

Taxon: *Dendrobium antennatum* Lindl.

Family: Orchidaceae

Common Name(s): green antelope orchid

Synonym(s): Callista antennata
Ceratobium antennatum
Ceratobium dalbertisii
Dendrobium dalbertisii

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 5 Sep 2018

WRA Score: 7.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Epiphytic Herb, Naturalized, Shade-Tolerant, 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	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
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		
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

Qsn #	Question	Answer Option	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
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		
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). Kew Bulletin, 41(3), 615-692	[Widely cultivated, but no evidence of domestication] "One of the most widely distributed and best known species of the section in cultivation, <i>D. antennatum</i> can be readily recognised by its intermediate-sized white flowers with green or yellow-green erect petals and a purple-veined lip."

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). Kew Bulletin, 41(3), 615-692	"New Guinea to Solomon Islands and NE Australia: Queensland; sea level-1200 m."

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

203	Broad climate suitability (environmental versatility)	y
	Source(s)	Notes
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"New Guinea to Solomon Islands and NE Australia: Queensland; sea level- 1200 m." [Elevation range exceeds 1000 m in tropical climates, demonstrating potential environmental versatility]

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes

Qsn #	Question	Answer
	Frohlich, D. & Lau, A. 2010. New plant records from O'ahu for 2008. Bishop Museum Occasional Papers 107: 3-18	"Dendrobium antennatum, a native of New Guinea to northeastern Australia and the Solomon Islands (Kamemoto et al. 1999), was recently found in a backyard in Nu'uano. This species was first collected as cultivated in Hawai'i at the National Tropical Botanical Garden on Kaua'i. No prior collections have been made on O'ahu; however, "antennatum type" orchids were cited as one of the preferred orchids for O'ahu orchid growers in a 2003 study (Kuehnle et al. 2003) and the species is widely used in hybridization (Staples & Herbst 2005)." ... "Material examined. O'AHU: Nu'uano, backyard at 132 Ragsdale Pl (UTM 621794, 2360591), lowland mesic residential setting, epiphyte, stems growing to 0.5 m, several individuals naturalized in this and adjoining yard, 14 oct 2008, D. Frohlich & A. Lau 2008101401."
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"New Guinea to Solomon Islands and NE Australia: Queensland; sea level-1200 m."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Imada, C.T., Staples, G.W. & Herbst, D.R. 2005. Annotated Checklist of Cultivated Plants of Hawai'i. http://www2.bishopmuseum.org/HBS/botany/cultivatedplants/ . [Accessed 4 Sep 2018]	"Locations: Pacific Tropical Botanical Garden (now National Tropical Botanical Garden)"
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"One of the most widely distributed and best known species of the section in cultivation, <i>D. antennatum</i> can be readily recognised by its intermediate-sized white flowers with green or yellow-green erect petals and a purple-veined lip."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Frohlich, D. & Lau, A. 2010. New plant records from O'ahu for 2008. Bishop Museum Occasional Papers 107: 3-18	"Dendrobium antennatum, a native of New Guinea to northeastern Australia and the Solomon Islands (Kamemoto et al. 1999), was recently found in a backyard in Nu'uano. This species was first collected as cultivated in Hawai'i at the National Tropical Botanical Garden on Kaua'i. No prior collections have been made on O'ahu; however, "antennatum type" orchids were cited as one of the preferred orchids for O'ahu orchid growers in a 2003 study (Kuehnle et al. 2003) and the species is widely used in hybridization (Staples & Herbst 2005)." ... "Material examined. O'AHU: Nu'uano, backyard at 132 Ragsdale Pl (UTM 621794, 2360591), lowland mesic residential setting, epiphyte, stems growing to 0.5 m, several individuals naturalized in this and adjoining yard, 14 oct 2008, D. Frohlich & A. Lau 2008101401."

