Taxon: Brugmansia arborea (L.) Sweet **Family:** Solanaceae

Common Name(s): angels tears
angel's trumpet

Synonym(s): Datura arborea L.
Datura cornigera Hook.

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 17 Sep 2016

WRA Score: 6.0 **Designation:** EVALUATE **Rating:** Evaluate

Keywords: Tropical Tree, Toxic, Ornamental, 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		
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)	y
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	y
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	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle		

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	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	y=1, n=-1	y
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**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"Brugmansia species as a whole have sometimes been viewed as cultigens (e.g. Bristol 1966). This view was not accepted by Hay et al. (2012: 15) who view them as species long conserved through cultivation by indigenous people. There is no evidence for any of the species having come into being under human husbandry from wild progenitors, since no candidates for wild progenitors exist."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. 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, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 15 Sep 2016]	"Native: Southern America Western South America: Bolivia; Colombia; Peru"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 15 Sep 2016]	

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**n**
	Source(s)	**Notes**
	Riffle, R.L. 1998. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"All Brugmansia species are indigenous to elevated areas in South America that are of moderate to great altitude. Several of the largest growing species (B. arborea, B. aurea, and B. sanguinea) are indigenous to these high mountain regions and do not fare well in warm and humid areas, and are not therefore usually in cultivation in the southeastern United States and similar climates.."
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"The hardiest Brugmansia with respect to drought and cold, occurring cultivated in indigenous gardens or as relics of cultivation at 2000-3000 m alt in drier Andean valleys, withstanding light frosts."

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"Range Description: Northern Chile, western Bolivia, Perú and Ecuador. It is also found in southern Colombia (Nariño) where it is considered introduced (Hay et al. 2012: 127-128). Countries occurrence: Regionally extinct: Bolivia, Plurinational States of; Chile; Ecuador; Peru"

205	**Does the species have a history of repeated introductions outside its natural range?**	**y**
	Source(s)	**Notes**
	D'Agata, C. D. C., Skoula, M., & Brundu, G. (2009). A preliminary inventory of the alien flora of Crete (Greece). Bocconea, 23, 301-315	"Appendix, Table 1. Alien Flora of Crete, list of taxa." [Brugmansia arborea - Invasive Status = planted-only]
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is occasionally cultivated outside South America as an ornamental."

301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**
	Schofield, E. K. (1989). Effects of introduced plants and animals on island vegetation: examples from Galápagos Archipelago. Conservation Biology, 3(3), 227-239	"An ornamental tree, Datura arborea (angel's trum- pet), was planted around a settlement in the agricultural area of Santa Cruz (Wiggins & Porter 1971). It quickly became naturalized and spread into the humid forest (Martinez 1975)." [But see Guézou et al. 2010]
	Foxcroft, L. C., Richardson, D. M., & Wilson, J. R. 2008. Ornamental plants as invasive aliens: problems and solutions in Kruger National Park, South Africa. Environmental Management, 4 (1): 32-51	"Table 2 Ornamental alien plant species recorded per camp in the Kruger National Park, indicating the number of camps in which each species has been recorded, as well as mode of introduction" [Brugmansia arborea - Evidence of naturalization? Yes]

Qsn #	Question	Answer
	Bungartz, F., Herrera, H.W., Jaramillo, P., Tirado, N., Jiménez Uzcátegui, G., Ruiz, D., Guézou, A. & Ziemmeck, F. (eds.). 2009. Charles Darwin Foundation Galapagos Species Checklist. Charles Darwin Foundation, Puerto Ayora, Galapagos: http://www.darwinfoundation.org/datazone/checklists/ . [Accessed]	Brugmansia versicolor & Brugmansia x candida listed as Es) Escaped (introduced for cultivation, naturalized. Brugmansia arborea is not listed. Name in Schofield (2010) may have been misapplied to Brugmansia x candida

302	Garden/amenity/disturbance weed	
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Designated as a weed, but references have not been verified

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered."
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental 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

305	Congeneric weed	y
	Source(s)	**Notes**
	CABI, 2016. Brugmansia suaveolens. In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	"Brugmansia suaveolens is a shrub or small tree native to South America, and widely introduced as an ornamental for its attractive trumpet-shaped flowers. It is also considered an invasive weed, having escaped from cultivation, especially in the Pacific but occasionally elsewhere. In parts of eastern Australia it blocks waterways by forming extensive colonies through vegetative reproduction. It should also be monitored in other countries where present, especially in Africa and Asia. Like close relatives in the genus Datura, Brugmansia species contain alkaloids which are used as narcotics and are responsible for cases of accidental poisoning."

