

Taxon: <i>Jasminum sambac</i> (L.) Aiton	Family: Oleaceae
Common Name(s): Arabian jasmine pikake Sambac jasmine	Synonym(s): <i>Nyctanthes sambac</i> L. <i>Nyctanthes undulata</i> L.

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 30 Oct 2020
WRA Score: 1.0	Designation: EVALUATE	Rating: Evaluate

Keywords: Naturalized Elsewhere, Scrambler/Climber, Ornamental, Edible Flowers, Rarely Fruits

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		
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	n
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		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	y
412	Forms dense thickets	y=1, n=0	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		
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators		
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	y=1, n=-1	n
704	Propagules adapted to wind dispersal		
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		
801	Prolific seed production (>1000/m ²)	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
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"The species probably originated from India, Bengal to Sri Lanka and Myanmar, Yunnan and adjacent mountains of Guizhou and Guangxi in China."
	Ravindran, P. N. (2017). The Encyclopedia of Herbs and Spices. CABI, Wallingford, UK	[Cultivars exist, but not highly domesticated] "In India, four morphotypes are recognized. They are: (i) motiya be/a (double flowers, rounded petals, globular buds); (ii) be/a (double flower, elongated petals and buds); (iii) hazara be/a (single flowers); and (iv) mungra (multi-whorled flowers, large, rounded buds measuring 2-2.5 cm in diameter) (Sabhanval et al., 2013). Of the three famous cultivars mentioned above, Belle of India is the most fragrant and most popular."

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 29 Oct 2020]	"Native Asia-Tropical INDIAN SUBCONTINENT: India Cultivated REGION: Asia-Temperate CHINA: China Asia-Tropical INDIAN SUBCONTINENT: India"

Qsn #	Question	Answer
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 29 Oct 2020]	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"In its native habitat, it is found from near sea level to 800 m altitude. Jasmine grows on almost any soil type with soil pH of 4.9–8.3 and ample water supply and in full sun in areas with temperatures from 11 to 28 °C and annual precipitation of 300–2,800 mm."
	Missouri Botanical Garden. (2020). <i>Jasminum sambac</i> . http://www.missouribotanicalgarden.org . [Accessed 29 Oct 2020]	"Zone: 9 to 11"

204	Native or naturalized in regions with tropical or subtropical climates	y
	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 29 Oct 2020]	"Native Asia-Tropical INDIAN SUBCONTINENT: India"
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"The species probably originated from India, Bengal to Sri Lanka and Myanmar, Yunnan and adjacent mountains of Guizhou and Guangxi in China. It was introduced into Malaysia and Java, now cultivated widely in the Malesian region and the Pacific Islands."
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	" <i>Jasminum sambac</i> is commonly cultivated in Hawaii for its strongly fragrant flowers, which are used to flavor tea in China, and to make leis in Hawaii and India."
	Whistler, W.A. 2000. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	" <i>Jasminum sambac</i> , Arabian jasmine, is native to India but is widely cultivated in the tropics and subtropics. In India it is one of the most commonly grown ornamental plants, in China it is used to scent jasmine tea, in Hawaii it is popular for making leis, and in the Philippines it is the national flower."

