zealand</i> Volume IV. Botany Division, DSIR, Christchurch, New Zealand	[Terrestrial] "Forest margins, modified scrub."

502	Grass	n
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Qsn #	Question	Answer
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 May 2019]	Family: Solanaceae Subfamily: Browallioideae Tribe: Cestreae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2019. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 26 May 2019]	Family: Solanaceae Subfamily: Browallioideae Tribe: Cestreae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Shrubs. Stem copiously pubescent. Petiole 6–12 mm; leaf blade ovate or elliptic, ca. 8 × 3 cm."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	No evidence

602	Produces viable seed	y
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8."
	Csurhes, S. & Edwards, R. 1998. Potential environmental weeds in Australia: Candidate species for preventative control. Biodiversity Group, Environment Australia, Canberra, Australia	" <i>Cestrum elegans</i> , a shrub native to South America, grows to a height of 2m and produces purplish-red, tubular flowers arranged in loose, terminal clusters (Bodkin 1986). It is invasive in moist and wet sclerophyll forests in Victoria (Carr 1992, Swarbrick and Skarratt 1994). The plant reproduces from seeds and cuttings (Bodkin 1986)."
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 26 May 2019]	"Produces many long-lived and widely dispersed seeds and forms dense, shady masses. "

603	Hybridizes naturally	
	Source(s)	Notes

Qsn #	Question	Answer
	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	
	Source(s)	Notes
	Reyes-Zepeda, F., González-Astorga, J., & Montaña, C. (2013). Heterozygote excess through life history stages in <i>Cestrum miradorensis</i> Francey (Solanaceae), an endemic shrub in a fragmented cloud forest habitat. <i>Plant Biology</i> , 15(1), 176-185	[Unknown for <i>C. elegans</i>] "Montero-Castro (2006) mention that <i>Cestrum</i> species are pollinated by nocturnal moths and that they have out-crossed mating and self-incompatible reproductive systems, based on the fact that several phylogenetically related species to <i>Cestrum</i> share these traits (Haber & Frankie 1989; Castro-Laporte & Ruiz-Zapata 2000; Aguilar & Galetto 2004)."

605	Requires specialist pollinators	
	Source(s)	Notes
	Albuquerque, L. B., Velázquez, A., & Mayorga-Saucedo, R. (2006). Solanaceae composition, pollination and seed dispersal syndromes in Mexican Mountain Cloud Forest. <i>Acta Botanica Brasilica</i> , 20(3), 599-613	Unknown. Pollinated by birds

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	T.E.R:R.A.I.N. (2019). <i>Cestrum elegans</i> (Red <i>Cestrum</i>). http://www.terrain.net.nz/ . [Accessed 27 May 2019]	" <i>Cestrum elegans</i> is spread by seeds or root suckers getting into waterways, by birds depositing seeds in their droppings, soil movement on machinery and by the dumping of garden waste. Plants can also sucker from branches to form dense thickets."
	Yarra Ranges Council. (2014). Red <i>Cestrum</i> <i>Cestrum elegans</i> . Environmental Weed Factsheet. https://www.yarraranges.vic.gov.au . [Accessed 27 May 2019]	"Plants sucker to form dense thickets." ... "How it spreads...by leaving cut branches laying on the ground, segments can take root and grow into a new plant."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Shoot Gardening. (2019). <i>Cestrum elegans</i> (Red <i>cestrum</i>). https://www.shootgardening.co.uk/plant/cestrum-elegans . [Accessed 27 May 2019]	"5-10 years To maturity"

Qsn #	Question	Answer
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 27 May 2019]	"On Oct 21, 2002, jkom51 from Oakland, CA (Zone 9b) wrote:" ... "Tough and vigorous (mine flowered within 6 wks of being planted from a 1 gallon can), hardly noticed being transplanted after doubling in size, unlike many plants I could name!" [Age of potted plant unspecified]
	Incoll, B., Maisey, A., & Adam, J. (2018). Ten years of forest restoration in the Upwey Corridor, Dandenong Ranges, Victoria. <i>Ecological Management & Restoration</i> , 19(3), 189-197	[<5 years] "The seeds of <i>Cestrum</i> and Tree Tobacco are also produced at an early age (less than five years) and are attractive to birds, ensuring their wide spread. The viability of soil-stored seed for these species ensures that several years of follow-up treatment are essential for effective control. They also re-shoot from cut stumps, accentuating the need for effective re-treatment."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds."
	Yarra Ranges Council. (2014). Red <i>Cestrum</i> <i>Cestrum elegans</i> . Environmental Weed Factsheet. https://www.yarraranges.vic.gov.au . [Accessed 27 May 2019]	"How it spreads... <ul style="list-style-type: none"> • by birds which eat the red berries. Birds can then travel over vast areas depositing seeds in droppings allowing the plant to generate in new areas. • by seeds or root suckers getting into waterways, with soil movement or on machinery. • by dumping of garden waste in bushland, on roadsides and in waterways. • by leaving cut branches laying on the ground, segments can take root and grow into a new plant."
	Brisbane City Council. (2019). Weed Identification Tool. red cestrum. <i>Cestrum elegans</i> . https://weeds.brisbane.qld.gov.au/weeds/red-cestrum . [Accessed 27 May 2019]	"This species reproduces mainly by seed, which are usually spread by birds and other animals that eat the fleshy fruit. However, seeds may also be spread by water and in dumped garden waste."