Qsn #	Question	Answer
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
	Frohlich, D. & Lau, A. 2010. New plant records from O'ahu for 2008. Bishop Museum Occasional Papers 107: 3-18	[No evidence of impacts to date] "Dendrobium antennatum, a native of New Guinea to northeastern Australia and the Solomon Islands (Kamemoto et al. 1999), was recently found in a backyard in Nu'uano."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
305	Congeneric weed	
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"Dendrobium crumenatum ... Weed of: Orchards & Plantations" [No evidence of impacts found in subsequent literature searches]
	Frohlich, D. & Lau, A. 2010. New plant records from O'ahu for 2008. Bishop Museum Occasional Papers 107: 3-18	[No evidence of impacts to date] "This species, which is native to Sri Lanka, Burma, Indochina, throughout Malesia and the Philippines to Taiwan, was found spreading in the notches of Plumeria and other trees on surveys of Nu'uano and Mānoa Valleys."
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Cribb, P. (1986). A Revision of Dendrobium sect. Spatulata (Orchidaceae). Kew Bulletin, 41(3), 615-692	[No evidence] "An epiphytic herb. Stems clustered on a short rhizome, 15-75 cm tall, 1 - 1.5 cm diam., somewhat fusiform, usually dilated slightly and rhombic in cross section in the lower half. Leaves distichous, coriaceous to fleshy, oblong-lanceolate to ovate-elliptic, unequally bilobed at acute apex, 4-- 15 x 0.5-4 cm, articulated at base to grey sheaths 2-2.9 cm long."
402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2018. Personal Communication	Unknown. No evidence found.
403	Parasitic	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 epiphytic herb." [No evidence. Orchidaceae]
404	Unpalatable to grazing animals	
	Source(s)	Notes
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed 4 Sep 2018]	[Unknown. As an epiphyte, may be beyond the reach of most browsing animals. Animal browsing not listed among threats within part of native range] " <i>Dendrobium antennatum</i> , Family Orchidaceae, also known as Antelope Orchid, is an epiphytic orchid that grows from pseudobulbs on high branches of rainforest trees." ... "The main identified threats to Antelope Orchid include its restricted area of distribution and over collection and illegal collection by orchid enthusiasts (Lavarack et al., 2000; Landsberg & Clarkson, 2004)."
405	Toxic to animals	n
	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 antennatum</i> . No evidence in genus, although several have medicinal uses
406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Happy-Orchids. (2013). <i>Dendrobium antennatum</i> . Sunday, 8 December. http://happy-orchids.blogspot.com/2013/12/dendrobium-antennatum.html . [Accessed 4 Sep 2018]	"Pest and Diseases - Snails and slugs are attracted to this plant. Other common dendrobium pests like aphids and thrips and common dendrobium diseases"
407	Causes allergies or is otherwise toxic to humans	n
	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 antennatum</i> . No evidence in genus, although several have medicinal uses
408	Creates a fire hazard in natural ecosystems	n

Qsn #	Question	Answer
	Source(s)	Notes
	La Croix, I. F. 2008. The New Encyclopedia of Orchids: 1500 Species in Cultivation. Timber Press, Portland, OR	"Epiphytic on trees in coastal areas including swamps and mangroves" [Not occurring in fire prone areas & not likely to contribute significantly to fuel load]
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed]	"It grows on high branches of rainforest trees and wattles in open, humid situations along stream banks where there is a break in the forest canopy" [Not likely to contribute significantly to fuel load]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Happy-Orchids. (2013). <i>Dendrobium antennatum</i> . Sunday, 8 December. http://happy-orchids.blogspot.com/2013/12/dendrobium-antennatum.html . [Accessed 5 Sep 2018]	"Can be grown in direct sunlight similar to vanda."
	ProPlants. (2012). <i>Dendrobium Orchids Plant Care Guide</i> . https://www.proplants.com/guide/dendrobium-orchids-plant-care-guide . [Accessed 5 Sep 2018]	"Light: One of the more light-tolerant orchids, the <i>Dendrobium</i> can tolerate full morning sun followed by an afternoon of shade."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	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 epiphytic herb." [Primarily an epiphyte, although may occasionally grow terrestrially. 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). <i>Kew Bulletin</i> , 41(3), 615-692	[Epiphytic. Not truly climbing or smothering] "An epiphytic herb. Stems clustered on a short rhizome, 15-75 cm tall, 1 - 1.5 cm diam., somewhat fusiform, usually dilated slightly and rhombic in cross section in the lower half."

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 epiphytic herb."
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed 5 Sep 2018]	[No evidence. Epiphytic] "Antelope Orchid grows at altitudes of 400–500 m above sea level (Jones, 2006) or 0–1200 m above sea-level in riverine areas in lowland gorges (Dockrill, 1969; Lavarack & Gray, 1985). It grows on high branches of rainforest trees and wattles in open, humid situations along stream banks where there is a break in the forest canopy (Dockrill, 1969; Lavarack & Gray, 1985; Jones, 2006)."

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 epiphytic herb."

