Taxon: Clerodendrum quadriloculare **Family:** Lamiaceae

Common Name(s): bronze leaved clerodendrum
fire works
Philippine glorybower
shooting star
starburst bush

Synonym(s): Ligustrum quadriloculare Blanco

Assessor: Chuck Chimera **Status:** Approved **End Date:** 27 Aug 2025

WRA Score: 12.0 **Designation:** H(HPWRA) **Rating:** High Risk

Keywords: Ornamental Shrub, Environmental Weed, Dense Stands, Suckers, Limited Fruit Production

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)		
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	y = 2*multiplier (see Appendix 2), n = 0	n
304	Environmental weed	y = 2*multiplier (see Appendix 2), n = 0	y
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		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
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	y
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	y
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	y = 1, n = -1	n
706	Propagules bird dispersed	y = 1, n = -1	y
707	Propagules dispersed by other animals (externally)	y = 1, n = -1	n
708	Propagules survive passage through the gut	y = 1, n = -1	y
801	Prolific seed production (>1000/m2)	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**
	Source(s)	**Notes**
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	[No evidence of domestication] "Cultivated for its ornamental foliage and its showy flowers, fl. Nov.-Jan.; widely distributed in the Philippines in forests, apparently endemic."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. (2025). Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. (2025). 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**
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Cultivated for its ornamental foliage and its showy flowers, fl. Nov.-Jan.; widely distributed in the Philippines in forests, apparently endemic."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2025). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 6 Aug 2025]	"Native Asia-Tropical PAPUASIA: New Guinea MALESIA: Philippines [Luzon, Mindanao, Negros, Panay]"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, Agricultural Research Service, National Plant Germplasm System. (2025). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 6 Aug 2025]	"Native Asia-Tropical PAPUASIA: New Guinea MALESIA: Philippines [Luzon, Mindanao, Negros, Panay]"

203	**Broad climate suitability (environmental versatility)**	
	Source(s)	**Notes**
	Rojas-Sandoval, J., & Acevedo-Rodríguez, P. (2012). Clerodendrum quadriloculare (bronze-leaved clerodendrum). In Invasive Species Compendium. CABI. https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.14334. [Accessed 6 Aug 2025]	"C. quadriloculare grows in moist environments in tropical and subtropical areas. It is able to grow in areas with full sunlight exposure as well as in shaded areas beneath canopy cover, and prefers fertile soils."

Qsn #	Question	Answer
	Top Tropicals. (2025). Clerodendrum quadriloculare. https://toptropicals.com/catalog/uid/clerodendrum_quadriloculare.htm. [Accessed 6 Aug 2025]	"USDA Zone: 8-10"
	Smithsonian Institution, (2025). Clerodendrum quadriloculare collections. https://collections.si.edu/. [Accessed 6 Aug 2025]	The elevation range of Clerodendrum quadriloculare is documented from approximately 10 m (~30 ft) above sea level up to 914 m (~3,000 ft) above sea level

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	**Notes**
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Cultivated for its ornamental foliage and its showy flowers, fl. Nov.-Jan.; widely distributed in the Philippines in forests, apparently endemic."
	McConnell, J., & Muniappan, R. (1991). Introduced ornamental plants that have become weeds on Guam. Micronesica Suppl, 3, 47-50	[Guam] "Clerodendrum quadriloculare (Blanco) Merrill. (Verbenaceae) This shrub has an attractive dark foliage and is used as a landscape plant. It produces many suckers from the roots and is a prolific seed producer. It readily establishes along the foundations of houses and is difficult to remove. Clerodendrum has escaped cultivation and can be observed along roadsides in several areas around Guam."

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	"A native of the Philippines, C. quadriloculare is a spectacular species that has become abundant in cultivation in Hawai'i. This dense shrub, with its attractive bicolored foliage and masses of showy flowers, makes a fine specimen plant or can be set in a hedge or used as a background or foundation planting. The flowers appear from time to time in leis. The inflorescences and foliage hold up well for a few days when used as cut flowers."
	Ples, D. J. R. (2020). Conservation of Philippine Clerodendrum (Lamiaceae), aided by citizen science and social media. Master's Thesis, Queen Mary University of London]. Royal Botanic Gardens Kew	"It has been reported as numerous in some localities (e.g. Rizal), due to its tendency to form root suckers; this, and its popularity as an ornamental plant worldwide, have resulted in it being reported as invasive in other countries."
	Leeratiwong, C., Chantaranothai, P., & Paton, A. J. (2011). A synopsis of the genus Clerodendrum L.(Lamiaceae) in Thailand. Tropical Natural History, 11(2), 177-211	"Widely cultivated as ornamental shrub or tree, 70-600 m."