Qsn #	Question	Answer
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"The species probably originated from India, Bengal to Sri Lanka and Myanmar, Yunnan and adjacent mountains of Guizhou and Guangxi in China. It was introduced into Malaysia and Java, now cultivated widely in the Malesian region and the Pacific Islands."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	"References: Puerto Rico-CW-261, Caribbean-N-707, Africa-W-760, United States of America-E-80, United States of America-N-101, United States of America- W-112, United States of America-EW-179, Pacific-W-621, United States of America- E-151, Belize-N-850, Bahamas-N-873, Madagascar-N-1001, Global-N-1059, Laos- N-1102, Galapagos Islands-CN-1157, China-N-1215, Caribbean-NI-1201, Peru-N-1293, China-N-1344, Cuba-N-1505, Global-CD-1611, United States of America-E-1736, Eastern Caribbean-N- 1742, Cambodia-N-1796, El Salvador-N- 1796, Nicaragua-N-1796, -I-, Cuba-N- 2024, Cuba-I-2055, Cook Islands-W-1977, Cuba-W-1977, Democratic Republic of the Congo-W-1977, Kiribati-W-1977, Lao People's Democratic Republic-W-1977, Marshall Islands-W-1977, Micronesia (Federated States of)-W-1977, Niue-W- 1977, Palau-W-1977, Papua New Guinea- W-1977, Global--1324."
	Acevedo-Rodríguez, P. 2005. Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[<i>Jasminum sambac</i>] "Status: Exotic, cultivated and naturalized (according to Liogier, 1995), uncommon. Distribution: Species native to India, introduced as an ornamental. Also on Vieques; cultivated throughout the tropics."
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Wunderlin, R. P., B. F. Hansen, A. R. Franck, and F. B. Essig. (2020). Atlas of Florida Plants. USF Water Institute.] Institute for Systematic Botany, University of South Florida, Tampa. http://florida.plantatlas.usf.edu/ . [Accessed 30 Oct 2020]	Reported as cultivated in Florida, but not listed as naturalized, in contrast to other cited references from Florida

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	CABI. (2020). <i>Jasminum sambac</i> (Arabian jasmine). In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[Reports of weediness may be erroneous. Contrary to this report, <i>Jasminum sambac</i> is not invasive in the Hawaiian Islands. The cited reference does not indicate that the species is naturalized or invasive. In Florida, a weed risk assessment rates this species in the Evaluate category, suggesting it could become invasive in the future] " <i>Jasminum sambac</i> is a small shrub native to Bhutan and India and widely cultivated for its very fragrant and showy flowers. It is an environmental and garden weed and has a climbing growth habit that can smother other plants. Currently, this species is listed as invasive in Cuba and Hawaii and Florida in the USA."

303	Agricultural/forestry/horticultural weed	n
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Qsn #	Question	Answer
	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	
	Source(s)	Notes
	Wagner, W.L., Herbst, D.R.& Sohmer, S.H. 1999. Manual of the flowering plants of Hawaii. Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[In contrast to CABI (2020), <i>Jasminum sambac</i> is not naturalized or invasive. <i>Jasminum fluminense</i> may have been the species referred to in the cited references] "A favorite lei flower is pikake (peacock) [<i>J. sambac</i> (L.) Aiton] made popular by Princess Ka 'iulani who was fond of both this flower and peacocks (Neal, 1965)." ... " <i>Jasminum fluminense</i> Veil., a pubescent climber with 3 leaflets, fragrant white flowers in broad loose cymes, and corolla 5-6-lobed with a tube 1.5-2.5 cm long, was noted as persisting along the road to Ho'okena Beach, Hawai'i in 1976 (Herbst & Spence 5634). By March 1988 this species had vigorously reproduced and now covers a large portion of the vegetation in the area. It appears that it will become a serious pest of low-elevation dry sites and should be eradicated from the Ho'okena area, if possible."
	CABI. (2020). <i>Jasminum sambac</i> (Arabian jasmine). In: Invasive Species Compendium. Wallingford, UK: CAB International. www.cabi.org/isc	[Reports of weediness may be erroneous. Contrary to this report, <i>Jasminum sambac</i> is not invasive in the Hawaiian Islands. The cited reference does not indicate that the species is naturalized or invasive. In Florida, a weed risk assessment rates this species in the Evaluate category, suggesting it could become invasive in the future] " <i>Jasminum sambac</i> is a small shrub native to Bhutan and India and widely cultivated for its very fragrant and showy flowers. It is an environmental and garden weed and has a climbing growth habit that can smother other plants. Currently, this species is listed as invasive in Cuba and Hawaii and Florida in the USA."
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	Not naturalized in the Hawaiian Islands, and therefore not an environmental weed, as claimed in other references.

