

<b>Taxon:</b> <i>Clerodendrum indicum</i> (L.) Kuntze	<b>Family:</b> Lamiaceae
<b>Common Name(s):</b> glory bower Indian glory bower skyrocket tubbeflower Turk's turban	<b>Synonym(s):</b> <i>Clerodendrum siphonanthus</i> W. T. Aiton <i>Siphonanthus indicus</i> L.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Approved	<b>End Date:</b> 1 Dec 2023
<b>WRA Score:</b> 10.0	<b>Designation:</b> H(HPWRA)	<b>Rating:</b> High Risk

**Keywords:** Ornamental Shrub, Naturalizing (Oahu), Weedy, Suckering, Bird-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	y = 1*multiplier (see Appendix 2), n = 0	y
303	Agricultural/forestry/horticultural weed		
304	Environmental weed		
305	Congeneric weed	y = 1*multiplier (see Appendix 2), n = 0	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	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)	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		
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	y
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	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y = 1, n = -1	y
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y = 1, n = -1	y
801	Prolific seed production (>1000/m <sup>2</sup> )	y = 1, n = -1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides	y = -1, n = 1	y
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
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence of domestication] "Roadsides on mountain slopes; 500-1000 m. Guangdong, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Thailand]."
102	Has the species become naturalized where grown?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2023). Personal Communication	NA
103	Does the species have weedy races?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2023). 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
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Roadsides on mountain slopes; 500-1000 m. Guangdong, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Thailand]."
202	Quality of climate match data	High
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Roadsides on mountain slopes; 500-1000 m. Guangdong, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Thailand]."
203	Broad climate suitability (environmental versatility)	y
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Roadsides on mountain slopes; 500-1000 m."
	van Valkenburg, J.L.C.H. and Bunyaphratharsa, N. (Editors). (2001). Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2. PROSEA Foundation, Bogor, Indonesia	[Elevation range potentially >1000m] "In Java cultivated from sea-level up to 1200 m altitude; naturalized in grassy, sunny or slightly shaded localities near human settlements from sea-level up to 500 m altitude."
204	Native or naturalized in regions with tropical or subtropical climates	y
	<b>Source(s)</b>	<b>Notes</b>
	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.	" <i>Clerodendrum indicum</i> (L.) Kuntze, with fertile flowers, corolla tube 7.5-14 cm long, and leaves usually in whorls of 3-6, has long been cultivated in Hawai'i and is adventive on O'ahu."

Qsn #	Question	Answer
	Wearn, J. A., & Mabberley, D. J. (2011). <i>Clerodendrum</i> (Lamiaceae) in Borneo. <i>Systematic Botany</i> , 36(4): 1050-1061	"Distribution and Habitat-The species is known from India, Nepal, southern China, Thailand, Vietnam, Peninsular Malaysia, Sumatra, Java, Borneo, Sulawesi, and the Moluccas. It is widely introduced in Malesia such that the original native distribution is now unclear and is probably naturalized in Borneo and further to the east. It is occasional on river banks and other damp, open land, including waste ground."
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). <i>Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2</i> . PROSEA Foundation, Bogor, Indonesia	"Distribution Native to India and Nepal, eastward to Burma (Myanmar), southern China, IndoChina, Thailand and Peninsular Malaysia; naturalized in Indonesia, Madagascar, southern USA, West Indies and northern South America."

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	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	" <i>Clerodendrum indicum</i> has a sizable range from India and Nepal east to southern China and south through Southeast Asia. It has been widely dispersed as a horticultural subject and is cultivated in virtually every tropical region; in Hawai'i it is occasionally cultivated."

301	<b>Naturalized beyond native range</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	Wagner, W.L., Herbst, D.R. & Sohmer, S.H. (1999). <i>Manual of the flowering plants of Hawaii</i> . Revised edition. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	" <i>Clerodendrum indicum</i> (L.) Kuntze, with fertile flowers, corolla tube 7.5-14 cm long, and leaves usually in whorls of 3-6, has long been cultivated in Hawai'i and is adventive on O'ahu."
	Nelson, G. (2011). <i>Botanical Keys to Florida's Trees, Shrubs, and Woody Vines</i> . Pineapple Press Inc., Sarasota, FL	" <i>Clerodendrum indicum</i> (Linnaeus) Kuntze. Turk's Turban, Skyrocket. Disturbed sites, escaped from cultivation. Sporadically and potentially naturalized statewide, except the Keys. East Indies."
	Wearn, J. A., & Mabberley, D. J. (2011). <i>Clerodendrum</i> (Lamiaceae) in Borneo. <i>Systematic Botany</i> , 36(4): 1050-1061	"Distribution and Habitat-The species is known from India, Nepal, southern China, Thailand, Vietnam, Peninsular Malaysia, Sumatra, Java, Borneo, Sulawesi, and the Moluccas. It is widely introduced in Malesia such that the original native distribution is now unclear and is probably naturalized in Borneo and further to the east. It is occasional on river banks and other damp, open land, including waste ground."
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). <i>Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2</i> . PROSEA Foundation, Bogor, Indonesia	"Distribution Native to India and Nepal, eastward to Burma (Myanmar), southern China, IndoChina, Thailand and Peninsular Malaysia; naturalized in Indonesia, Madagascar, southern USA, West Indies and northern South America."
	Nicolson, D.H. 1991. <i>Flora of Dominica, Part 2: Dicotyledoneae</i> . Smithsonian Contributions to Botany, Number 77, 274 pp.	"East Indies, cultivated and naturalizing elsewhere; said to be a common weed in banana and coconut groves of Dominica: Stewarts River (Wilbur 8028), sine loc. (Imray 153 at K). Flowering July."