301	Naturalized beyond native range	y
	Source(s)	**Notes**
	Englberger, K. (2009). Invasive weeds of Pohnpei: A guide for identification and public awareness. Conservation Society of Pohnpei, Kolonia, FM	"This booklet presents 26 invasive weed species growing in Pohnpei, namely Antigonon leptopus, Piper auritum, Mikania micrantha, Coccinia grandis, Schefflera actinophylla, Clerodendrum chinense, Thunbergia grandiflora, Piper sarmentosum [Piper sarmentosum], Spathodea campanulata, Syngonium podophyllum, Bidens alba, Momordica charantia, Clerodendrum quadriloculare, Chromolaena odorata, Costus speciosus, Mimosa diplotricha, Epipremnum pinnatum, Clidemia hirta, Lantana camara, Merremia peltata, Clerodendrum paniculatum, Luffa aegyptiaca, Mimosa pudica, Leucaena leucocephala, Wedelia trilobata [Sphagneticola trilobata] and Passiflora foetida. Information on their impact, appearance, method of spread and control methods is provided. The distribution of these species in other parts of the Pacific Islands is also presented."

Qsn #	Question	Answer
	McConnell, J., & Muniappan, R. (1991). Introduced ornamental plants that have become weeds on Guam. Micronesica Suppl, 3, 47-50	[Guam] "Clerodendrum quadriloculare (Blanco) Merrill. (Verbenaceae) This shrub has an attractive dark foliage and is used as a landscape plant. It produces many suckers from the roots and is a prolific seed producer. It readily establishes along the foundations of houses and is difficult to remove. Clerodendrum has escaped cultivation and can be observed along roadsides in several areas around Guam."

302	Garden/amenity/disturbance weed	y
	Source(s)	**Notes**
	Secretariat of the Pacific Regional Environment Programme. (2023). Kingdom of Tonga national invasive species strategy and action plan 2021-2027. SPREP. Apia, Samoa	"12.1. ANNEX 1. Priority invasive species for management in Tonga" ... "Fireworks Tree Clerodendrum quadriloculare Highly invasive shrub that grows along roadsides and disturbed areas and is cultivated as an ornamental. Can form a dense understory, excluding all other plants in forests." [An invader of disturbed areas that also impacts that natural encvironment]
	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	"Homeowners have had to remove plants from their property after discovering objectionable root suckers popping up some distance from the mother plant."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	**Notes**
	Pacific Pests, Pathogens & Weeds. (2025). Fireworks (445). https://apps.lucidcentral.org/ppp_v9/text/web_full/entities/fireworks_445.htm. [Accessed 26 Aug 2025]	[Impacts abandoned plantations, but is not reported to impact active agricultural areas] "An important invasive weed. It is an attractive ornamental cultivated in backyards and gardens. However, it is very aggressive, growing rapidly, producing large amounts of viable seed, and root suckers prolifically, forming dense thickets along roadsides, waste grounds, abandoned plantations, and disturbed areas (Photos 1&2). Tolerant of shade."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[No evidence] "Clerodendrum quadriloculare (Blanco) Merrill. Lamiaceae Total N° of Refs: 27 Global Risk Score: 1.44 Rating: Low Habit: Shrub Preferred Climate/s: Tropical Origin: E Asia, SE Asia Major Pathway/s: Ornamental Dispersed by: Humans, Escapee References: pantropics-W-22, northern Australia and immediate northern neighbours -W-29, Federated States of Micronesia-W-107, southeast Asia-W-191, United States of America-CE-617, Pacific-W-3, Pacific-E-621, United States of America-I-1046, Australia-Q-1123, Australia-Q-1134, United States of America-Q-1197, Australia-W-1210, Global-W-1376, Global-I-1404, New Caledonia-I-1507, French Polynesia-N-1514, Global-CD-1611, Federated States of Micronesia-W-1732, Puerto Rico and the Virgin Islands-C-1821, -I-, Cook Islands-W-1977, Marshall Islands-W-1977, Micronesia (Federated States of)-W-1977, Palau-W-1977, Papua New Guinea-W-1977, Samoa-W-1977, Sri Lanka-W-1977, Global--1324."