702	Propagules dispersed intentionally by people	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	" <i>Cestrum elegans</i> (Neumann) Schlechtendal is sparingly cultivated in Hawaii. It can be distinguished by its pubescent leaves and stems, dark red or purple corollas with the tube inflated below the lobes, reddish berries, and somewhat climbing habit. it is native to Mexico."

Qsn #	Question	Answer
	Dave's Garden. (2019). <i>Cestrum</i> Species, Bastard Jasmine, Elegant <i>Cestrum</i> , Pink <i>Cestrum</i> , Purple <i>Cestrum</i> , Red <i>Cestrum</i> - <i>Cestrum elegans</i> . https://davesgarden.com/guides/pf/go/2741/ . [Accessed 26 May 2019]	"This plant has been said to grow in the following regions: Granada Hills, California Martinez, California Redondo Beach, California San Francisco, California (2 reports) Santa Barbara, California Stockton, California Vista, California Jacksonville, Florida Keystone Heights, Florida Navarre, Florida Port Saint Lucie, Florida Sarasota, Florida Wilkes Barre, Pennsylvania"
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Yunnan [native to Mexico]. Cultivated for ornament."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	"Dispersed by: Humans, Animals, Water, Escapee"

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8."
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds."

705	Propagules water dispersed	y
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds." ... "Which habitats is it likely to invade? Disturbed and open forest and margins, streamsides, shrublands, and dry gullies."

Qsn #	Question	Answer
	Yarra Ranges Council. (2014). Red Cestrum <i>Cestrum elegans</i> . Environmental Weed Factsheet. https://www.yarraranges.vic.gov.au . [Accessed 27 May 2019]	"How it spreads... <ul style="list-style-type: none"> • by birds which eat the red berries. Birds can then travel over vast areas depositing seeds in droppings allowing the plant to generate in new areas. • by seeds or root suckers getting into waterways, with soil movement or on machinery. • by dumping of garden waste in bushland, on roadsides and in waterways. • by leaving cut branches laying on the ground, segments can take root and grow into a new plant."

706	Propagules bird dispersed	y
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds."
	Yarra Ranges Council. (2014). Red Cestrum <i>Cestrum elegans</i> . Environmental Weed Factsheet. https://www.yarraranges.vic.gov.au . [Accessed 27 May 2019]	"How it spreads... • by birds which eat the red berries. Birds can then travel over vast areas depositing seeds in droppings allowing the plant to generate in new areas."
	Albuquerque, L. B., Velázquez, A., & Mayorga-Saucedo, R. (2006). Solanaceae composition, pollination and seed dispersal syndromes in Mexican Mountain Cloud Forest. <i>Acta Botanica Brasilica</i> , 20(3), 599-613	"Table 4. Morphological features of the Solanaceae species recorded in the Mexican mountain cloud forests of Hidalgo, Mexico." [<i>Cestrum elegans</i> - Disp = Ornit. = Ornithochory]
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Fleshy fruited] "Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8." [Adapted for consumption and internal dispersal by birds]
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). 1994. <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Berry dark pink, globose, 0.8–1.3 cm. Seeds ca. 8."

Qsn #	Question	Answer
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"How does it spread? Birds, flooding, soil movement and vegetation dumping all spread seeds."
	Albuquerque, L. B., Velázquez, A., & Mayorga-Saucedo, R. (2006). Solanaceae composition, pollination and seed dispersal syndromes in Mexican Mountain Cloud Forest. <i>Acta Botanica Brasilica</i> , 20(3), 599-613	"Table 4. Morphological features of the Solanaceae species recorded in the Mexican mountain cloud forests of Hidalgo, Mexico." [<i>Cestrum elegans</i> - Disp = Ornit. = Ornithochory]
	Brisbane City Council. (2019). Weed Identification Tool. red cestrum. <i>Cestrum elegans</i> . https://weeds.brisbane.qld.gov.au/weeds/red-cestrum . [Accessed 27 May 2019]	"This species reproduces mainly by seed, which are usually spread by birds and other animals that eat the fleshy fruit. However, seeds may also be spread by water and in dumped garden waste."