305	Congeneric weed	y
	Source(s)	Notes
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[<i>Jasminum fluminense</i>] "Brazilian jasmine invades undisturbed hardwood forests in southern Florida and smothers shrubs and small trees. Dense infestations completely enshroud native vegetation and strongly reduce native plant diversity. Seeds are dispersed by frugivorous birds and by raccoons (Langeland and Craddock Burks, 1998; Motooka et al., 2003)."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes

Qsn #	Question	Answer
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"Scandent or erect, evergreen shrub growing to 2 m tall with pubescent, terete, angular twigs. Leaves are opposite or in whorls of three, entire, elliptic or broad elliptic to suborbicular, obtuse at both ends, very variable in size, up to 9 cm long and 6 cm broad, glabrous, shining green above (Plates 1 and 2); nerves 4–6 on each side of midrib prominent beneath; petiole short, pubescent. Flowers very fragrant, in 2–5-flowered terminal cymes, pedicels up to 6 mm; bracts linear, subulate up to 6 mm long. Calyx lobe 5–9, linear, 1 cm long, V-shaped, pubescent. Corolla white, simple or double, tube 0.7–1.5 cm long, lobes 5–9, oblong, acute or obtuse (Plates 1 , 2 and 3). Stamens, 2, included, ovary, 2-loculed. Berry simple or didymous, globose, 10 mm across, purplish- black when ripe."

402	Allelopathic	
	Source(s)	Notes
	Poonpaiboonpipat, T., Teerarak, M., Phuwiwat, W., Charoenying, P., & Laosinwattana, C. (2011). Allelopathic effects of Arabian jasmine (<i>Jasminum sambac</i> Ait.) and preliminary test for estimation of its natural herbicide activity. <i>Journal of Agricultural Technology</i> , 7(4), 1075-1087	[Possibly. Extracts exhibit allelopathic properties] "Leaves of <i>Jasminum sambac</i> were extracted by various percentage of ethanol and water for the highest yield of crude extracts. The highest yield of crude extract was achieved by using 50% ethanol with two time extractions. Each crude extract was tested to inhibit the germination and seedling growth of <i>Echinochloa crus-galli</i> and <i>Sesbania aculeate</i> . The results showed that crude extract from 50% ethanol gave the highest inhibitory activity. The crude extract from 50% ethanol was further separated into acidic fraction (AE), neutral fraction (NE) and aqueous fraction (AQ). AE fraction was greater inhibited plant than other fractions, and it was selected to formulate as natural herbicide in wettable powder (30% ai.). This natural herbicide was completely inhibited the germination of <i>S. aculeate</i> and slightly inhibited <i>E. crus-galli</i> by applying onto the soil surface at rate of 200 kg a.i. ha-1."

403	Parasitic	n
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"Scandent or erect, evergreen shrub growing to 2 m tall with pubescent, terete, angular twigs." [Oleaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Jain, R. K., & Rane, A. S. (2011). Protein and mineral status of tree leaves and range plants of indore district of Madhya Pradesh. Indian Journal of Field Veterinarians, 6 (4), 20-23	"Eighteen samples of commonly available tree leaves and range plants (<i>Ficus religiosa</i> , <i>Leucaena leucocephala</i> , <i>Azadirachata indica</i> , <i>Psidium guajava</i> , <i>Acacia arabica</i> , <i>Bambusa dendrocalmus</i> , <i>Mangifera indica</i> , <i>Eugenia jambolana</i> , <i>Ziziphus mauritiana</i> , <i>Saraca asoca</i> , <i>Delonix regia</i> , <i>Barringtonia acutangula</i> , <i>Annona reticulate</i> , <i>Parthenium hysterophorus</i> , <i>Cassia tora</i> , <i>Phaseolus vulgaris</i> , <i>Jasminum sambac</i> and <i>Nyctanthes arbortritus</i>) from Indore district of M.P were collected and analysed for their protein and mineral content. The crude protein and total ash content (%) of the samples ranged from 9.96 to 20.08 and 4.53 to 16.87 respectively. Calcium and phosphorus content of samples were 0.73 to 3.77% and 0.06 to 0.63% on dry matter basis. Among trace minerals content of the leaves, iron was 258 to 872 ppm, zinc was 205 to 840 ppm, copper was 3.45 to 21.65 ppm while cobalt was 1.28 to 9.72 ppm. Crude protein and mineral content of leaves and range plants were found satisfactory except copper. In general <i>Ziziphus mauritiana</i> , <i>Cassia tora</i> and <i>Parthenium hysterophorus</i> were found rich in crude protein and <i>Ficus religiosa</i> , <i>Psidium guajava</i> , <i>Nyctanthes arbortritus</i> and <i>Ziziphus mauritiana</i> were rich in mineral content."
	MediRabbit. (2020). Feeding the house rabbit 5: Flowers. http://www.medirabbit.com/EN/GI_diseases/Food/Flow/lower_en.htm . [Accessed 30 Oct 2020]	"Some flowers that rabbits like to eat" [Includes <i>Jasminum sambac</i>]

