

Taxon: <i>Dendrobium mirbelianum</i> Gaudich.	Family: Orchidaceae
Common Name(s): dark-stemmed antler orchid mangrove orchid	Synonym(s): <i>Callista mirbelliana</i> (Gaudich.) Kuntze <i>Dendrobium aruanum</i> Kraenzl. <i>Dendrobium buluense</i> Schltr. <i>Dendrobium giulianettii</i> F.M.Bailey <i>Dendrobium polycarpum</i> Rchb.f. <i>Dendrobium rosenbergii</i> Teijsm. & <i>Dendrobium wilkianum</i> Rupp <i>Durabaculum mirbelianum</i>

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 4 Oct 2018
WRA Score: 4.0	Designation: L	Rating: Low Risk

Keywords: Epiphytic Herb, Naturalized, Hybridizes, Self-Compatible, Wind-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	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		
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		

Qsn #	Question	Answer Option	Answer
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	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
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	y=1, n=-1	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation		
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		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)	y=1, n=-1	y
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
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
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	[Not domesticated] " <i>D. mirbelianum</i> is a widespread and variable orchid particularly in flower size." ... "This species is frequently seen in cultivation, often mislabelled as <i>D. schulleri</i> . Both names appear frequently in Sander's List of Orchid Hybrids and I suspect that many of the so-called <i>D. schulleri</i> hybrids are rather hybrids involving <i>D. mirbelianum</i> ."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2018. 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
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"DISTRIBUTION. Moluccas, New Guinea, the Bismarck Archipelago, NE Australia: Queensland, and the Solomon Islands; epiphytic in forest and coastal swamps; ± sea level."

202	Quality of climate match data	High
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium mirbelianum</i> . DEWHA, Canberra. http://www.environment.gov.au . [Accessed]	" <i>Dendrobium mirbelianum</i> is locally common within its restricted range (Jones, 2006). It grows mainly on trees in mangroves and coastal swamps in humid locations (Dockrill, 1992; Jones, 2006) and has also been recorded growing on rocks. <i>Dendrobium mirbelianum</i> grows at altitudes of 2–150 m above sea level (Jones, 2006)."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"epiphytic in forest and coastal swamps; ± sea level." [Occurs at low elevations within native range]

Qsn #	Question	Answer
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27-54	"it appears established as naturalized, occurring in scattered localities along the Schofield-Waikāne trail. Sterile individuals closely resembling the vouchered material were also noted in Kahana Valley by the collectors, as low as about 300 m." ... "Naturalized in area, 13 May 2009, K. Kawelo s.n. (BiSH# 736798); Waikāne trail, near summit ridge, growing near trail about 0.15 mi from Pu'uka'aumakua. 1800 ft." [Collected from 300 - 550 m]

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27-54	"Although this species had not been collected from cultivation, it is most likely an escape from a garden or nursery. it appears established as naturalized, occurring in scattered localities along the Schofield-Waikāne trail. Sterile individuals closely resembling the vouchered material were also noted in Kahana Valley by the collectors, as low as about 300 m." ... "Material examined. O'AHU: Schofield-Waikāne trail, 2000 ft. epiphyte. Naturalized in area, 13 May 2009, K. Kawelo s.n. (BiSH# 736798); Waikāne trail, near summit ridge, growing near trail about 0.15 mi from Pu'uka'aumakua. 1800 ft. Native 'ōhi'a forest, epiphytic on <i>Metrosideros polymorpha</i> . Plant was sterile but was grown till flowering at a residence in Kahalu'u, 31 Dec 2010, J. Rohrer US Army 202."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"DISTRIBUTION. Moluccas, New Guinea, the Bismarck Archipelago, NE Australia: Queensland, and the Solomon Islands; epiphytic in forest and coastal swamps; ± sea level."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27-54	"Although this species had not been collected from cultivation, it is most likely an escape from a garden or nursery."
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	"Major Pathway/s: Ornamental; Dispersed by: Humans"
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"This species is frequently seen in cultivation, often mislabelled as <i>D. schulleri</i> . Both names appear frequently in Sander's List of Orchid Hybrids and I suspect that many of the so-called <i>D. schulleri</i> hybrids are rather hybrids involving <i>D. mirbelianum</i> ."