401	Produces spines, thorns or burrs	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	[No evidence] "Unarmed trees or shrubs, pubescence of mostly simple, sometimes viscid hairs; twigs mostly stout. Leaves simple and entire or repand, petiolate, mostly large" [Generic description]

402	Allelopathic	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	**Notes**
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	[No evidence] "Unarmed trees or shrubs, pubescence of mostly simple, sometimes viscid hairs; twigs mostly stout. Leaves simple and entire or repand, petiolate, mostly large" [Generic description]

404	Unpalatable to grazing animals	y
	Source(s)	**Notes**
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Brugmansia arborea ... Toxic, spasmolytic, laxative and hallucinogen."
	Simmonds, H., Holst, P. & Bourke, C. 2000. The palatability, and potential toxicity of Australian weeds to goats. Rural Industries Research and Development Corporation, Barton, Australia	"Toxicity to Goats:Toxic, low risk Toxicity to Other Species: Potentially toxic to all animal species Palatability: Not known to be eaten Poisonous Principle: Tropane alkaloids, notably scopolamine" [Probably not eaten by animals. Related species, Brugmansia × candida, unpalatable to goats]

405	Toxic to animals	y
	Source(s)	**Notes**
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Toxic, spasmolytic, laxative and hallucinogen."

406	Host for recognized pests and pathogens	n
	Source(s)	**Notes**
	The Royal Horticultural Society. 2016. Brugmansia arborea 'Knightii'. https://www.rhs.org.uk/. [Accessed 16 Sep 2016]	"Pests: Can get glasshouse red spider mite, glasshouse whitefly, thrips and mealybugs underglass Diseases: Generally disease free"
	Llamas, K.A. 2003. Tropical Flowering Plants. Timber Press, Portland, OR	"Snails sometimes defoliate trees, but they recover quickly."

Qsn #	Question	Answer
407	**Causes allergies or is otherwise toxic to humans**	**y**
	Source(s)	**Notes**
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Toxic, spasmolytic, laxative and hallucinogen. To cure the sickness guamuca (awa-coaiquer/awa-cuaiquer), leaves crushed and drunk with a little water. Leaves used for eye problems and asthma. Ritual, magic-therapeutical purposes, reported to be used during ritual practices for magical and curative purposes; the flowers placed near the pillow used against insomnia."

408	**Creates a fire hazard in natural ecosystems**	**n**
	Source(s)	**Notes**
	Riffle, R.L. 1998. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"These mountainous habitats are quite moist year-round and yet, are, of course, mostly of sloping ground." [No evidence. Unlikely given native habitat]

409	**Is a shade tolerant plant at some stage of its life cycle**	
	Source(s)	**Notes**
	Dave's Garden. 2016. Angel Trumpet, Angel's Trumpet - Brugmansia arborea. http://davesgarden.com/guides/pf/go/2097/. [Accessed 16 Sep 2016]	"Sun Exposure: Sun to Partial Shade"
	Riffle, R.L. 1998. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"Sun to part shade"

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y**
	Source(s)	**Notes**
	Dave's Garden. 2016. Angel Trumpet, Angel's Trumpet - Brugmansia arborea. http://davesgarden.com/guides/pf/go/2097/. [Accessed 16 Sep 2016]	"Soil pH requirements: 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"
	The Royal Horticultural Society. 2016. Brugmansia arborea 'Knightii'. https://www.rhs.org.uk/. [Accessed 16 Sep 2016]	Soil: Chalk, Clay, Sand, Loam pH: Acid, Alkaline, Neutral"