302	<b>Garden/amenity/disturbance weed</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	Nicolson, D.H. 1991. <i>Flora of Dominica, Part 2: Dicotyledoneae</i> . Smithsonian Contributions to Botany, Number 77, 274 pp.	[A weed of banana and coconut groves, but impacts on yields have not been specified] "East Indies, cultivated and naturalizing elsewhere; said to be a common weed in banana and coconut groves of Dominica:"
	Mid-Florida Research & Education Center. (2023). <i>Clerodendrum indicum</i> . <a href="https://mrec.ifas.ufl.edu/research/weedsbyflowercolor/white/clerodendrumindicum/">https://mrec.ifas.ufl.edu/research/weedsbyflowercolor/white/clerodendrumindicum/</a> . [Accessed 30 Nov 2023]	[Described as a landscape weed of unspecified impacts] "Turk's turban ( <i>Clerodendrum indicum</i> ) is a landscape weed indigenous to temperate and tropical Asia from China to the Philippines, where it is used for medicinal purposes. This species was introduced as a ornamental and is believed to have escaped cultivation. Once established, this plant often is mistaken for woody species, such as shrubs or trees, given it's upright growth and woody stems."

Qsn #	Question	Answer
	Dave's Garden. (2023). <i>Clerodendrum</i> Species, Bowling Lady, Sky Rocket, Tubeflower, Turk's Turban - <i>Clerodendrum indicum</i> . <a href="https://davesgarden.com/guides/pf/go/54153">https://davesgarden.com/guides/pf/go/54153</a> . [Accessed 30 Nov 2023]	[Described as an aggressive landscaping weed and nuisance] "Houston, TX (Zone 9a)   October 2015   negative I hate to give a plant a negative rating but for me in my zone, the negatives outweigh the positives. It would be just wonderful if it didn't travel! I had/have (explained later) it in a shady spot by the house. It grows tall & drops over; it will not branch out with pruning. It does make nice white flower clusters that leave a pretty red cluster when gone. But it travels underground & pops up everywhere. My hubby finally took out the main plant but I don't know how long it will take to get rid of the whole thing. I have a small space & need well-behaved plants!  Saint Petersburg, FL   July 2007   negative This plant is my bane. It suckers so aggressively here in Florida that you cannot get rid of it. The roots spread for yards and yards, so that you can't dig it all up and Round-Up doesn't seem to faze the roots. It has the very annoying habit of popping up in the middle of other plants where efforts to dig it out would severely damage the desirable plants."
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 30 Nov 2023]	[Potential future environmental weed] "Impact: Environmental - <i>C. indicum</i> is not recorded to have made significant negative economic or environmental impacts in the places where it has been introduced; rather it is more of a common weed in, for example, parts of the United States including Texas, where the species is "not showing aggressively invasive tendencies, or perhaps incipiently invasive" (Nesom, 2009)."

303	Agricultural/forestry/horticultural weed	
	Source(s)	Notes
	Nicolson, D.H. 1991. Flora of Dominica, Part 2: Dicotyledoneae. Smithsonian Contributions to Botany, Number 77, 274 pp.	[A weed of banana and coconut groves, but impacts on yields have not been specified] "East Indies, cultivated and naturalizing elsewhere; said to be a common weed in banana and coconut groves of Dominica:"

304	Environmental weed	
	Source(s)	Notes
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	[Potential future environmental weed] "Impact: Environmental - <i>C. indicum</i> is not recorded to have made significant negative economic or environmental impacts in the places where it has been introduced; rather it is more of a common weed in, for example, parts of the United States including Texas, where the species is "not showing aggressively invasive tendencies, or perhaps incipiently invasive" (Nesom, 2009)."