301	Naturalized beyond native range	y
	Source(s)	Notes

Qsn #	Question	Answer
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27–54	"Although this species had not been collected from cultivation, it is most likely an escape from a garden or nursery. it appears established as naturalized, occurring in scattered localities along the Schofield-Waikāne trail. Sterile individuals closely resembling the vouchered material were also noted in Kahana Valley by the collectors, as low as about 300 m." ... "Material examined. O'AHU: Schofield-Waikāne trail, 2000 ft. epiphyte. Naturalized in area, 13 May 2009, K. Kawelo s.n. (BiSH# 736798); Waikāne trail, near summit ridge, growing near trail about 0.15 mi from Pu'uka'umakua. 1800 ft. Native 'ōhi'a forest, epiphytic on <i>Metrosideros polymorpha</i> . Plant was sterile but was grown till flowering at a residence in Kahalu'u, 31 Dec 2010, J. Rohrer US Army 202."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental weed	
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27–54	"it appears established as naturalized, occurring in scattered localities along the Schofield-Waikāne trail. Sterile individuals closely resembling the vouchered material were also noted in Kahana Valley by the collectors, as low as about 300 m." ... "Native 'ōhi'a forest, epiphytic on <i>Metrosideros polymorpha</i> ." [No evidence of impacts, but could potentially compete with native epiphytes]
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence elsewhere

305	Congeneric weed	
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	" <i>Dendrobium crumenatum</i> ... Weed of: Orchards & Plantations" [No evidence of impacts found in subsequent literature searches]

401	Produces spines, thorns or burrs	n
-----	----------------------------------	---

Qsn #	Question	Answer
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"An erect epiphytic herb. Stems 0.5-3.2 m tall, 1.5-3 cm diam., cane-like, swollen somewhat in basal half and at base. Leaves coriaceous, oblong-elliptic to elliptic-ovate, obtuse or rounded at obliquely bilobed apex, 8-12.5 x 2.5-5.4 cm, articulated to tubular sheaths up to 3.2 cm long, often purple-striped." [No evidence]

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"An erect epiphytic herb." [Orchidaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Millar, A. (1978). <i>Orchids of Papua New Guinea: An Introduction</i> . Canberra: Australian National University Press,	[Unknown. As an epiphyte, may be beyond the reach of most browsing animals.] "It is epiphytic on trees in all kinds of lowland forest."

405	Toxic to animals	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	No evidence
	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 for <i>Dendrobium mirbelianum</i> . No evidence in genus, although several have medicinal uses

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Stallsmith, A. <i>Diseases of Dendrobium Orchids</i> . Home Guides SF Gate, http://homeguides.sfgate.com/diseases-dendrobium-orchids-62852.html .. [Accessed 4 Oct 2018]	"Root rots, such as fusarium and rhizoctonia ... Leaf spot and rot diseases are caused by either fungi -- as in the cases of leaf spot and black rot -- or bacteria, as in the case of bacterial brown spot. ... Blights such as anthracnose and botrytis can cause dark spots on your orchid's flowers. ... Suspect a virus if the leaves of your orchid appear blotched or streaked with unusual colors such as red or yellow. As there is no cure, such plants are usually destroyed. "

407	Causes allergies or is otherwise toxic to humans	n
-----	--	---

Qsn #	Question	Answer
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence
	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 for <i>Dendrobium mirbelianum</i> . No evidence in genus, although several have medicinal uses

