

Taxon: Ceratopetalum gummiferum Sm.

Family: Cunoniaceae

Common Name(s): Christmasbush

Synonym(s):

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 23 Jun 2020

WRA Score: -2.0

Designation: L

Rating: Low Risk

Keywords: Ornamental Tree, Unarmed, Cut Flower, Wind-Dispersed, Resprouter

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	?
301	Naturalized beyond native range		
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
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	y
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	[No evidence of domestication] "The species is widespread in eastern New South Wales (fig. 1B). The species, unlike all other <i>Ceratopetalum</i> species, does not extend into rain forest communities and occurs commonly in sclerophyll woodland and open forest habitats."

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. https://npgsweb.ars-grin.gov/ . [Accessed 22 Jun 2020]	"Native Australasia AUSTRALIA: Australia [New South Wales (e.)]"
	iplantz. (2020). <i>Ceratopetalum gummiferum</i> . https://www.iplantz.com/plant/378/ceratopetalum-gummiferum/ . [Accessed 22 Jun 2020]	"This flowering tree is native to subtropical and warm temperate areas of eastern Australia." ... "Climate: Grows and flowers reliably in moderately humid subtropical and mid- to high elevation tropical climates, generally in areas with average annual low temperature of 12 to 16 °C, average annual high temperatures of 22 to 27 °C and annual rainfall of 900 to 1600 mm."

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. https://npgsweb.ars-grin.gov/ . [Accessed 23 Jun 2020]	

203	Broad climate suitability (environmental versatility)	n
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Qsn #	Question	Answer
	Source(s)	Notes
	iplantz. (2020). <i>Ceratopetalum gummiferum</i> . https://www.iplantz.com/plant/378/ceratopetalum-gummiferum/ . [Accessed 23 Jun 2020]	"Climate: Grows and flowers reliably in moderately humid subtropical and mid- to high elevation tropical climates, generally in areas with average annual low temperature of 12 to 16 °C, average annual high temperatures of 22 to 27 °C and annual rainfall of 900 to 1600 mm."
	Dave's Garden. (2020). <i>Ceratopetalum</i> Species, Christmas Bush, New South Wales Christmas Tree - <i>Ceratopetalum gummiferum</i> . https://davesgarden.com/guides/pf/go/59695/ . [Accessed 23 Jun 2020]	"Hardiness: USDA Zone 9b: to -3.8 °C (25 °F) USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)"

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	iplantz. (2020). <i>Ceratopetalum gummiferum</i> . https://www.iplantz.com/plant/378/ceratopetalum-gummiferum/ . [Accessed 22 Jun 2020]	"This flowering tree is native to subtropical and warm temperate areas of eastern Australia." ... "Climate: Grows and flowers reliably in moderately humid subtropical and mid- to high elevation tropical climates, generally in areas with average annual low temperature of 12 to 16 °C, average annual high temperatures of 22 to 27 °C and annual rainfall of 900 to 1600 mm."

205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	PlantNET. (2020). New South Wales Flora Online - <i>Ceratopetalum gummiferum</i> Sm. National Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 23 Jun 2020]	[Cultivated within Australia] "Distribution and occurrence: Usually grows in heath or in moist gullies, from Ulladulla to Evans Head; with patchy distribution in NC, mostly on sandstone or old sand dunes. Frequently cultivated. NSW subdivisions: NC, CC, SC, CT"
	Howell, C. J., & Sawyer, J. W. (2006). New Zealand naturalised vascular plant checklist. New Zealand Plant Conservation Network, Wellington, NZ	<i>Ceratopetalum gummiferum</i> - Casual [Casual is the name given to taxa that are: passively regenerating only in the immediate vicinity of the cultivated parent plant, or more widespread but only known as isolated or few individuals]

301	Naturalized beyond native range	
	Source(s)	Notes
	Heenan, P. B., de Lange, P. J., Cameron, E. K., Ogle, C. C., & Champion, P. D. 2004. Checklist of dicotyledons, gymnosperms, and pteridophytes naturalised or casual in New Zealand: additional records 2001–2003. <i>New Zealand Journal of Botany</i> , 42(5): 797-814	" <i>Ceratopetalum gummiferum</i> Sm. NEW RECORD: AK282164, P.J. de Lange 5574, 13 Jan 2003, South Auckland, Tauranga, Mt Maunganui. NOTES: Scattered shrubs and small trees in scrub. The site where this species was gathered was subsequently destroyed by a fire in late January 2003. No further plants were seen in the area in December 2003."
	Howell, C. J., & Sawyer, J. W. (2006). New Zealand naturalised vascular plant checklist. New Zealand Plant Conservation Network, Wellington, NZ	<i>Ceratopetalum gummiferum</i> - Casual [Casual is the name given to taxa that are: passively regenerating only in the immediate vicinity of the cultivated parent plant, or more widespread but only known as isolated or few individuals]