305	Congeneric weed	y
	Source(s)	Notes
	CABI. (2023). CABI Compendium Invasive Species. <a href="https://www.cabidigitallibrary.org/product/qi">https://www.cabidigitallibrary.org/product/qi</a> . [Accessed 30 Nov 2023]	" <i>C. chinense</i> is a highly invasive weed in tropical and subtropical ecosystems. " ..." <i>C. speciosissimum</i> is an attractive shrub or subshrub listed as an environmental weed, naturalized weed, and cultivation escape" ... " <i>C. quadriloculare</i> is a highly invasive perennial shrub."

401	Produces spines, thorns or burrs	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence] "Subshrubs to shrubs 1-2 m tall. Branchlets purple to purplish, channeled, smooth. Leaves whorled with 3-5 per node or opposite, sessile or subsessile, with nodal hairs at petiole base; leaf blade narrowly lanceolate to oblong-lanceolate, 10-21 × 1.3-2.5 cm, membranous, glabrous, base attenuate, margin entire or sinuate, apex short acuminate; midvein prominent, veins 10-12 pairs. Inflorescences terminal leafy thyrses, 20-45 × 10-15 cm; cymes red, few flowered; peduncle to 3 cm; bracts linear-lanceolate to lanceolate, 1-2 cm; bractlets awl-shaped. Calyx 1-1.5 cm, divided 3/4 to base, densely minute round glandular; lobes ovate-lanceolate, 8-15 × 3-6 mm, apex acute. Corolla white, becoming cream colored; tube funnellform, curved, 5-9 cm; lobes spreading, lanceolate, elliptic, or ovate-oblong, 8-15 × 3-6 mm, apex obtuse. Stamens long exerted. Ovary glabrous. Style longer than stamens. Fruiting calyx crimson, to 3.8 cm in diam., leathery. Drupes dark blue, ca. 1.2 cm in diam., 2-4-lobed depending on number of pyrenes."

402	Allelopathic	
	Source(s)	Notes
	Kyaw, E. H., Iwasaki, A., Suenaga, K., & Kato-Noguchi, H. (2021). Phytotoxic activity of <i>Clerodendrum indicum</i> (L.) Kuntze and its potential phytotoxic substance. <i>Emirates Journal of Food and Agriculture</i> 33(10): 884-892	[Possibly. Extracts demonstrate allelopathic properties] " <i>Clerodendrum indicum</i> (L.) Kuntze (Lamiaceae), an annual shrub, is renowned for being used in folk medicine in South Asian countries. Several pharmacological properties and many bioactive secondary metabolites from <i>C. indicum</i> have been well documented. However, the phytotoxic activities and the related phytotoxic substances with the allelopathic activity of <i>C. indicum</i> have not yet been reported. Thus, we explored the phytotoxic activity of <i>C. indicum</i> and identified its phytotoxic substance. In the experiment, the dry <i>C. indicum</i> leaves were extracted with aqueous methanol, and then the filtrate of the extracts was concentrated using a rotary evaporator to obtain crude extracts. The <i>C. indicum</i> crude extracts significantly inhibited the shoots and roots of six target species: alfalfa, cress, lettuce, barnyard grass, Italian ryegrass, and timothy. The inhibition increased when the extract concentration was increased. The crude extracts of <i>C. indicum</i> were separated in several chromatography steps, and a phytotoxic substance was isolated and characterized using spectroscopy as p-coumaric acid. p-Coumaric acid significantly suppressed the growth of lettuce and timothy seedlings at concentrations greater than 0.3 and 1 mM, respectively. The concentrations of p-coumaric acid required for 50% inhibition (I50) of the shoots and roots of lettuce and timothy were 0.65 and 0.17 mM, and 0.81 and 0.67 mM, respectively. This study is the first report on isolating p-coumaric acid in <i>C. indicum</i> . The results, therefore, suggest that p-coumaric acid may partly contribute to the phytotoxic properties of <i>C. indicum</i> ."

403	Parasitic	n
	Source(s)	Notes
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Subshrubs to shrubs 1-2 m tall." [No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	Dash, S. K. & Rout, N. C. (2002). Fodder Analysis For Ganjam Goats Reared In Semi-Migratory Range Systems. Pp. 135-142 in Plant Resources Utilization. Allied Publishers Ltd., New Delhi, India	[Fodder for goats] "Table-1 reveals that some of the shrubs as well as tree leaves are made available to the goat lin most of the time during the year where as shrubs like Jhati ( <i>Clerodendrum incticum</i> ), Mundu Mundia Halanda ( <i>Allmania nodiflora</i> L . ) and Achhu ( <i>Morinda tomentosa</i> ) are specifically dominant in winter where as Paladhua ( <i>Erythrina indica</i> ) and Siju ( <i>Euphorbia nivulia</i> ) are abundantly accepted as feed for these animals in summer season. In rainy season, the grass and many other fodder being the first choice for these animals, they seldom depend on tree leaves or specific shrub types."