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Jones, D. L., Hopley, T. & Duffy, S. M. (2010). Australian Tropical Rainforest Orchids. VERSION 1.1. CPBR, Canberra ACT. http://keys.trin.org.au/key-server/key.jsp?keyId=39 . [Accessed 4 Oct 2018]	"Epiphytic or lithophytic herb forming small clumps." ... "Occurs in mangroves and coastal swamps in humid, high light situations growing on trees and less often on rocks." [No evidence. Unlikely to contribute much to fuel load, & does not occur in fire prone habitats]

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Monaco Nature Encyclopedia. (2018). <i>Dendrobium mirbelianum</i> . https://www.monaconatureencyclopedia.com/dendrobium-mirbelianum-2/?lang=en . [Accessed 4 Oct 2018]	"Robust species, amply diffused in particular along the coasts of New Guinea, requires high luminosity, even some hours of direct sun light, medium-high temperatures in summer, 24-32 °C, slightly cooler in winter, with lowest night ones preferably not under the 16 °C, high humidity, 70-85%, and constant ventilation."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	[Full sunlight] "It grows usually as an epiphyte in strand forest or mangroves often in full sunlight."
	Jones, D. L., Hopley, T. & Duffy, S. M. (2010). Australian Tropical Rainforest Orchids. VERSION 1.1. CPBR, Canberra ACT. http://keys.trin.org.au/key-server/key.jsp?keyId=39 . [Accessed 4 Oct 2018]	[High light situations] "Occurs in mangroves and coastal swamps in humid, high light situations growing on trees and less often on rocks."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Jones, D. L., Hopley, T. & Duffy, S. M. (2010). Australian Tropical Rainforest Orchids. VERSION 1.1. CPBR, Canberra ACT. http://keys.trin.org.au/key-server/key.jsp?keyId=39 . [Accessed 4 Oct 2018]	"Occurs in mangroves and coastal swamps in humid, high light situations growing on trees and less often on rocks." [Primarily an epiphyte, although may occasionally grow terrestrially on rocks. Soil tolerances may be largely irrelevant]

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"An erect epiphytic herb. Stems 0.5-3.2 m tall, 1.5-3 cm diam., cane-like, swollen somewhat in basal half and at base." [Epiphytic, but not truly climbing or smothering]

Qsn #	Question	Answer
412	Forms dense thickets	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"An erect epiphytic herb. Stems 0.5-3.2 m tall, 1.5-3 cm diam., cane-like, swollen somewhat in basal half and at base." [An herbaceous epiphyte that does not form thickets]

501	Aquatic	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"An erect epiphytic herb." ... It grows usually as an epiphyte in strand forest or mangroves often in full sunlight."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 4 Oct 2018]	Family: Orchidaceae Subfamily: Epidendroideae Tribe: Dendrobieae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2018. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 4 Oct 2018]	Family: Orchidaceae Subfamily: Epidendroideae Tribe: Dendrobieae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"An erect epiphytic herb. Stems 0.5-3.2 m tall, 1.5-3 cm diam., cane-like, swollen somewhat in basal half and at base."

Qsn #	Question	Answer
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium mirbelianum</i> . DEWHA, Canberra. http://www.environment.gov.au . [Accessed 4 Oct 2018]	" <i>Dendrobium mirbelianum</i> is listed as endangered. This species is eligible for listing as endangered under the Environment Protection and Biodiversity Conservation Act 1999 (Cwlth) (EPBC Act) as, prior to the commencement of the EPBC Act, it was listed as endangered under Schedule 1 of the Endangered Species Protection Act 1992 (Cwlth). The species is also listed as endangered (as <i>Dendrobium mirbelianum</i>) under the Nature Conservation Act 1992 (Queensland)."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"Moluccas, New Guinea, the Bismarck Archipelago, NE Australia: Queensland, and the Solomon Islands" [Endangered in Australia. Otherwise, no evidence]