Qsn #	Question	Answer
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence

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

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

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

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

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	[No evidence] "Small tree or shrub to 12m high, with rough bark. Branches angled when young, quadrangular, older branches terete. Leaves decussate, trifoliate. Petiole 1–24mm long. Leaflets sessile, elliptical to narrowly ovate, apex acute, base decurrent to cuneate, margins serrated, midrib flat or slightly raised on upper surface, central leaflet blade symmetrical, ca. 12–17 veins, (32–)37–90(–112) mm long, (0.5–)7–2(–28) mm wide, lateral leaflet blades slightly asymmetrical, base slightly oblique, ca. 13–17 veins (14–)18–60(–81) mm long, (4.5–)6.8–19(–23) mm wide."

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

403	Parasitic	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	"Small tree or shrub to 12 m high" [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown

405	Toxic to animals	n
	Source(s)	Notes
	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	No evidence
	Wagstaff, D.J. 2008. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Worrall, R. & Dalley, P. (2013). <i>Growing Christmas Bush for Cut Flowers. A guide for commercial growers</i> . Rural Industries Research and Development Corporation, Kingston ACT	"The main insect pests of Christmas bush are described below. Psyllids are small sap-sucking insects related to aphids. They are by far the most serious insect pests of Christmas bush and can be difficult to control." ... "Monolepta beetles have been found in northern NSW swarming in spring and early summer." ... "Macadamia twig girdler" ... "Leaf roller and webbing caterpillars infest growing tips, binding young leaves together." ... "Fruit tree borer (Oecophoridae, Lepidoptera) caterpillars produce webbing on the leaves and frass at the junctions of twigs or branches." ... "Longicorn beetle (Cerambycidae, Coleoptera) larvae may tunnel in trees weakened by regular and severe pruning." ... "Aphids and thrips can attack new shoots. Thrips (plague thrips: <i>Thrips imaginis</i>) suck the sap from the calyces, which turn brown and fall, preventing development of the red bracts." ... "Scales, including olive brown scale, white palm scale and black scale, are often found on young plants and inside the canopy of older trees that have not been well pruned." ... "Mealy bugs are also found in dense foliage on older trees." ... "Diseases <i>Phytophthora</i> root disease has been found in some plants."

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes

Qsn #	Question	Answer
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fire response: Resprouts from base, flowered within 1 year after high intensity fire (at Lane Cove River, Narrabeen Lake 1/94, P. Kubiak pers. comm.)." [Contribution to fuel load or fire risk probably not significant, but unspecified in this publication]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Exposure: Full sun–light shade. Sheltered sites."
	Australian Native Plant Society. (2020). <i>Ceratopetalum gummiferum</i> . http://anpsa.org.au/c-gumm.html . [Accessed 23 Jun 2020]	"In cultivation the plant must have a well drained but moist position in sun or semi shade."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Worrall, R. & Dalley, P. (2013). Growing Christmas Bush for Cut Flowers. A guide for commercial growers. Rural Industries Research and Development Corporation, Kingston ACT	"Soil type does not seem to be important in the growth of Christmas bush, provided the drainage is good and the pH is not too high."
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Substrate: Deep sandy soils, podsols, on sandstone and sand dunes, very low nutrients. Well-drained."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	"Small tree or shrub to 12 m high, with rough bark."

412	Forms dense thickets	n
	Source(s)	Notes

Qsn #	Question	Answer
	PlantNET. (2020). New South Wales Flora Online - <i>Ceratopetalum gummiferum</i> Sm. National Herbarium of NSW, Royal Botanic Garden, Sydney. http://plantnet.rbgsyd.nsw.gov.au . [Accessed 23 Jun 2020]	"Usually grows in heath or in moist gullies, from Ulladulla to Evans Head; with patchy distribution in NC, mostly on sandstone or old sand dunes." [No evidence]
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	[No evidence] "Distribution and ecology. The species is widespread in eastern New South Wales (fig. 1B). The species, unlike all other <i>Ceratopetalum</i> species, does not extend into rain forest communities and occurs commonly in sclerophyll woodland and open forest habitats."

501	Aquatic	n
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	[Terrestrial] "Distribution and ecology. The species is widespread in eastern New South Wales (fig. 1B). The species, unlike all other <i>Ceratopetalum</i> species, does not extend into rain forest communities and occurs commonly in sclerophyll woodland and open forest habitats."

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 22 Jun 2020]	Cunoniaceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed]	Cunoniaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	"Small tree or shrub to 12 m high, with rough bark."