304	Environmental weed	y
	Source(s)	**Notes**

Qsn #	Question	Answer
	McConnell, J., & Muniappan, R. (1991). Introduced ornamental plants that have become weeds on Guam. Micronesica Suppl, 3, 47-50	"Abstract-Introduced ornamental plants that are considered weeds on Guam include Antigonon leptopus Hooker & Amott, Spathodea campanulata Beauv., Coccinea grandis, Bauhinia monandra Kurz., Clerodendrum quadriloculare (Blanco) Merrill, Lantana camara L., Ficus spp., Asystasia gangetica (L.), Pilea microphylla (L.) Liebm., Wedelia trilobata (L.) Hitche., Mikania scandens and Mimosa pudica L. Characteristics of ornamental plants that could become weeds on Guam include rapid growth/regrowth and prolific seed production."
	Space, J. C., & Falanruw, M. (1999). Observations on invasive plant species in Micronesia. U.S. Department of Agriculture, Forest Service.	"Clerodendrum quadriloculare was observed invading under the shade of a forest canopy. A professional evaluation of this species for invasiveness and, if needed, control or eradication would be appropriate at this time, as it's not yet too widespread outside of ornamental plantings. It is planted as an ornamental on other islands as well (Rota, Tinian, Chuuk, Kosrae, Yap, Guam and Palau)."
	Space, J. C., Waterhouse, B., Denslow, J. S., Nelson, D., & Mazawa, T. R. (2000). Invasive plant species in Chuuk, Federated States of Micronesia. USDA Forest Service, Honolulu	"Clerodendrum quadriloculare, seen on all the islands we visited, is an undesirable species because it appears to have the ability to invade intact or relatively intact forests. A dense, monospecific understory of this species was seen growing in full shade beneath the forest canopy on Pohnpei, making it a likely candidate to invade intact or only slightly disturbed forest stands. It is notorious for being a prolific producer of root suckers and in fact the plant is easily propagated by means of root cuttings. Specimens observed on Chuuk were mostly cultivated ones in yards, but on Fefan we saw a plant that had suckered profusely and was causing problems in an agroforestry garden. Further planting of this species should be discouraged and people owning plants may wish to destroy them rather than fighting the suckers that will invariably come up in their yards or gardens. We can furnish information on control measures."
	Gunatilleke, N., Pethiyagoda, R. & Gunatilleke, S. (2008). Biodiversity of Sri Lanka. Biodiversity of Sri Lanka 36 Special Issue: 25-62	"Table 5: Some invasive species in different natural ecosystems in Sri Lanka" [Includes Clerodendrum quadriloculare in Lowland wet zone rain forests]
	Swamy, B. N. (2011). Future prospects for biological control of weeds in Fiji Islands. In Y. Wu, et al. (Eds.), Proceedings of the XIII International Symposium on Biological Control of Weeds (Session 5, p. 250). Forest Health Technology Enterprise Team, USDA Forest Service	[Among the weeds identified as needing biological control] "Fiji has been a strong supporter of biological control of weeds and insect pests. Biological control has been found to be a sustainable and environmentally friendly method, and a viable alternative to the steadily growing use of pesticides. In the past, the use of biological control has achieved great success in control of many weeds in Fiji. Taking this into account, biological control will be needed in the future for many introduced weeds, including African tuliptree (Spathodea campanulata P. Beauv.), fire plant (Clerodendrum quadriloculare (Blanc.) Merr.), noogora burr (Xanthium pungens Wallr.), merremia (Merremia peltata (L.) Merr.) , wedelia (Sphagneticola trilobata (L.) Pruski) and water lettuce (Pistia stratiotes L.). These weeds are major problems for crop cultivation, and are difficult to control using herbicides in some cases. Water lettuce, recently introduced through floriculture, is becoming a problem for waterways."