602	Produces viable seed	y
	Source(s)	Notes
	Monaco Nature Encyclopedia. (2018). <i>Dendrobium mirbelianum</i> . https://www.monaconatureencyclopedia.com/dendrobium-mirbelianum-2/?lang=en . [Accessed 4 Oct 2018]	"It reproduces by seed, in vitro, and division, with each section provided of at least 3-4 pseudobulbs."
	Ahmad, Z., Ariffin, S., Hassan, A. A., Ahmad Ramli, R. A., Basiran, M. N., & Ibrahim, R. (2015). Induction of insect resistance in <i>Dendrobium Mirbelianum</i> using ion beam irradiation. In XXV International EUCARPIA Symposium Section Ornamentals: Crossing Borders 1087 (pp. 499-505)	"Mature seeds of <i>D. mirbelianum</i> were used as the starting materials for the production of protocorm-like-bodies (PLBs). After surface sterilization using 90% ethanol seeds were germinated on half-strength MS medium (Murashige and Skoog, 1962) and incubated at 26°C with 16 h photoperiod."

603	Hybridizes naturally	y
	Source(s)	Notes
	Millar, A. (1978). <i>Orchids of Papua New Guinea: An Introduction</i> . Canberra: Australian National University Press,	"On the Longuerue group there are two species, <i>D. mirbelianum</i> and <i>D. lineale</i> and the natural hybrids have well shaped and well balanced petals and sepals, long inflorescences with the flowers evenly spaced, and the colour combinations very striking."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"Van Bodegom (1973) reported a natural hybrid of <i>D. antennatum</i> x <i>mirbelianum</i> from near Sarong on Salawati Island. A further four putative hybrids are described and illustrated by him including a convincing hybrid of <i>D. nindii</i> (as <i>D. ionoglossum</i>) x <i>mirbelianum</i> ." ... "This species is frequently seen in cultivation, often mislabelled as <i>D. schulleri</i> . Both names appear frequently in Sander's List of Orchid Hybrids and I suspect that many of the so-called <i>D. schulleri</i> hybrids are rather hybrids involving <i>D. mirbelianum</i> ."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). <i>Kew Bulletin</i> , 41(3), 615-692	"In Australia and southern New Guinea, it usually has small flowers which are often self-pollinating."

Qsn #	Question	Answer
	Teoh, Eng-Soon. 2005. Orchids of Asia. Marshall Cavendish, Singapore	"This is an attractive species, but unfortunately it is cleistogamous, that is, self-pollinating; the flowers fade within two or three days of opening and each sets seed. Nevertheless, by selfing the plant, the Singapore Botanic Gardens produced plants with long sprays carrying 30-40 flowers that last for two months."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"No fragrance has been noted from the flowers of <i>D. mirbelianum</i> in Australia where it is undoubtedly self-pollinating."
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium mirbelianum</i> . DEWHA, Canberra. http://www.environment.gov.au . [Accessed 4 Oct 2018]	"Some plants open widely and are insect-pollinated, while others are self-pollinating and the flowers hardly open, if at all (Jones, 2006)."

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	Monaco Nature Encyclopedia. (2018). <i>Dendrobium mirbelianum</i> . https://www.monaconatureencyclopedia.com/dendrobium-mirbelianum-2/?lang=en . [Accessed]	"It reproduces by seed, in vitro, and division, with each section provided of at least 3-4 pseudobulbs." [Possibly. Able to be propagated by division. Unknown]

607	Minimum generative time (years)	
	Source(s)	Notes
	Meesawat, U., & Kanchanapoom, K. (2007). Understanding the flowering behavior of pigeon orchid (<i>Dendrobium crumenatum</i> Swartz). <i>Orchid Science and Biotechnology</i> , 1, 6-14	[Unknown for <i>D. mirbelianum</i> . Related taxon flowers after 5-7 years of growth in wild] "The in vitro induced plants flowered within 8-12 months as compared to 5-7 years for natural plants. This system shortened the juvenile period of this orchid. This knowledge is very useful and critical for many aspects of future flowering research."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Jones, D. L., Hopley, T. & Duffy, S. M. (2010). Australian Tropical Rainforest Orchids. VERSION 1.1. CPBR, Canberra ACT. http://keys.trin.org.au/key-server/key.jsp?keyId=39 . [Accessed]	"Epiphytic or lithophytic herb forming small clumps." [Predominantly an epiphyte, so unlikely to be dispersed accidentally in heavily trafficked areas]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2012. New plant records for the Hawaiian islands. <i>Bishop Museum Occasional Papers</i> 113: 27-54	"Although this species had not been collected from cultivation, it is most likely an escape from a garden or nursery."