405	Toxic to animals	n
	Source(s)	Notes
	Dash, S. K. & Rout, N. C. (2002). Fodder Analysis For Ganjam Goats Reared In Semi-Migratory Range Systems. Pp. 135-142 in Plant Resources Utilization. Allied Publishers Ltd., New Delhi, India	[Fodder for goats] "Table-1 reveals that some of the shrubs as well as tree leaves are made available to the goat lin most of the time during the year where as shrubs like Jhati ( <i>Clerodendrum incticum</i> ), Mundu Mundia Halanda ( <i>Allmania nodiflora</i> L . ) and Achhu ( <i>Morinda tomentosa</i> ) are specifically dominant in winter where as Paladhua ( <i>Erythrina indica</i> ) and Siju ( <i>Euphorbia nivulia</i> ) are abundantly accepted as feed for these animals in summer season. In rainy season, the grass and many other fodder being the first choice for these animals, they seldom depend on tree leaves or specific shrub types."
	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

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	"Pests Recorded Aulacophora foveicollis (red pumpkin beetle) Puccinia reynoldsii "

407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Tropical Plants Database, Ken Fern. (2023). <i>Clerodendrum indicum</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum">https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum</a> . [Accessed 30 Nov 2023]	"Known Hazards None known"

Qsn #	Question	Answer
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Edible and medicinal uses] "leaves used as vegetable" ... "Used in Ayurveda. Root for lung disease, asthma, pleural effusion, cough, fatigue, leprosy; crushed roots boiled in water and used as a bath to cure jaundice; root powder given as anthelmintic; root placed in vagina for abortion; root paste and black peppers given to cure chest pain and heart palpitation; root juice to treat diarrhea; powder of dry roots with roots of <i>Sida rhombifolia</i> applied on ulcers. Root, leaf, flower, fruit and seed, to reduce inflammation due to induration. Leaf and root blood purifier, dynamic effect on blood circulatory system, carminative, bronchial asthma, cough, suppurative lung infection, fatigue. Leaves used as a bitter tonic and vermifuge; leaf extract applied to eradicate threadworms; a decoction of rhizome of <i>Curcuma aromatica</i> with roots of <i>Solanum indicum</i> , <i>Solanum surattense</i> and leaves of <i>Clerodendrum indicum</i> given in respiratory trouble; leaf juice taken for fever, herpes, cold and cough; leaf paste with honey taken against cough, fever, dysentery. The juice of the tender parts of the plant used as an external application for skin complaints; resin from the plant is employed for syphilitic rheumatism. Magicoreligious beliefs, tribal wear pieces of stem in the form of garland as magical cure for jaundice."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Wearn, J. A., & Mabberley, D. J. (2011). <i>Clerodendrum</i> (Lamiaceae) in Borneo. <i>Systematic Botany</i> , 36(4): 1050-1061	[Wet habitats, unlikely to be fire prone] "It is occasional on river banks and other damp, open land, including waste ground."
	CABI. (2023). CABI Compendium Invasive Species. <a href="https://www.cabidigitallibrary.org/product/qi">https://www.cabidigitallibrary.org/product/qi</a> . [Accessed 1 Dec 2023]	No evidence. Not listed among actual or potential impacts

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Flora Fauna Web. (2023). <i>Clerodendrum indicum</i> . <a href="https://www.nparks.gov.sg/florafauanaweb/flora/1/8/1822">https://www.nparks.gov.sg/florafauanaweb/flora/1/8/1822</a> . [Accessed 30 Nov 2023]	"Light Preference - Semi-Shade, Full Sun"
	Whistler, W.A. (2000). <i>Tropical Ornamentals: A Guide</i> . Timber Press, Portland, OR	"Moist but well-drained soils in sunny places are preferred."
	Tropical Plants Database, Ken Fern. (2023). <i>Clerodendrum indicum</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum">https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum</a> . [Accessed 30 Nov 2023]	"Succeeds in a moderately to very sunny position in ordinary garden soil [710]."
	Dave's Garden. (2023). <i>Clerodendrum</i> Species, Bowling Lady, Sky Rocket, Tubeflower, Turk's Turban - <i>Clerodendrum indicum</i> . <a href="https://davesgarden.com/guides/pf/go/54153">https://davesgarden.com/guides/pf/go/54153</a> . [Accessed 1 Dec 2023]	"Sun Exposure Sun to Partial Shade Light Shade Partial to Full Shade"
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). <i>Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2</i> . PROSEA Foundation, Bogor, Indonesia	[Slightly shaded localities] "In Java cultivated from sea-level up to 1200 m altitude; naturalized in grassy, sunny or slightly shaded localities near human settlements from sea-level up to 500 m altitude."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes

Qsn #	Question	Answer
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 30 Nov 2023]	"It can tolerate a wide range of soil types, but prefers moist but well-drained soil and partial shade to full sun (Whistler, 2000; Valkenburg and Bunyapraphatsara, 2001; Brown, 2014). It has low tolerance for salt but is fairly drought-resistant (Brown, 2014)."
	Flora Fauna Web. (2023). <i>Clerodendrum indicum</i> . <a href="https://www.nparks.gov.sg/florafaunaweb/flora/1/8/1822">https://www.nparks.gov.sg/florafaunaweb/flora/1/8/1822</a> . [Accessed 30 Nov 2023]	"Moist Soils, Well-Drained Soils, Fertile Loamy Soils"
	Tropical Plants Database, Ken Fern. (2023). <i>Clerodendrum indicum</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum">https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum</a> . [Accessed 30 Nov 2023]	"Succeeds in a moderately to very sunny position in ordinary garden soil [710]. Prefers a moist but well-drained fertile soil [974]."

411	Climbing or smothering growth habit	n
Source(s)		Notes
	Wu, Z. Y. & P. H. Raven, (eds). (1994). <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Subshrubs to shrubs 1-2 m tall."

412	Forms dense thickets	n
Source(s)		Notes
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). <i>Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2</i> . PROSEA Foundation, Bogor, Indonesia	[No evidence] "C. indicum easily escapes cultivation through its stolons. In Java cultivated from sea-level up to 1200 m altitude; naturalized in grassy, sunny or slightly shaded localities near human settlements from sea-level up to 500 m altitude."
	Nicolson, D.H. 1991. <i>Flora of Dominica, Part 2: Dicotyledoneae</i> . Smithsonian Contributions to Botany, Number 77, 274 pp.	[No evidence] "East Indies, cultivated and naturalizing elsewhere; said to be a common weed in banana and coconut groves of Dominica:"
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	[No evidence] "The species reproduces by seeds, rooted cuttings, and suckers, but does not appear to be as invasive as some other members of the <i>Clerodendrum</i> genus and is not currently a significant threat to native flora."

501	Aquatic	n
Source(s)		Notes
	Wu, Z. Y. & P. H. Raven, (eds). (1994). <i>Flora of China</i> . Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Terrestrial] "Roadsides on mountain slopes; 500-1000 m."

502	Grass	n
Source(s)		Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). <i>Germplasm Resources Information Network (GRIN-Taxonomy)</i> . National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 29 Nov 2023]	"Genus: <i>Clerodendrum</i> Family: Lamiaceae (alt. Labiatae) Subfamily: Ajugoideae"

Qsn #	Question	Answer
503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 29 Nov 2023]	"Genus: <i>Clerodendrum</i> Family: Lamiaceae (alt. Labiatae) Subfamily: Ajugoideae"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Subshrubs to shrubs 1-2 m tall."

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2. PROSEA Foundation, Bogor, Indonesia	[No evidence] "Distribution Native to India and Nepal, eastward to Burma (Myanmar), southern China, IndoChina, Thailand and Peninsular Malaysia; naturalized in Indonesia, Madagascar, southern USA, West Indies and northern South America."
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[No evidence] "Roadsides on mountain slopes; 500-1000 m. Guangdong, Yunnan [Bhutan, Cambodia, India, Laos, Malaysia, Myanmar, Nepal, Thailand]."

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Propagate by seeds or root suckers."
	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	"Propagation is by seed."
	Tropical Plants Database, Ken Fern. (2023). <i>Clerodendrum indicum</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum">https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum</a> . [Accessed 30 Nov 2023]	"Propagation. Seed - best sown as soon as it is ripe. Germination can be erratic but usually takes place within 20 - 60 days at 20°C [164]. When large enough to handle, prick the seedlings out into individual pots and grow them on until large enough to plant out. Root cuttings, 6 - 8cm long usually grow away well [78] Division of suckers in the dormant season. Very easy, they can be planted out direct into their permanent positions if required."

Qsn #	Question	Answer
603	Hybridizes naturally	
	<b>Source(s)</b>	<b>Notes</b>
	Rueda, R. M. (1993). The genus <i>Clerodendrum</i> (verbenaceae) in Mesoamerica. <i>Annals of the Missouri Botanical Garden</i> , 80(4): 870-890	[Interspecific hybrids documented in genus] "Many species seem to be closely related, with some hybridization reported. Some of the species are extremely variable, due to environmental factors and horticultural selection, which has led taxonomists to describe many taxa."
	Leeratiwong, C., Chantaranonthai, P., & Paton, A. J. (2011). A synopsis of the genus <i>Clerodendrum</i> L.(Lamiaceae) in Thailand. <i>Tropical Natural History</i> , 11(2), 177-211	[No evidence, but hybrids documented in genus] "A hybrid species, <i>C. x speciosum</i> Teijsm. & Binn. is possibly a cross between <i>C. splendens</i> and <i>C. thomsoniae</i> and is often mistaken as <i>C. thomsoniae</i> ."