305	Congeneric weed	y
	Source(s)	**Notes**
	CABI. (2025). CABI Compendium Invasive Species. https://www.cabidigitallibrary.org/product/qi. [Accessed 6 Aug 2025]	"C. chinense is a highly invasive weed in tropical and subtropical ecosystems. " ..."C. speciosissimum is an attractive shrub or subshrub listed as an environmental weed, naturalized weed, and cultivation escape"
	Meyer, J-Y. (2000). Preliminary review of the invasive plants in the Pacific islands (SPREP Member Countries). Pp. 85-144 in Sherley, G. (ed.). Invasive species in the Pacific: a technical review and draft regional strategy. SPREP, Apia, Samoa	Federated States of Micronesia. Clerodendrum paniculatum and Clerodendrum quadriloculare are listed as Dominant invaders

Qsn #	Question	Answer
401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	[No evidence] "An erect, glabrous or nearly glabrous shrub or small tree 2 to 5 m high. Leaves oblong, 15-20 cm long, apex shortly acuminate, base rounded, the upper surface green, the lower surface usually uniformly dark-purple. Cymes terminal, panicled, usually many-flowered. Calyx urceolate, purple about 1 cm long, about 2 mm in diameter, the limb spreading, the lobes oblong-elliptic, about 1.5 \cm long. Fruit ellipsoid, 1 to 1.5 cm long, purplish, the persistent calyx red and 1 to 1.5 cm long"

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2025). Personal Communication	Unknown. A thorough review of relevant botanical and allelopathy literature turned up no documented studies or reports suggesting that Clerodendrum quadriloculare releases substances that inhibit the germination or growth of neighboring plants. The only references to allelopathy found were in relation to other species (e.g., Clerodendrum viscosum or unrelated tropical plants), not C. quadriloculare.

403	Parasitic	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	"Shrub 8-12' tall, glabrous, suckering from roots." [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. (2025). Personal Communication	Unknown. There is no evidence that grazing animals, livestock, or wildlife commonly browse Clerodendrum quadriloculare. Other species are reported to be unpalatable to deer or deer-resistant.

405	Toxic to animals	
	Source(s)	Notes
	WRA Specialist. (2025). Personal Communication	There is no documented scientific evidence showing that Clerodendrum quadriloculare is toxic to animals. The statements suggesting toxicity come only from anecdotal, advisory, or unsourced claims, not from experimental or clinical research.

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	FloridaGardener.com. (2025). Clerodendrum (Clerodendron) quadriloculare. https://www.floridagardener.com/clerodendrum-clerodendron-quadriloculare/. [Accessed 26 Aug 2025]	"Pests: Whiteflies, mealybugs, aphids, common galls, cankers and leaf spots"

407	Causes allergies or is otherwise toxic to humans	

Qsn #	Question	Answer
	Source(s)	**Notes**
	WRA Specialist. (2025). Personal Communication	Potentially. There is no formal documentation indicating that Clerodendrum quadriloculare is toxic to humans. The limited statements about safety are anecdotal or advisory rather than evidence-based. In the absence of scientific data, it's prudent to treat the plant cautiously.

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	WRA Specialist. (2025). Personal Communication	There is no known evidence, scholarly or anecdotal, that Clerodendrum quadriloculare exacerbates fire risk in ecosystems. It is invasive through physical growth and vegetative spread, not by altering fire behavior or flammability.

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	**Notes**
	Rojas-Sandoval, J., & Acevedo-Rodríguez, P. (2012). Clerodendrum quadriloculare (bronze-leaved clerodendrum). In Invasive Species Compendium. CABI. https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.14334. [Accessed 6 Aug 2025]	"C. quadriloculare grows in moist environments in tropical and subtropical areas. It is able to grow in areas with full sunlight exposure as well as in shaded areas beneath canopy cover, and prefers fertile soils."
	Top Tropicals. (2025). Clerodendrum quadriloculare. https://toptropicals.com/catalog/uid/clerodendrum_quadriloculare.htm. [Accessed 6 Aug 2025]	"It can be grown in full sun, shade, or semi-shade and require moderate water."
	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 only requirements for growing this species are a sunny or partly shaded location on fertile, well-drained soil and ample water."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Rojas-Sandoval, J., & Acevedo-Rodríguez, P. (2012). Clerodendrum quadriloculare (bronze-leaved clerodendrum). In Invasive Species Compendium. CABI. https://www.cabidigitallibrary.org/doi/full/10.1079/cabicompendium.14334. [Accessed 6 Aug 2025]	"Soil Tolerances Soil texture > light Soil texture > medium Soil reaction > acid Soil reaction > neutral Soil drainage > free Soil drainage > seasonally waterlogged Special soil tolerances > shallow Special soil tolerances > saline"
	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 only requirements for growing this species are a sunny or partly shaded location on fertile, well-drained soil and ample water."
	WRA Specialist. (2025). Personal Communication	Clerodendrum quadriloculare tolerates a wide range of soil conditions, both in texture and moisture, and even saline or shallow soils. While it flourishes best in moist, nutrient-rich, well-draining soil, its robustness and adaptability across soil types make it environmentally versatile once established.