Qsn #	Question	Answer
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	"Major Pathway/s: Ornamental; Dispersed by: Humans"
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"This species is frequently seen in cultivation, often mislabelled as <i>D. schulleri</i> ."

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. If cultivated with other ornamental plants, small, wind-dispersed seeds could theoretically be moved in soil with potted plants. Evidence lacking to date

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Arditti, J., & Ghani, A. K. A. (2000). Tansley Review No. 110. Numerical and physical properties of orchid seeds and their biological implications. <i>The New Phytologist</i> 145 (3): 367-421	[General description. Epiphytic, & presumably wind-dispersed] "Orchid seeds are very small, extremely light and produced in great numbers." ... "Embryos are even smaller: their volume is substantially smaller than that of the testa. As a result, orchid seeds have large internal air spaces that render them balloon-like. They can float in the air for long periods, a property that facilitates long-distance dispersal."

705	Propagules water dispersed	n
	Source(s)	Notes
	Millar, A. (1978). <i>Orchids of Papua New Guinea: An Introduction</i> . Canberra: Australian National University Press,	"It is epiphytic on trees in all kinds of lowland forest." [Primarily epiphytic in trees. Unlikely to be dispersed by water into suitable sites]

706	Propagules bird dispersed	n
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unlikely. Small, wind-dispersed seeds establish in epiphytic sites & could potentially be dispersed by adhering to birds, but such a vector would probably be an infrequent means of dispersal

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unlikely. Small, wind-dispersed seeds could possibly adhere to birds or bats & establish in appropriate epiphytic sites, but this is probably a rare event.

Qsn #	Question	Answer
708	Propagules survive passage through the gut	n
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unlikely to be consumed or to survive gut passage
801	Prolific seed production (>1000/m ²)	y
	Source(s)	Notes
	Dressler, R. L. (1993). Phylogeny and Classification of the Orchid Family. Cambridge University Press, Melbourne	"Dendrobium type (Coelogyne-Dendrobium type of Ziegler). Short or oblong dust seeds, with a total length of 300-500 µm" [Presumably yes]
802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Royal Botanic Gardens Kew. (2018) Seed Information Database (SID). Version 7.1. Available from: http://data.kew.org/sid/ . [Accessed 4 Oct 2018]	"Storage Behaviour: Orthodox? Storage Conditions: 60% germinate after 484 days storage in a desiccator at 0°C while none survive after 64 days in desiccator at room temperature (Kano, 1965; cited by Pritchard & Seaton, 1993)" [Generic description]
803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species. No evidence that species is controlled anywhere within introduced range.
804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in tropical climates
- Naturalized on Oahu, Hawaiian Islands
- Other *Dendrobium* species may be weedy
- Reproduces by seeds
- Forms natural hybrids with other *Dendrobium* species
- Self-compatible
- Seeds dispersed by wind & intentionally by people
- As an orchid, presumably produces prolific numbers of seeds
- Limited, or missing biological & ecological information may limit accuracy or risk prediction

Low Risk Traits

- No negative impacts documented to date
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Epiphytic habit may limit dispersal vectors to wind or intentional planting

Second Screening Results for Climbers

(A) Shade tolerant or known to form dense stands?> No = Accept

(B) Reported as a weed of cultivated lands? No = Accept

Outcome = Accept (Low Risk)