405	Toxic to animals	n
	Source(s)	Notes
	Ravindran, P. N. (2017). The Encyclopedia of Herbs and Spices. CABI, Wallingford, UK	"Jasmine and its oil are safe and not associated with any safety issues. There are no cases of toxicity or adverse effects reported from the use of jasmine either as a food additive or as herbal medicine. There are many other plants (other than the species of <i>Jasminum</i> mentioned here) known as jasmynes, however, such as the night jasmine, tree jasmine, etc. that might be toxic."
	Gardenersworld.com. (2020). <i>Jasminum sambac</i> . https://www.gardenersworld.com/plants/jasminum-sambac/ . [Accessed 30 Oct 2020]	" <i>Jasminum sambac</i> has no toxic effects reported. No reported toxicity to: No reported toxicity to Birds No reported toxicity to Cats No reported toxicity to Dogs No reported toxicity to Horses No reported toxicity to Livestock No reported toxicity to People"

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Missouri Botanical Garden. (2020). <i>Jasminum sambac</i> . http://www.missouribotanicalgarden.org . [Accessed 29 Oct 2020]	"No serious insect or disease problems. Aphids or spider mites may occur. Watch for leaf spot and root rot. "
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Whiteflies, mealybugs, thrips, scale, and red spider mites attack the foliage but can be controlled with the appropriate chemical sprays."

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Ravindran, P. N. (2017). The Encyclopedia of Herbs and Spices. CABI, Wallingford, UK	"Jasmine and its oil are safe and not associated with any safety issues. There are no cases of toxicity or adverse effects reported from the use of jasmine either as a food additive or as herbal medicine. There are many other plants (other than the species of <i>Jasminum</i> mentioned here) known as jasmynes, however, such as the night jasmine, tree jasmine, etc. that might be toxic."
	Gardenersworld.com. (2020). <i>Jasminum sambac</i> . https://www.gardenersworld.com/plants/jasminum-sambac/ . [Accessed 30 Oct 2020]	" <i>Jasminum sambac</i> has no toxic effects reported. No reported toxicity to: No reported toxicity to Birds No reported toxicity to Cats No reported toxicity to Dogs No reported toxicity to Horses No reported toxicity to Livestock No reported toxicity to People"
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Used medicinally] "Used in Ayurveda, Unani and Sidha. Cooling, in fever. Flowers poultice applied to the breasts to reduce the secretion of milk. Fresh roots eaten for venereal diseases. For wounds, sore eyes, ringworm, pound the leaves and poultice; leaves applied as antiinflammatory in skin diseases. Leaves and roots decoction taken for fever. Ceremonial, ritual, ingredient of Patra pooja in different religious pooja ceremonies."
408	Creates a fire hazard in natural ecosystems	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	Unknown. No information found on flammability of fire risk
409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Fertile, moist, but well-drained soils in sunny to partially shaded places are preferred."
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"Jasmine grows on almost any soil type with soil pH of 4.9–8.3 and ample water supply and in full sun in areas with temperatures from 11 to 28 °C and annual precipitation of 300–2,800 mm."
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	"Jasmine grows on almost any soil type with soil pH of 4.9–8.3 and ample water supply and in full sun in areas with temperatures from 11 to 28 °C and annual precipitation of 300–2,800 mm."
411	Climbing or smothering growth habit	y