Qsn #	Question	Answer
411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"An erect, glabrous or nearly glabrous shrub or small tree 2 to 5 m high."

412	Forms dense thickets	y
	Source(s)	Notes
	Pacific Pests, Pathogens & Weeds. (2025). Fireworks (445). https://apps.lucidcentral.org/ppp_v9/text/web_full/entities/fireworks_445.htm. [Accessed 26 Aug 2025]	"An important invasive weed. It is an attractive ornamental cultivated in backyards and gardens. However, it is very aggressive, growing rapidly, producing large amounts of viable seed, and root suckers prolifically, forming dense thickets along roadsides, waste grounds, abandoned plantations, and disturbed areas (Photos 1&2)."
	Space, J. C., Waterhouse, B., Denslow, J. S., & Nelson, D. (2000). Invasive plant species on Rota, Commonwealth of the Northern Mariana Islands. U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station, Institute of Pacific Islands Forestry, Honolulu, Hawaii	"Clerodendrum quadriloculare, not seen but reported present, probably as an ornamental. It is an attractive shrub often planted in yards. It is suspicious because it appears to have the ability to invade intact or relatively intact native forests. This species is notorious for being a prolific producer of root suckers and, in fact, the plant is easily propagated by means of root cuttings. A dense, monospecific understory of this species was observed growing in full shade beneath the forest canopy on Pohnpei, making it a likely candidate to invade intact or only slightly disturbed native forest stands."

501	Aquatic	n
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	[Terrestrial] "widely distributed in the Philippines in forests, apparently endemic."

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2025). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 14 Aug 2025]	"Genus: Clerodendrum Family: Lamiaceae (alt. Labiatae) Subfamily: Ajugoideae"

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2025). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 14 Aug 2025]	"Genus: Clerodendrum Family: Lamiaceae (alt. Labiatae) Subfamily: Ajugoideae"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n

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	"Shrub 8-12' tall, glabrous, suckering from roots."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Ples, D. J. R. (2020). Conservation of Philippine Clerodendrum (Lamiaceae), aided by citizen science and social media. Master's Thesis, Queen Mary University of London]. Royal Botanic Gardens Kew	[No evidence] "Assessment (Global): Least Concern National Red List Recommendation: Vulnerable Rationale: The EOO for this species does not fall under any threat categories; its small AOO may be due to lack of formal sampling/collection, and true AOO is unclear. It has been reported as numerous in some localities (e.g. Rizal), due to its tendency to form root suckers; this, and its popularity as an ornamental plant worldwide, have resulted in it being reported as invasive in other countries. Native populations are likely to be threatened by exploitation as well as forest loss in many localities (e.g. Mindoro, Negros, Bukidnon). Given all of these, and the possibility that it may not actually be native to New Guinea (and would therefore be endemic to the Philippines), it may be prudent to maintain the current local status of Vulnerable until more conclusive data comes in."

602	Produces viable seed	y
	Source(s)	**Notes**
	McConnell, J., & Muniappan, R. (1991). Introduced ornamental plants that have become weeds on Guam. Micronesica Suppl, 3, 47-50	"It produces many suckers from the roots and is a prolific seed producer."
	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 fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."

603	Hybridizes naturally	
	Source(s)	**Notes**
	Leeratiwong, C., Chantaranothai, P., & Paton, A. J. (2011). A synopsis of the genus Clerodendrum L.(Lamiaceae) in Thailand. Tropical Natural History, 11(2), 177-211	No mention of natural hybridization involving C. quadriloculare.

604	Self-compatible or apomictic	
	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	[Suggests potential self-infertility may limit seed production] "No fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."
	WRA Specialist. (2025). Personal Communication	Unknown. Across species, Clerodendrum flowers typically exhibit protandry, dichogamy, and herkogamy that reduce autonomous selfing and rely on animal vectors for effective pollination. Some species (e.g., C. inerme) are self-compatible but still functionally outcrossing due to floral timing/architecture.