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 Sep 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 Sep 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 epiphytic herb. Stems clustered on a short rhizome, 15-75 cm tall, 1 - 1.5 cm diam., somewhat fusiform, usually dilated slightly and rhombic in cross section in the lower half."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes

Qsn #	Question	Answer
	Cribb, P. (1986). A Revision of <i>Dendrobium</i> sect. <i>Spatulata</i> (Orchidaceae). Kew Bulletin, 41(3), 615-692	"DISTRIBUTION . New Guinea to Solomon Islands and NE Australia: Queensland; sea level- 1 200 m." ... "One of the most widely distributed and best known species of the section in cultivation, <i>D. antennatum</i> can be readily recognised by its intermediate-sized white flowers with green or yellow-green erect petals and a purple-veined lip."
	Millar, A. (1978). <i>Orchids of Papua New Guinea: An Introduction</i> . Canberra: Australian National University Press,	"This is a common plant in Papua New Guinea, inland up to 800 m altitude. It is often found on islands and near the coast. In the savannah, or the Hula Road, it grows on the <i>Antidesma</i> trees and even on the mangroves. It is one of the commonest orchids on <i>Melaleuca</i> and <i>Nauclea</i> trees in the lowland swamps of Papua."
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed]	[Endangered in Australia due to over-collecting, but not from substantial reproductive failure] "Antelope Orchid 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 under the Nature Conservation Act 1992 (Queensland)." .. "The main identified threats to Antelope Orchid include its restricted area of distribution and over-collection and illegal collection by orchid enthusiasts (Lavarack et al., 2000; Landsberg & Clarkson, 2004). However, the threat from illegal collection is probably small, as the species is grown readily in cultivation and much of its habitat is difficult to access (Landsburg & Clarkson, 2004)."

602	Produces viable seed	y
	Source(s)	Notes
	Utami, E. S. W., & Hariyanto, S. (2016). The Effect of Organic Nutrient and Growth Regulators on Seed Germination, Embryo and Shoots Development of <i>Dendrobium antennatum</i> Lindl. Orchid by In Vitro. <i>Biosaintifika: Journal of Biology & Biology Education</i> , 8(2), 165-171	" <i>Dendrobium antennatum</i> has high economic value as cut flowers and flowerpots. Like orchid seeds in general, <i>D. antennatum</i> is difficult to germinate under natural conditions. This study aimed to determine the effect of coconut water on seed germination and embryo development, as well as the effect of NAA on shoots development of <i>D. antennatum</i> . This study consisted of two stages. In the first stage, the 12 weeks-old seeds after pollination were sown on MS medium containing 2 g/L peptone + 0%; 5%; 10%; and 20% coconut water. After 8 weeks of culture, the seeds germinated and the shoot form were recorded. The highest seed germination (92.2%) and the formation of shoots (51.4%) were obtained when seeds were cultured on MS medium containing 2 g/L peptone + 20% coconut water. In the second stage, the shoots were sub-cultured on MS medium containing 1 mg/L thidiazuron + 0 mg/L; 1 mg/L; 2 mg/L; and 3 mg/L NAA. After 16 weeks of sub-culture, the height of plantlets, the length of the roots and leaves, number of leaves and roots formed were recorded. MS medium containing 1 mg/L thidiazuron + 1 mg/L NAA was the most suitable for the shoots development of <i>D. antennatum</i> . The embryo development of <i>D. antennatum</i> in vitro began with the enlargement of embryo, with further it emerged from the seed coat (germinated) followed by the formation of the apical meristems to form the shoots and the roots."

Qsn #	Question	Answer
	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	[Presumably yes] "Table 2. Orchid seeds : numbers and weights" [Seeds (capsule-1, mg-1, fruit-1, or µg seed-1) - <i>Dendrobium antennatum</i> = 200 seeds mg-1; 5 µg seed-1]

603	Hybridizes naturally	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	"The ease with which artificial hybrids can be produced in the section strongly suggests that barriers to hybridisation in nature are the result of factors other than incompatibility, for example, pollinator specificity, flowering time and spatial separation. Schlechter (1905) reported the first natural hybrid in the section <i>D. x schumannianum</i> , a hybrid of <i>D. antennatum</i> and <i>D. lineale</i> (as <i>D. veratrifolium</i>) from 'Tamara Island' in German New Guinea (now Papua New Guinea)." ... "A more comprehensive survey in Australia by Jones (1983) has revealed the presence of natural hybrids involving five of the eight native species: <i>D. canaliculatum</i> with <i>D. semifuscum</i> and <i>D. discolor</i> ; and <i>D. discolor</i> with <i>D. antennatum</i> , <i>D. semifuscum</i> and <i>D. nindii</i> ."