601	Evidence of substantial reproductive failure in native habitat	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	"Distribution and ecology. The species is widespread in eastern New South Wales (fig. 1B). The species, unlike all other <i>Ceratopetalum</i> species, does not extend into rain forest communities and occurs commonly in sclerophyll woodland and open forest habitats."
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fruit/seed: One-seeded nut is surrounded by a persistent calyx, which turns red and enlarges during fruit formation, mature December-January. Germination 1–3 months, high percentage of seed viability (A. Bofeldt pers. comm.)." [No evidence]

602	Produces viable seed	y
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fruit/seed: One-seeded nut is surrounded by a persistent calyx, which turns red and enlarges during fruit formation, mature December-January. Germination 1–3 months, high percentage of seed viability (A. Bofeldt pers. comm.). Unlikely to be any soil-stored seedbank. Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)."

603	Hybridizes naturally	
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	Unknown. No evidence provided

604	Self-compatible or apomictic	
	Source(s)	Notes
	Rozefelds, A. C., & Barnes, R. W. (2002). The systematic and biogeographical relationships of <i>Ceratopetalum</i> (Cunoniaceae) in Australia and New Guinea. <i>International Journal of Plant Sciences</i> , 163(4), 651-673	"Flowers (4-)5(-6)-merous, pedicels 1.1–2.2 mm long. Sepals ovate, apex acute, 2.5–3.4 mm long, 1.4–1.9 mm wide, sparingly strigose abaxially, densely puberulous along margin, sparingly strigose adaxially. Petals furcate, three to five lobes, sometimes distally puberulous, 2.6–3.2 mm long. Stamen filaments 2.6–3.0 mm long, with scattered strigose hairs, anthers dithecal, 0.4–0.5 mm long, connective protrusion 0.2–0.3 mm long. Disk ca. 0.7 mm high, attaches to the wall of the ovary, with no puberulous zone between disk and ovary. Ovary 0.6–0.8 mm high, 0.7–0.8 mm wide, style branches ca. 1.5 mm long." [Unknown]

605	Requires specialist pollinators	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Flowers: White, November–December. Probably pollinated by short-tongued insects"

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Vegetative spread: No"

607	Minimum generative time (years)	
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Primary juvenile period:" [Unknown. No information listed]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)." [No evidence. No means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Australian Native Plant Society. (2020). <i>Ceratopetalum gummiferum</i> . http://anpsa.org.au/c-gumm.html . [Accessed 23 Jun 2020]	"The sepals and foliage are widely used for cut flowers and the plant is farmed commercially for that purpose."
	Dave's Garden. (2020). <i>Ceratopetalum</i> Species, Christmas Bush, New South Wales Christmas Tree - <i>Ceratopetalum gummiferum</i> . https://davesgarden.com/guides/pf/go/59695/ . [Accessed]	Cultivated as an ornamental and for the cut flower trade

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)." [No evidence]

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)."

705	Propagules water dispersed	
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Qsn #	Question	Answer
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	[Wind-dispersed seeds may possibly be moved by water when growing in riparian habitats] "Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)." ... "Habitat: Steep hillsides, gullies, riverbanks, rocky slopes."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)." [No means of external attachment]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Dispersal, establishment & growth: Diaspore: fruit; wind-dispersed. Seeds flutter down from tree, but only a few metres sideways (Buchanan 1989)."

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fruit/seed: One-seeded nut is surrounded by a persistent calyx, which turns red and enlarges during fruit formation, mature December-January." [No evidence. Unlikely. One-seeded fruit]

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fruit/seed: One-seeded nut is surrounded by a persistent calyx, which turns red and enlarges during fruit formation, mature December-January. Germination 1–3 months, high percentage of seed viability (A. Bofeldt pers. comm.). Unlikely to be any soil-stored seedbank."

803	Well controlled by herbicides	

Qsn #	Question	Answer
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Benson, D. and McDougall, L. (1995). Ecology of Sydney plant species Part 3: Dicotyledon families Cabombaceae to Eupomatiaceae. <i>Cunninghamia</i> 4(2): 217-431	"Fire response: Resprouts from base, flowered within 1 year after high intensity fire (at Lane Cove River, Narrabeen Lake 1/94, P. Kubiak pers. comm.)."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Able to grow, and potentially spread, in regions with subtropical climates
- Casual, and potentially naturalized, in New Zealand
- Tolerates many soil types
- Reproduces by seeds
- Seeds dispersed by wind, and intentionally by people
- Resprouts after fire, and possibly cutting

Low Risk Traits

- No reports of invasiveness or negative impacts outside native range
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Not reported to spread vegetatively
- Seeds unlikely to be dispersed long distances