Qsn #	Question	Answer
605	Requires specialist pollinators	y
	Source(s)	**Notes**
	Florabunda. (2025). Meet the Starburst Bush. https://www.florabundaplants.com/all-featured-plants/meet-the-butterfly-bush-c2ba6-sc8rn-cgemw-nthj9. [Accessed 27 Aug 2025]	"Flora Fun Facts: My long, tubular flowers require specialist pollinators to reach my nectar. Long-tongued butterflies and the long, narrow beaks of hummingbirds are well-suited to the task!"
	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 fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."

Qsn #	Question	Answer
606	Reproduction by vegetative fragmentation	y
	Source(s)	**Notes**
	Rauch, F.D. & Weissich, P.R. (2009). Small Trees for the Tropical Landscape. University of Hawaii Press, Honolulu, HI	"It produces invasive suckers that may be best controlled by planting it within a space surrounded by paving. If planted in a frequently mown grassy area, this may not be a problem."
	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 roots sucker rather abundantly, and although this can be an easy means of propagation it also makes the species potentially invasive. In Nu'uanu Valley plants have spread from neighborhood gardens to streambanks. Homeowners have had to remove plants from their property after discovering objectionable root suckers popping up some distance from the mother plant."

Qsn #	Question	Answer
607	Minimum generative time (years)	
	Source(s)	**Notes**
	WRA Specialist. (2025). Personal Communication	Unknown. No published data exist regarding the precise minimum generative time (years from germination to flowering) for C. quadriloculare. Anecdotal indication from nursery sources suggests seed-grown plants may take around 4–5 years to flower, while clones from cuttings may flower more quickly. The species' fast growth habit implies that first flowering is not especially delayed once established.

Qsn #	Question	Answer
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	**Notes**
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Fruit ellipsoid, 1 to 1.5 cm long, purplish, the persistent calyx red and 1 to 1.5 cm long." [Fruit, if produced, lack means of external attachment]
	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	[Lack of seed production in Hawaii minimizes risk of accidental spread] "The roots sucker rather abundantly, and although this can be an easy means of propagation it also makes the species potentially invasive. In Nu'uanu Valley plants have spread from neighborhood gardens to streambanks. Homeowners have had to remove plants from their property after discovering objectionable root suckers popping up some distance from the mother plant. No fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."

Qsn #	Question	Answer
702	Propagules dispersed intentionally by people	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	"A native of the Philippines, C. quadriloculare is a spectacular species that has become abundant in cultivation in Hawai'i. This dense shrub, with its attractive bicolored foliage and masses of showy flowers, makes a fine specimen plant or can be set in a hedge or used as a background or foundation planting. The flowers appear from time to time in leis. The inflorescences and foliage hold up well for a few days when used as cut flowers."
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Cultivated for its ornamental foliage and its showy flowers"

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	"No fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."
	WRA Specialist. (2025). Personal Communication	There is no evidence that C. quadriloculare propagules are dispersed as produce contaminants. Its spread occurs through bird dispersal of fleshy fruits (when produced), vegetative suckering, and escape from ornamental plantings, not via association with harvested crops.

704	**Propagules adapted to wind dispersal**	**n**
	Source(s)	**Notes**
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Fruit ellipsoid, 1 to 1.5 cm long, purplish, the calyx red and 1 to 1.5 cm long." [Fleshy fruit, when produced, adapted for bird dispersal]

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	"No fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination." [There is no documented evidence that Clerodendrum quadriloculare propagules are water-dispersed. Dispersal is instead attributed to birds (for seeds) and vegetative suckering.]

Qsn #	Question	Answer
706	Propagules bird dispersed	y
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Fruit ellipsoid, 1 to 1.5 cm long, purplish, the persistent calyx red and 1 to 1.5 cm long." [Presumably yes, if produced in cultivation]
	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 fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination." [This observation indicates that bird-mediated dispersal is effectively absent in Hawai‘i, because seeds are the only propagules consumed and dispersed by birds. Consequently, the spread of the species in Hawai‘i is limited to vegetative reproduction via root suckers and human-mediated movement. By contrast, in regions where fruiting occurs, such as Florida and the Pacific Islands, bird dispersal remains an important vector.]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Fruit ellipsoid, 1 to 1.5 cm long, purplish, the persistent calyx red and 1 to 1.5 cm long." [If produced, lack means of external attachment]

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Merrill, E. D. (1912). A Flora of Manila. Bureau of Printing, Manila	"Fruit ellipsoid, 1 to 1.5 cm long, purplish, the persistent calyx red and 1 to 1.5 cm long." [Presumably yes, if produced]

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	"No fruit has been noted in the Hawaiian Islands. This may indicate lack of a suitable pollinator, or possibly that all plants here have been propagated vegetatively from a single introduction and thus, being genetically identical, are incapable of cross-pollination."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	WRA Specialist. (2025). Personal Communication	There is no documented evidence of a persistent (>1 year) seed propagule bank for Clerodendrum quadriloculare. Its long-term persistence in invaded areas is instead maintained by vegetative root suckers, not dormant seeds.