Qsn #	Question	Answer
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Evergreen scrambler or weak climber"
	Woodson, R., Schery, R., & D'Arcy, W. (1976). Flora of Panama. Part VIII. Family 158. Oleaceae. Annals of the Missouri Botanical Garden, 63(3), 553-564	"Shrubs, or woody vines to 2 m high, much branched; twigs terete or slightly compressed, sometimes hollow, often with a prominent groove, puberulent with weak, ascending hairs."

412	Forms dense thickets	n
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	[No evidence] "In its native habitat, it is found from near sea level to 800 m altitude."
	Lohr, M. T., Lohr, C. A., Keighery, G., & Long, V. (2016). The status and distribution of non-native plants on the gazetted and territorial islands off the north coast of Western Australia. Conservation Science Western Australia 10, 8	[No evidence] " <i>Jasminum sambac</i> (Arabian jasmine) – Recorded on Christmas Island and in the Cocos Islands. Recorded as cultivated on Christmas Island as early as 1904 (Swarbrick 1997). Persisting around former residences where it was cultivated (Flora of Australia Online n.d.) but probably not truly naturalised. Flora of Australia Online (n.d.) states that <i>J. sambac</i> was introduced to Christmas Island by Cocos Islanders but no other records indicate the presence of this species in the Cocos Islands."
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence. Cultivated in the Hawaiian Islands

501	Aquatic	n
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	[Terrestrial] "In its native habitat, it is found from near sea level to 800 m altitude."

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 30 Oct 2020]	Genus: <i>Jasminum</i> Section: <i>Unifoliolata</i> Family: <i>Oleaceae</i> Tribe: <i>Jasmineae</i>

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 30 Oct 2020]	Genus: <i>Jasminum</i> Section: <i>Unifoliolata</i> Family: <i>Oleaceae</i> Tribe: <i>Jasmineae</i>

Qsn #	Question	Answer
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	de Padua, L.S., Bunyaphratsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands	"A shrub, untidy (straggling) climbing or lax when young and rooting at the nodes or ascending, up to 3 m tall"

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	de Padua, L.S., Bunyaphratsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands	[No evidence] "J. sambac probably originated in India and was brought to Malaysia and Java around the 3rd Century; since then widely cultivated throughout the Malesian region for its heavily scented flowers."

602	Produces viable seed	
	Source(s)	Notes
	Whistler, W.A. 2000. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"FRUIT a two-lobed berry, infrequently formed in cultivation. PROPAGATE by cuttings."
	Acevedo-Rodríguez, P. 2005. Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Fruits not observed."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."
	de Padua, L.S., Bunyaphratsara, N. & Lemmens, R.H.M.J. (Eds.). 1999. Plant Resources of South-East Asia. No 12(1). Medicinal and Poisonous Plants 1. Backhuys Publishers, Leiden, The Netherlands	[Possibly, but apparently rarely in the Hawaiian Islands] "fruit a black berry, surrounded by the calyx. J. sambac is widely planted and occurring from sea-level up to 800 m altitude. Several double-flowered varieties are recognized, none of which produce fruit."

603	Hybridizes naturally	
	Source(s)	Notes
	Lim, T.K. 2014. Edible Medicinal And Non-Medicinal Plants. Volume 8, Flowers. Springer, Dordrecht	Unknown. No evidence found

Qsn #	Question	Answer
604	Self-compatible or apomictic	
	Source(s)	Notes
	Kiew, R., & Tan, J. (2020). Revision of <i>Jasminum</i> (Oleaceae) in Peninsular Malaysia and Singapore. <i>Edinburgh Journal Botany</i> 77: 1–40	"No pollinator or even flower visitor has been observed visiting Malaysian jasmines, although fruits can usually be found, indicating that pollination has been successful. (<i>Jasminum</i> species are not reported to be apomictic.)"
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	[Unknown, but possibly irrelevant in the Hawaiian Islands due to rarity of fruit and seed production] "Cultivated plants are mostly sterile and do not produce fruit."