411	**Climbing or smothering growth habit**	**n**
	Source(s)	**Notes**
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	"Unarmed trees or shrubs, pubescence of mostly simple, sometimes viscid hairs; twigs mostly stout. Leaves simple and entire or repand, petiolate, mostly large" [Generic description]

412	**Forms dense thickets**	**n**
	Source(s)	**Notes**

Qsn #	Question	Answer
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered." [No evidence]

501	Aquatic	n
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"Systems: Terrestrial"

502	Grass	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 15 Sep 2016]	Family: Solanaceae Subfamily: Solanoideae Tribe: Datureae

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 15 Sep 2016]	Family: Solanaceae Subfamily: Solanoideae Tribe: Datureae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	**Notes**
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	"Unarmed trees or shrubs, pubescence of mostly simple, sometimes viscid hairs; twigs mostly stout. Leaves simple and entire or repand, petiolate, mostly large" [Generic description]

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	[Relies on cultivation for persistence] "The complete absence of wild plants suggests, as with other Brugmansia species, that the disperser (s) is extinct. The continued existence of this species within its presumed native range is currently dependent on its being cultivated by indigenous people."

602	Produces viable seed	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Trade Winds Fruit. 2016. Angel's Trumpet - Brugmansia arborea. http://www.tradewindsfruit.com/content/angels-trumpet-arborea.htm. [Accessed 15 Sep 2016]	"Propagation. By seeds, which should be sown in well-drained soil and kept at 65-75F. Also propagated by cuttings, which can be rootec fairly easily."

603	Hybridizes naturally	
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"Although it sometimes co-occurs with B. sanguinea, hybrids are extremely rare. "

604	Self-compatible or apomictic	y
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"B. arborea is easy to recognize from the size of its flowers. They are the shortest of all the species of Brugmansia. The trumpet-shaped corollas are between 4 1/2-6 1/2 in (12-17 cm) long, are white to creamy white in color and noticeably widen out to the edge of the flower." "In their natural habitat the pendulous flowers are usually pollinated by moths. These are attracted both by the white color of the flowers and by the perfume that becomes stronger in the early hours of the evening."

606	Reproduction by vegetative fragmentation	n
	Source(s)	**Notes**
	The Royal Horticultural Society. 2016. Brugmansia arborea 'Knightii'. https://www.rhs.org.uk/. [Accessed 16 Sep 2016]	"Propagate by seed or semi-hardwood cuttings " [No evidence of natural vegetative spread]
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 16 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered."

Qsn #	Question	Answer
607	**Minimum generative time (years)**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. Other species are reported to reach maturity in 2+ years

701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**n**
	Source(s)	**Notes**
	Woodson, R., Schery, R., & D'Arcy, W. (1973). Flora of Panama. Part IX. Family 170. Solanaceae. Annals of the Missouri Botanical Garden, 60(3), 573-780	"Fruit an unarmed, spheroidal or elongate, woody, indehiscent capsule, seeds large and wedge shaped, embryo straight in fleshy endosperm" [No means of external attachment]
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"The complete absence of wild plants suggests, as with other Brugmansia species, that the disperser(s) is extinct. The continued existence of this species within its presumed native range is currently dependent on its being cultivated by indigenous people." [No evidence]

702	**Propagules dispersed intentionally by people**	**y**
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is occasionally cultivated outside South America as an ornamental."

703	**Propagules likely to disperse as a produce contaminant**	**n**
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 16 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered." [No evidence, & unlikely given lack of seedling production]

704	**Propagules adapted to wind dispersal**	**y**
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"The egg-shaped fruit, which are also covered in velvety hairs, are, on average, 2 in (6 cm) long and have a diameter of about 2'" in (4.5 cm)." ... "The seeds of B. arborea are large, about 4 1/2 x 3 in (12 x 7 cm) in size, but have a thick cork-like shell that makes them light and able to be dispersed by the wind."