604	Self-compatible or apomictic	y
	Source(s)	Notes
	Kamemoto, H., Amore, T.D. & Kuehnle, A.R. 1999. <i>Breeding Dendrobium Orchids in Hawaii</i> . University of Hawaii Press, Honolulu, HI	"Cleistogamy and self-pollination are common in the species and seeds often germinate in situ (Fig. 6.2). Thus <i>D. antennatum</i> appears to be a self-pollinating species that does not exhibit inbreeding depression."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed 5 Sep 2018]	"Antelope Orchid is insect-pollinated, although the vector is not known (Jones, 2006)." [Jones, DL 2006, Native orchids of Australia including the Island Territories, Reed New Holland, Sydney]
	Kamemoto, H., Amore, T.D. & Kuehnle, A.R. 1999. <i>Breeding Dendrobium Orchids in Hawaii</i> . University of Hawaii Press, Honolulu, HI	"Cleistogamy and self-pollination are common in the species and seeds often germinate in situ (Fig. 6.2). Thus <i>D. antenna/um</i> appears to be a self-pollinating species that does not exhibit inbreeding depression." [Apparently not reliant on pollinators]

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes

Qsn #	Question	Answer
	ProPlants. (2012). Dendrobium Orchids Plant Care Guide. https://www.proplants.com/guide/dendrobium-orchids-plant-care-guide . [Accessed 5 Sep 2018]	"Your Dendrobium may also surprise you with a new arrival . . . a "baby" or keiki in Hawaiian. If a mini-plant starts growing alongside the original plant, congratulations (and repotting) are in order."... "Rather than trying to re-bloom from the same cane, growers sometimes cut the spent canes at their base and lay them on moist river sand or bark. Only the Dendrobium propagates by producing keikis or "babies" at each node from dead canes. At the end of the growing season, keikis can be removed and planted." [Possibly yes. Able to be propagated vegetatively]

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. antennatum</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
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed 5 Sep 2018]	"It grows on high branches of rainforest trees and wattles in open, humid situations along stream banks where there is a break in the forest canopy" [Predominantly an epiphyte, so unlikely to be dispersed accidentally in heavily trafficked areas]

702	Propagules dispersed intentionally by people	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	"One of the most widely distributed and best known species of the section in cultivation, <i>D. antennatum</i> can be readily recognised by its intermediate-sized white flowers with green or yellow-green erect petals and a purple-veined lip."
	Schiff, J. L. (2018). <i>Rare and Exotic Orchids: Their Nature and Cultural Significance</i> . Springer International Publishing, Cham, Switzerland	[Cultivated as an ornamental] " <i>Dendrobium antennatum</i> is unusual in that its greenish petals are swept upward and twisted, inspiring its common names "Antelope Orchid" or "Antenna Orchid." The dorsal sepal also has a distinctive curl to it. Found in Queensland, Australia, Papua, and the Solomon Islands, it has cane-like pseudobulbs and fragrant, long-lasting flowers in summer that can grow up to 7.5 cm in length. It is listed as an endangered species in its native habitat, but fortunately, it is popular with orchid growers and does well."

Qsn #	Question	Answer
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	
	Source(s)	Notes
	Department of the Environment, Water, Heritage and the Arts (2008). Approved Conservation Advice for <i>Dendrobium antennatum</i> (Antelope Orchid). DEWHA, Canberra. http://www.environment.gov.au/biodiversity/threatened/species/pubs/78702-conservation-advice.pdf . [Accessed 5 Sep 2018]	"It grows on high branches of rainforest trees and wattles in open, humid situations along stream banks where there is a break in the forest canopy (Dockrill, 1969; Lavarack & Gray, 1985; Jones, 2006)." [Occurrence along stream banks suggests possible dispersal by water]
	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. Possibly water-dispersed] "The difficult-to-wet outer surfaces of the testa and large internal air spaces enable the seeds to float on water for prolonged periods. This facilitates distribution through tree effluates and/or small run-off rivulets that may follow rains."

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
	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	[Presumably yes] "Table 2. Orchid seeds : numbers and weights" [Seeds (capsule-1, mg-1, fruit-1, or µg seed-1) - <i>Dendrobium antennatum</i> = 200 seeds mg-1; 5 µg seed-1]

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 5 Sep 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]
	WRA Specialist. 2018. Personal Communication	Unknown

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

- Elevation range exceeds 1000 m, demonstrating environmental versatility
- Grows in tropical climates (climate of Hawaiian Islands conducive to further establishment & spread)
- 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, possibly water & intentionally by people
- Prolific seed production (potentially)

Low Risk Traits

- No negative impacts documented to date (widely cultivated & valued for ornamental purposes)
- Unarmed (no spines, thorns, or burrs)
- Non-toxic
- Epiphytic habit may limit dispersal vectors to wind or intentional planting