605	Requires specialist pollinators	
	Source(s)	Notes
	Kiew, R., & Tan, J. (2020). Revision of <i>Jasminum</i> (Oleaceae) in Peninsular Malaysia and Singapore. <i>Edinburgh Journal Botany</i> 77: 1–40	"No pollinator or even flower visitor has been observed visiting Malaysian jasmines, although fruits can usually be found, indicating that pollination has been successful. (<i>Jasminum</i> species are not reported to be apomictic.). Indeed, worldwide, there are very few pollination studies of jasmines. The author of one such study carried out in southern France reported a wide range of flower visitors to the yellow-flowered species <i>Jasminum fruticans</i> L., which included 12 bee species, 9 butterflies, 2 hawk moths, 2 beetles and 1 bee fly, although which were the primary pollinators was not ascertained (Thompson, 2001)." ... "Generally, jasmine flowers display the classic characters of flowers pollinated by moths (Fægri & van der Pijl, 1979). The flowers are white and strongly fragrant towards dusk; the corolla has a long, narrow tube; and the lobes are deeply divided and form a regular starlike outline."

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	Whistler, W.A. 2000. <i>Tropical Ornamentals: A Guide</i> . Timber Press, Portland, OR	"Propagate by cuttings. Fertile, moist, but well-drained soils in sunny to partially shaded places are <i>Jasminum sambac</i> preferred. It is often grown as a foundation or border plant, or in mass plantings." [Unknown, but lack of naturalization in Hawaii suggests this plant does not spread vegetatively through natural means]

607	Minimum generative time (years)	
	Source(s)	Notes
	Whistler, W.A. 2000. <i>Tropical Ornamentals: A Guide</i> . Timber Press, Portland, OR	"FRUIT a two-lobed berry, infrequently formed in cultivation." [Unknown, but may be irrelevant in the Hawaiian Islands due to lack of fruit and seed production]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes

Qsn #	Question	Answer
	Acevedo-Rodríguez, P. 2005. Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	"Fruits not observed."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Jasminum sambac is commonly cultivated in Hawaii for its strongly fragrant flowers, which are used to flavor tea in China, and to make leis in Hawaii and India."
	Whistler, W.A. 2000. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Jasminum sambac, Arabian jasmine, is native to India but is widely cultivated in the tropics and subtropics. In India it is one of the most commonly grown ornamental plants, in China it is used to scent jasmine tea, in Hawaii it is popular for making leis, and in the Philippines it is the national flower."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

704	Propagules adapted to wind dispersal	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."
	Acevedo-Rodríguez, P. 2005. Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[Probably bird-dispersed if fruits are produced. Fruit production absent in the Hawaiian Islands] "fruit a black berry, surrounded by the calyx."

705	Propagules water dispersed	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

Qsn #	Question	Answer
706	Propagules bird dispersed	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

708	Propagules survive passage through the gut	
	Source(s)	Notes
	Acevedo-Rodríguez, P. 2005. Vines and Climbing Plants of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium Volume 51: 1-483. Smithsonian Institution, Washington, D.C.	[Probably bird-dispersed if fruits are produced. Fruit production absent in the Hawaiian Islands] "fruit a black berry, surrounded by the calyx."

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Whistler, W.A. 2000. Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Fruit a two-lobed berry, infrequently formed in cultivation. Propagate by cuttings."
	Woodson, R., Schery, R., & D'Arcy, W. (1976). Flora of Panama. Part VIII. Family 158. Oleaceae. Annals of the Missouri Botanical Garden, 63(3), 553-564	"Fruits not seen."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Singh, A. K. (2006). Flower Crops: Cultivation and Management. New India Publishing, New Delhi	"Few varieties of <i>J. sambac</i> have been reported to set seeds ... Viability of seeds is up to 10 months."
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Not in the Hawaiian Islands and perhaps in other locations where cultivated] "Cultivated plants are mostly sterile and do not produce fruit."