Qsn #	Question	Answer
705	**Propagules water dispersed**	
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"The seeds of B. arborea are large, about 4 1/2 x 3 in (12 x 7 cm) in size, but have a thick cork-like shell that makes them light and able to be dispersed by the wind." [Possible that cork-like seeds may be buoyant]

706	**Propagules bird dispersed**	**n**
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"The egg-shaped fruit, which are also covered in velvety hairs, are, on average, 2 in (6 cm) long and have a diameter of about 2'" in (4.5 cm)." ... "The seeds of B. arborea are large, about 4 1/2 x 3 in (12 x 7 cm) in size, but have a thick cork-like shell that makes them light and able to be dispersed by the wind."

707	**Propagules dispersed by other animals (externally)**	**n**
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"The seeds of B. arborea are large, about 4 1/2 x 3 in (12 x 7 cm) in size, but have a thick cork-like shell that makes them light and able to be dispersed by the wind."

708	**Propagules survive passage through the gut**	**n**
	Source(s)	**Notes**
	Preissel, U., & Preissel, H. G. 2002. Brugmansia and Datura: Angel's Trumpets and Thorn Apples. Firefly Books, Buffalo, NY	"The egg-shaped fruit, which are also covered in velvety hairs, are, on average, 2 in (6 cm) long and have a diameter of about 2'" in (4.5 cm)." ... "The seeds of B. arborea are large, about 4 1/2 x 3 in (12 x 7 cm) in size, but have a thick cork-like shell that makes them light and able to be dispersed by the wind."

801	**Prolific seed production (>1000/m2)**	**n**
	Source(s)	**Notes**
	Hay, A. 2014. Brugmansia arborea. The IUCN Red List of Threatened Species 2014: e.T51247708A58386508. http://dx.doi.org/10.2305/IUCN.UK.2014-1.RLTS.T51247708A58386508.en. [Accessed 15 Sep 2016]	"This species is invariably found bearing numerous fruits, as it is self-fertile (the only species of the genus to be so). Nevertheless seedlings are rarely encountered." [Probably No]

802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**n**
	Source(s)	**Notes**
	Dave's Garden. 2016. Angel Trumpet, Angel's Trumpet - Brugmansia arborea. http://davesgarden.com/guides/pf/go/2097/. [Accessed 16 Sep 2016]	"Seed does not store well; sow as soon as possible"

Qsn #	Question	Answer
803	**Well controlled by herbicides**	
	Source(s)	**Notes**
	WRA Specialist. 2016. 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**
	Trade Winds Fruit. 2016. Angel's Trumpet - Brugmansia arborea. http://www.tradewindsfruit.com/content/angels-trumpet-arborea.htm. [Accessed 16 Sep 2016]	"In colder areas with winter temperatures in the 20's, the plant may die back but resprout from roots the following year."
	The Royal Horticultural Society. 2016. Brugmansia arborea 'Knightii'. https://www.rhs.org.uk/. [Accessed 16 Sep 2016]	"These large shrubs are naturally vigorous, but tolerant of hard pruning. You can cut back to within 2.5cm (1in) of older wood, ideally leaving a balanced framework of branches."

805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits
• Able to grow in regions with tropical climates
• Reported to be naturalized in South Africa, & possible the Galapagos
• Other Brumansia species have become invasive
• Unpalatable to browsing & grazing animals
• Toxic to animals & humans
• Tolerates many soil types
• Reproduces by seeds
• May hybridize with other Brugmansia species
• Self-compatible
• Seeds dispersed by wind & intentionally by people
• Able to resprout after pruning or removal of aboveground vegetation

Low Risk Traits
• Despite naturalization, no reports of detrimental impacts to date
• Unarmed (no spines, thorns or burrs)
• Ornamental
• Not reported to spread vegetatively
• Seeds reported to lose viability quickly
• Seedling production in wild reported to be rare, despite production of viable seeds

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Possibly. Not known to form dense stands. Reported to tolerate partial shade in cultivation
(B) Bird or clearly wind-dispersed?>Yes. Corky seeds reported to be wind-dispersed
(C) Life cycle <4 years? Unknown. Other Brugmansia species flower in 2 years
Outcome = Evaluate