803	Well controlled by herbicides	y
	Source(s)	Notes

Qsn #	Question	Answer
	Pacific Pests, Pathogens & Weeds. (2025). Fireworks (445). https://apps.lucidcentral.org/ppp_v9/text/web_full/entities/fireworks_445.htm. [Accessed 27 Aug 2025]	"Chemical Control There are no herbicides registered for this weed in Australia. In Fiji, glyphosate. The following are also suggested from the chemical control of Clerodendrum chinense (Honolulu rose) (see Fact Sheet no. 443): Foliar applications: picloram; triclopyr; 2,4-D; metsulfuron-methyl. There are products which combine picloram + triclopyr; picloram + 2,4-D; dicamba + 2,4-D. Cut-stump applications of the same herbicides. (See Fact Sheet no. 442 for methods). Soil applications: fluroxypyr. For foliar applications, it is recommended that the plants are slashed, and the new growth is then sprayed."
	Englberger, K. (2009). Invasive weeds of Pohnpei: A guide for identification and public awareness. Conservation Society of Pohnpei, Kolonia, FM	"For young plants, triclopyr (Garlon 4) can be used as foliar application and for large plants; undiluted Garlon 4 can be applied to cut stem"

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	**Notes**
	South-Florida-Plant-Guide.com. (2025). Clerodendrum quadriloculare. https://www.south-florida-plant-guide.com/clerodendrum-quadriloculare.html. [Accessed 27 Aug 2025]	"A pruning or two a year should help keep clerodendrum bushy and full. The plant can look shabby after a cold winter but will flush out again in spring. Do a hard pruning after the spring bloom, if you like, to keep the size in check and encourage full lush growth. You can cut it back again in fall (before October) as well if it needs it."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	WRA Specialist. (2025). Personal Communication	Based on current literature and invasive species databases, there is no evidence of effective natural enemies or biocontrol agents targeting Clerodendrum quadriloculare

Summary of Risk Traits:

Clerodendrum quadriloculare (starburst clerodendrum, Philippine glorybower) is a perennial shrub or small tree in the mint family (Lamiaceae), native to the Philippines and New Guinea. It is widely cultivated as an ornamental in tropical and subtropical regions for its showy pink and white inflorescences. Plants grow rapidly and reproduce both by vegetative suckers and, where compatible pollinators are present, by seed. In its introduced ranges such as Hawai'i, Guam, and Florida, populations often expand aggressively through dense stands formed by suckering root systems. In some places, including Hawai'i, fruit production has not been observed, likely due to the absence of pollinators or genetic uniformity among cultivated stock.

The species is considered invasive in parts of the Pacific and the southeastern United States, where it can displace native vegetation, spread into natural or semi-natural habitats, and persist despite management efforts. It tolerates a range of soil types and environmental conditions, regenerates vigorously after cutting, and requires repeated herbicide treatment for effective control. No specialized natural enemies or biocontrol agents have been identified in its introduced range, and generalist pests or pathogens provide no meaningful suppression. While its ornamental value has facilitated its introduction and spread, C. quadriloculare presents ecological risks where it escapes cultivation and establishes persistent, clonal thickets.

High Risk / Undesirable Traits
Highly invasive in tropical/subtropical regions
An environmental weed on several Pacific islands
Other Clerodendrum species are invasive
Shade tolerant
Tolerates many soil types (not limited by substrate)
Can form dense monospecific stands
Spreads aggressively via root suckers and bird-dispersed seeds (but fruit production not observed in the Hawaiian Islands)
Tolerates repeated pruning and cutting

Low Risk Traits
Spreads by suckers in Hawaii, but not reported as naturalized
Unarmed (no spines, thorns, or burrs)
Limited seed production in some regions due to pollinator dependence
Herbicides may provide effective control