803	Well controlled by herbicides	
	Source(s)	Notes

Qsn #	Question	Answer
	Weber, E. 2017. Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Unknown. Methods to control <i>J. fluminense</i> may be effective if needed] "No specific control methods are available for this species. Motooka et al. (2003) state that the plant is sensitive to triclopyr and that it can be controlled by the cut stump treatment."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	Y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"The scrambling, sprawling stems must be trimmed regularly to develop a compact, erect plant and to encourage new growth on which flowers are borne."
	Lokhande, S., Chopde, N., Wasnik, P., & Nehare, N. (2015). Response of <i>Jasminum sambac</i> (L.) to time and severity of pruning. Plant Archives, 15(2), 759-762	[Tolerates heavy pruning] "An experiment entitled "Response of <i>Jasminum sambac</i> (L.) to time and severity of pruning" was carried out at Satpuda Botanic Garden, College of Agriculture, Nagpur from December, 2013 to August, 2014 with sixteen treatment combinations in Factorial Randomised Block Design. The treatments comprised of four different time of pruning viz., 2nd week of December, 4th week of December, 2nd week of January and 4th week of January and four levels of severity of pruning viz., light pruning (45 cm above ground level), medium pruning (30 cm above ground level), heavy pruning (15 cm above ground level) and no pruning (control). The treatments were imposed on two year old plants of <i>Jasminum sambac</i> (L). The results revealed that significantly maximum length of primary shoot, leaf area, flower buds plant-1 and flower yield ha-1 were recorded when the jasmine plants pruned during 4th week of December, whereas, minimum days for sprouting and maximum secondary laterals primary shoot-1 were found when the plants pruned during 2th week of January. Significantly minimum days for emergence of first flower were required due to pruning at 4th week of January. Whereas, longevity of intact flower, diameter of flower bud, flower bud index and shelf life of flower were non-significantly influenced by time of pruning. In respect of severity of pruning, length of primary shoot, secondary laterals primary shoot-1, leaf area, longevity of intact flower, flower buds plant-1, flower yield ha-1, diameter of flower bud and shelf life of flower were found significantly maximum, whereas, days for sprouting, days for emergence of first flower and flower bud index were found significantly minimum when the plants pruned at 30 cm above ground level. Interaction effect of time and severity of pruning on all the characters of jasmine under study was found nonsignificant."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Whiteflies, mealybugs, thrips, scale, and red spider mites attack the foliage but can be controlled with the appropriate chemical sprays."

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows, and could potentially spread, in regions with tropical climates
- Reported to be naturalized in a number of locations (but no evidence in the Hawaiian Islands to date)
- Reported to be invasive in a number of locations, but the evidence in some instances is erroneous, and could not be verified in others
- Other *Jasminum* species have become invasive
- Tolerates many soil types
- Climbing and potentially smothering growth habit
- Reproduces by seeds elsewhere (but rarely fruits in the Hawaiian Islands and other locations outside native range)
- Seeds, if produced, may be dispersed by birds, and intentionally cultivated by people
- Tolerates, and resprouts, after repeated, heavy pruning

Low Risk Traits

- No reports of naturalization or invasiveness in the Hawaiian Islands, with a long history of cultivation
- Unarmed (no spines, thorns, or burrs)
- Palatable to browsing animals
- Rarely fruits or sets seeds in Hawaiian Islands and elsewhere
- Lack of fruit and seed production limits ability to spread or escape from cultivation

Second Screening Results for Vines & Lianas

- (A) Reported as a weed of cultivated lands?> No evidence
- (B) Unpalatable to grazers Or known to form dense stands?> No evidence
- (C) Shade tolerant or known to form dense stands?> Tolerates part shade
- (D) Bird- Or clearly wind- dispersed?> Presumably bird-dispersed, if fruits and seeds are produced
- (E) Life cycle <4 years? Unknown

Outcome = Evaluate