604	Self-compatible or apomictic	
	<b>Source(s)</b>	<b>Notes</b>
	Yuan, Y. W., Mabberley, D. J., Steane, D. A., & Olmstead, R. G. (2010). Further disintegration and redefinition of <i>Clerodendrum</i> (Lamiaceae): implications for the understanding of the evolution of an intriguing breeding strategy. <i>Taxon</i> , 59(1), 125-133	[Unknown for <i>C. indicum</i> ] "The study also sheds light on the evolution of an intriguing breeding strategy that avoids self-pollination or/and sexual interference. This strategy involves presentation of pollen and stigma in the centre of the flower in a sequential fashion by moving the filaments and style. It appears to have evolved in the common ancestor of <i>Clerodendrum</i> , <i>Volkameria</i> , <i>Ovieda</i> , <i>Amasonia</i> , <i>Tetraclea</i> , <i>Aegiphila</i> and <i>Kalaharia</i> , and still occurs in all of these taxa except <i>Aegiphila</i> , where it has been succeeded by a heterostylous system."

605	Requires specialist pollinators	n
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	<p>Ghosh, A., &amp; Pal, P. K. (2017). Pollination ecology of <i>Clerodendrum indicum</i> (Lamiaceae): first report of deceit pollination by anther-mimicking stigma in a bisexual flower. <i>Revista de Biología Tropical</i>, 65(3), 988-1001</p>	<p>[Ten species of insects belonging to the orders Hymenoptera (three species), Diptera (two species), Coleoptera (two species), Lepidoptera (two species) and Orthoptera (one species), were found to regularly visit the flowers of <i>C. indicum</i>] "Abstract: <i>Clerodendrum indicum</i> (Lamiaceae) is a medicinally important shrub. We have studied the details of its pollination ecology which was hitherto unknown. The work was done during three consecutive years 2012-2014, based on 118 plants occurring in three widely separated wild populations in West Bengal, India, together with 25 individuals grown in an experimental plot. Details of flower structure and dynamics of floral events, pollen production and pollen dispersal, visitors and pollinators, floral attractants and floral rewards and pollen transfer mechanism have been worked out by standard methodologies with a 10x high resolution hand lens (IRL), a Leica WILD M3B Stereo-binocular microscope (Switzerland) and a Leica DMLB compound bright field light microscope (Germany). The tubular flower of four-day longevity attracts its visitors by visual cues. Flowers are visited regularly by ten species of insects. On the basis of the visitor behaviour, these can be classified into three distinct categories, viz., visitors belonging to Category-I act on cushion and trichome nectaries of calyx and corolla respectively, those of Category-II act on the dehisced anthers and trichome nectaries of corolla while those of Category-III act on dehisced anthers as well as receptive stigma. Majority of the visitors belong to either Category-I or Category-II. They visit only the 2nd day flowers and never visit a 3rd day flower when the stigma assumes receptivity. Therefore, they are not regarded as pollinators but, act as pollen and/or nectar robbers. Those are discriminated by offering secretions from extra-nuptial nectaries of the flower. Visitor species of Category-III, represented by a species of <i>Trigona</i>, constitute the legitimate pollinator of the plant and thereby, making the plant monophilic. Pollen presentation from the bisexual, dichogamous and protandrous flower takes place on the 2nd day, while the stigma assumes its receptivity on the 3rd day of flower opening. Pollen transfer to the body of the pollinator by a 2nd day flower in its male phase is achieved by offering edible pollen grains. On the other hand, a 3rd day flower at its female phase is devoid of the reward (pollen grain). The yellow shiny receptive stigma of such a flower strikingly mimics the freshly dehisced anthers and the pollinators being lured by such a stigma inadvertently transfer pollen onto it. <i>C. indicum</i> is so far the only known species of flowering plants where deceit pollination occurs by anther-mimicking stigma in a bisexual flower."</p>