801	Prolific seed production (>1000/m ²)	
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"Why is it weedy? Produces many long-lived and widely dispersed seeds and forms dense, shady masses." [Densities unspecified]

802	Evidence that a persistent propagule bank is formed (>1 yr)	y
	Source(s)	Notes
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"Why is it weedy? Produces many long-lived and widely dispersed seeds and forms dense, shady masses."
	Stewart-Howie, M. (2003). Environmental weed treatment in Melbourne's water catchment. <i>Plant Protection Quarterly</i> 18(2): 70-71	Several years to 8 year seedbank.

803	Well controlled by herbicides	y
	Source(s)	Notes
	Gillespie, P. (1991). Woody weed control in the Dandenong Ranges National Park. <i>Plant Protection Quarterly</i> , 6(3), 130-131	"Abstract : Environmental weeds which have invaded the Dandenong Ranges National Park, Victoria are described. Results are outlined of a 2-year programme of control of woody weeds such as <i>Acer pseudoplatanus</i> , <i>Pittosporum undulatum</i> , <i>Ilex aquifolium</i> , <i>Cestrum elegans</i> and <i>Genista monspessulana</i> . A table of successful control techniques for specific weeds is given. Two techniques were mainly used: herbicide injection (drilling + filling and frilling) and handweeding. Garlon 600 [triclopyr] was also used in high volume spraying."

Qsn #	Question	Answer
	Stewart-Howie, M. (2003). Environmental weed treatment in Melbourne's water catchment. Plant Protection Quarterly 18(2): 70-71	"The cut and paint method was used with neat glyphosate in an experiment at the Yarra Ranges National Park, Australia. The glyphosate was completely effective at killing even the most mature plants. The sudden exposure of the bare soil to light and the soil disturbance caused a mass germination of <i>Cestrum</i> seedlings."
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"What can I do to get rid of it? Hard to distinguish from many native species (apart from foul smell), best controlled when in flower. Wear gloves when handling. 1. Pull out small plants (all year round), leave on site to rot down. 2. Stump swab (all year round): a product containing 100g picloram +300g triclopyr/L (100ml/L) or triclopyr 600 EC (100ml/L). 3. Spray (spring-summer): triclopyr 600 EC (30ml/10L)."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Incoll, B., Maisey, A., & Adam, J. (2018). Ten years of forest restoration in the Upwey Corridor, Dandenong Ranges, Victoria. <i>Ecological Management & Restoration</i> , 19(3), 189-197	"The seeds of <i>Cestrum</i> and Tree Tobacco are also produced at an early age (less than five years) and are attractive to birds, ensuring their wide spread. The viability of soil-stored seed for these species ensures that several years of follow-up treatment are essential for effective control. They also re-shoot from cut stumps, accentuating the need for effective re-treatment."
	Weedbusters. (2019). Red cestrum - <i>Cestrum elegans</i> and <i>Cestrum fasciculatum</i> . https://www.weedbusters.org.nz/weed-information/weed-list/red-cestrum/ . [Accessed 27 May 2019]	"What can I do to stop it coming back? Stems resprout. Reseeds into bared areas. Exclude stock at all times. Replant bared sites to minimise regrowth. Check for seedlings 6 monthly."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Froude, V. (2002). Biological control options for invasive weeds of New Zealand protected areas. <i>Science for Conservation</i> 199. Department of Conservation, Wellington, New Zealand	"Appendix 2 ... <i>Cestrum elegans</i> - INTERNATIONAL AND NEW ZEALAND BIOCONTROL PROJECTS (NUMBER, LOCATION AND STAGE) = None known"
	WRA Specialist. (2019). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in high elevation tropical climates
- Naturalized in Australia, New Zealand, South Africa, and elsewhere (but no evidence in Hawaiian Islands to date)
- An environmental weed in Australia, New Zealand and South Africa
- Other *Cestrum* species are invasive
- Toxic to animals and people
- Shade tolerant
- Tolerates many soil types
- Climbing habit
- Forms dense thickets that prevent regeneration of native species
- Reproduces by seeds and vegetatively by suckers and stem fragments
- Able to reach maturity in <5 years
- Seeds dispersed by birds, other frugivorous animals, water and intentionally planted by people
- Dispersed by stem fragments in garden waste and by water
- Forms a persistent seed bank (up to 8 years)
- Resprouts after cutting (without herbicide treatment)

Low Risk Traits

- Unarmed (no spines, thorns, or burrs)
- Valued as an ornamental
- Bird-pollinated; could limit seed production in areas lacking effective bird pollinators
- Herbicides may provide effective control