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	van Valkenburg, J.L.C.H. and Bunyapraphatsara, N. (Editors). (2001). Plant Resources of South-East Asia No 12(2): Medicinal and Poisonous Plants 2. PROSEA Foundation, Bogor, Indonesia	"C. indicum easily escapes cultivation through its stolons."
	Tropical Plants Database, Ken Fern. (2023). <i>Clerodendrum indicum</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum">https://tropical.theferns.info/viewtropical.php?id=Clerodendrum+indicum</a> . [Accessed 30 Nov 2023]	"Growing from an aggressively suckering, stoloniferous rootstock, the plant can be up to 3 metres tall, the stems usually very straight or arching, mostly unbranched, hollow"
	Dave's Garden. (2023). <i>Clerodendrum</i> Species, Bowling Lady, Sky Rocket, Tubeflower, Turk's Turban - <i>Clerodendrum indicum</i> . <a href="https://davesgarden.com/guides/pf/go/54153">https://davesgarden.com/guides/pf/go/54153</a> . [Accessed 30 Nov 2023]	"suzanne_v Saint Petersburg, FL   July 2007   negative - This plant is my bane. It suckers so aggressively here in Florida that you cannot get rid of it. The roots spread for yards and yards, so that you can't dig it all up and Round-Up doesn't seem to faze the roots. It has the very annoying habit of popping up in the middle of other plants where efforts to dig it out would severely damage the desirable plants."
	Srivastava, S., Dvivedi, A., & Shukla, R. P. (2015). Commonness and rarity pattern of plant species within Terai grassland of northeastern Uttar Pradesh, India. <i>Tropical Grasslands-Forrajes Tropicales</i> , 3(3), 161-186	[Spreads from rhizomes] "Other species like <i>Boerhavia diffusa</i> and <i>Clerodendrum indicum</i> could directly build up a large phytomass from their root-stock and rhizome systems. Their dense vegetative cover suppresses the subordinate species and thus promotes the homogeneity of the community (Armesto and Pickett 1985)."

607	Minimum generative time (years)	
	Source(s)	Notes
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	[Unknown, but may be able to spread vegetatively before reaching reproductive maturity] "Considering the widespread distribution, rapid growth rate, and ability to reproduce both by seed and vegetatively, this species has potential to negatively impact environments"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	[Possibly, but unlikely to be an important vector] "Seeds of <i>Clerodendrum</i> are encased in shiny purple berries which may be dispersed by birds and other animals (Rueda, 1993). Additionally, it is a suckering plant and can be spread by movement of humans and animals who may transport rhizome fragments."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	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	" <i>Clerodendrum indicum</i> has a sizable range from India and Nepal east to southern China and south through Southeast Asia. It has been widely dispersed as a horticultural subject and is cultivated in virtually every tropical region; in Hawai'i it is occasionally cultivated."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	[No evidence. Although could possibly be a seed contaminant in other potted ornamental plants] "Major Pathway/s: Crop, Herbal, Ornamental Dispersed by: Humans, Escapee"

Qsn #	Question	Answer
704	Propagules adapted to wind dispersal	n
	<b>Source(s)</b>	<b>Notes</b>
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	"Drupes dark blue, ca. 1.2 cm in diam., 2-4-lobed depending on number of pyrenes." [Fleshy-fruited]
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	"Seeds of <i>Clerodendrum</i> are encased in shiny purple berries which may be dispersed by birds and other animals (Rueda, 1993). Additionally, it is a suckering plant and can be spread by movement of humans and animals who may transport rhizome fragments."
705	Propagules water dispersed	
	<b>Source(s)</b>	<b>Notes</b>
	Wearn, J. A., & Mabberley, D. J. (2011). <i>Clerodendrum</i> (Lamiaceae) in Borneo. <i>Systematic Botany</i> , 36(4): 1050-1061	[Possibly dispersed by water in riparian habitats] "It is occasional on river banks and other damp, open land, including waste ground."
706	Propagules bird dispersed	y
	<b>Source(s)</b>	<b>Notes</b>
	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	"Frt purplish, separating into 4 stones. Seed 1 per stone."
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	"Seeds of <i>Clerodendrum</i> are encased in shiny purple berries which may be dispersed by birds and other animals (Rueda, 1993). Additionally, it is a suckering plant and can be spread by movement of humans and animals who may transport rhizome fragments."
707	Propagules dispersed by other animals (externally)	
	<b>Source(s)</b>	<b>Notes</b>
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	[Possibly, but unlikely given lack of external attachment mechanisms] "Seeds of <i>Clerodendrum</i> are encased in shiny purple berries which may be dispersed by birds and other animals (Rueda, 1993). Additionally, it is a suckering plant and can be spread by movement of humans and animals who may transport rhizome fragments."
708	Propagules survive passage through the gut	y
	<b>Source(s)</b>	<b>Notes</b>
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.14330</a> . [Accessed 1 Dec 2023]	"Seeds of <i>Clerodendrum</i> are encased in shiny purple berries which may be dispersed by birds and other animals (Rueda, 1993). Additionally, it is a suckering plant and can be spread by movement of humans and animals who may transport rhizome fragments."
	Wu, Z. Y. & P. H. Raven, (eds). (1994). Flora of China. Vol. 17 (Verbenaceae through Solanaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.	[Presumably yes. Fleshy-fruited] "Drupes dark blue, ca. 1.2 cm in diam., 2-4-lobed depending on number of pyrenes."

Qsn #	Question	Answer
801	Prolific seed production (>1000/m2)	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	"Frt purplish, separating into 4 stones. Seed 1 per stone." [Unlikely. Few seeds per fruit]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	SER, INSR, RBGK, (2023). Seed Information Database (SID). <a href="https://ser-sid.org/">https://ser-sid.org/</a> . [Accessed 1 Dec 2023]	Unknown for <i>Clerodendrum indicum</i> . Other species have orthodox seed

803	Well controlled by herbicides	y
	Source(s)	Notes
	Dave's Garden. (2023). <i>Clerodendrum</i> Species, Bowling Lady, Sky Rocket, Tubeflower, Turk's Turban - <i>Clerodendrum indicum</i> . <a href="https://davesgarden.com/guides/pf/go/54153">https://davesgarden.com/guides/pf/go/54153</a> . [Accessed 30 Nov 2023]	[Anecdotal report that Round-Up is not effective] "suzanne_v Saint Petersburg, FL   July 2007   negative - This plant is my bane. It suckers so aggressively here in Florida that you cannot get rid of it. The roots spread for yards and yards, so that you can't dig it all up and Round-Up doesn't seem to faze the roots. It has the very annoying habit of popping up in the middle of other plants where efforts to dig it out would severely damage the desirable plants."
	Swarbrick, J.T. (1997). Weeds of the Pacific Islands. Technical paper no. 209. South Pacific Commission, Noumea, New Caledonia	[Control methods for <i>C. chinense</i> would likely be effective] "Probably susceptible to: 1) foliar application of arboricides such as picloram, metsulfuron methyl, glyphosate and triclopyr at standard rates and dilutions; 2) cut-stump application of the same herbicides; 3) soil application of hexazinone, karbutilate, fluroxypyr and bromacil at standard rates"
	Englberger, K. (2009). Invasive weeds of Pohnpei: A guide for identification and public awareness. Conservation Society of Pohnpei, Kolonia, FM	[Control methods for <i>C. chinense</i> would likely be effective] "Young plants can be sprayed by a herbicide such as triclopyr (Garlon 4). Undiluted herbicide can be applied to the cut stems of larger plants with woody stems"
	Motooka, P., Castro, L., Nelson, D., Nagai, G. & Ching, L. (2003). Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI	[Control methods for <i>C. chinense</i> would likely prove effective] "A little work done suggests hormone-type herbicides in timely repeat applications will control this weed"

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Datiles, M. J. (2023). <i>Clerodendrum indicum</i> (Turk's turban). CABI Compendium. <a href="https://www.cabidigitallibrary.org/doi/10.1079/cabicompium.14330">https://www.cabidigitallibrary.org/doi/10.1079/cabicompium.14330</a> . [Accessed 1 Dec 2023]	"Tolerates, or benefits from, cultivation, browsing pressure, mutilation, fire etc"

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	[No mention of natural enemies or other limiting factors in Hawaiian Islands] "It has been widely dispersed as a horticultural subject and is cultivated in virtually every tropical region; in Hawai'i it is occasionally cultivated."

**Summary of Risk Traits:**

*Clerodendrum indicum*, (Indian glory bower) is a tropical shrub native to India and Nepal, eastward to Burma (Myanmar), southern China, Indochina, Thailand, and Peninsular Malaysia. It has been widely dispersed as an ornamental plant and is cultivated in virtually every tropical region, including the Hawaiian Islands. It is now reported to be naturalized in Indonesia, Madagascar, southern USA, West Indies and northern South America and has been described as adventive (introduced but not fully naturalized) on Oahu. Although it can spread by bird-dispersed seeds and suckering stolons, and is regarded as a weed in certain situations, it has not yet been reported to negatively affect agriculture or natural resources.

**High Risk / Undesirable Traits**

- Thrives and spreads in regions with tropical climates.
- Broad elevation range.
- Naturalized in multiple locations around the world and reported to be adventive (introduced but not fully naturalized) on Oahu.
- A weed of landscaping, and a potential agricultural and environmental weed (impacts not quantified).
- Other *Clerodendrum* species are invasive weeds.
- Potentially allelopathic.
- Shade tolerant (but also grows in full sun).
- Tolerates many soil types.
- Reproduces by seeds and vegetatively by stolons.
- Seeds dispersed by birds and possibly other animals, and through intentional cultivation by people.
- Tolerates and regrows after cutting or pruning.

**Low Risk Traits**

- Although naturalized and reported to be weedy, impacts on agriculture and the natural environment have not been documented to date.
- Unarmed (no spines, thorns, or burrs).
- Palatable to goats and likely other browsing animals.
- Non-toxic
- Herbicides are effective at controlling other invasive *Clerodendrum* species.

