

<b>Taxon:</b> <i>Plumbago auriculata</i>	<b>Family:</b> Plumbaginaceae
<b>Common Name(s):</b> blue plumbago cape leadwort cape plumbago leadwort	<b>Synonym(s):</b> Plumbagidium auriculatum (Lam.) Spach Plumbago alba Pasq. Plumbago auriculata f. alba (Pasq.) T.H.Peng Plumbago capensis Thunb. Plumbago grandiflora Ten.

<b>Assessor:</b> Chuck Chimera	<b>Status:</b> Approved	<b>End Date:</b> 6 Mar 2024
<b>WRA Score:</b> 3.0	<b>Designation:</b> L	<b>Rating:</b> <span style="background-color: yellow;">Low Risk</span>

**Keywords:** Sprawling Shrub, Naturalized, Toxic Properties, Self-Incompatible, Spreads Vegetatively

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	n
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	n
305	Congeneric weed		
401	Produces spines, thorns or burrs	y = 1, n = 0	n
402	Allelopathic		
403	Parasitic	y = 1, n = 0	n
404	Unpalatable to grazing animals	y = 1, n = -1	n
405	Toxic to animals	y = 1, n = 0	y
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y = 1, n = 0	y
411	Climbing or smothering growth habit	y = 1, n = 0	n
412	Forms dense thickets	y = 1, n = 0	n
501	Aquatic	y = 5, n = 0	n
502	Grass	y = 1, n = 0	n
503	Nitrogen fixing woody plant	y = 1, n = 0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y = 1, n = 0	n
601	Evidence of substantial reproductive failure in native habitat	y = 1, n = 0	n
602	Produces viable seed	y = 1, n = -1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic	y = 1, n = -1	n
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
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	n
707	Propagules dispersed by other animals (externally)	y = 1, n = -1	y
708	Propagules survive passage through the gut	y = 1, n = -1	n
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		
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>
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	[No evidence] "Plumbago auriculata is widely cultivated and there is no risk of genetic erosion. Several ornamental cultivars are available, e.g. 'Imperial Blue', 'Royal Cape' with deep blue flowers, 'Blue Dark' with dark blue flowers and 'Alba' with white flowers."
102	Has the species become naturalized where grown?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). Personal Communication	NA
103	Does the species have weedy races?	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2024). 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>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 5 Mar 2024]	"Native Africa SOUTH TROPICAL AFRICA: Mozambique (one specimen) SOUTHERN AFRICA: South Africa [Cape Province (e.), Free State, KwaZulu-Natal, Transvaal]"
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata is native to South Africa and introduced as an ornamental into most tropical and subtropical countries."
202	Quality of climate match data	High
	<b>Source(s)</b>	<b>Notes</b>
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata is native to South Africa and introduced as an ornamental into most tropical and subtropical countries."
203	Broad climate suitability (environmental versatility)	y
	<b>Source(s)</b>	<b>Notes</b>
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	"HARDINESS ZONE: 8B-11B. More suitable for Mediterranean climate regions, although it also grows in more humid regions."
	Flora of North America Editorial Committee. (2005). Flora of North America: Volume 5: Magnoliophyta: Caryophyllidae, Part 2. Oxford University Press, Oxford, UK	"Plumbago auriculata is frequently cultivated in Mediterranean-type warmer climates, especially in California, Arizona, and Texas."

Qsn #	Question	Answer
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata prefers fertile, well-drained, slightly acidic, sandy soils in sunny localities and is drought resistant once established. It grows best in regions with a pronounced dry season. It can withstand some frost; even if killed to the ground, it usually recovers quickly. Plumbago auriculata is salt tolerant."
	WRA Specialist. (2024). Personal Communication	Grows in tropical, subtropical and Mediterranean climates outdoors, and as a potted plant or annual in regions with temperate climates

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Herbarium Pacificum Staff. (1999). New Hawaiian plant records for 1998. Bishop Museum Occasional Papers 58: 3-11	"Not previously documented as escaping from cultivation, it is apparently doing so on the dry, scrubby slopes at around 2,500 ft elevation in Kēōkea on the slopes of Kula, East Maui."
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata is native to South Africa and introduced as an ornamental into most tropical and subtropical countries."
	Frohlich, D. & Lau, A. (2012). New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27-54	[Kauai and Oahu] ["Also known as Blue plumbago, this species has previously been documented as naturalized on Maui. It is documented here as sparingly naturalized on both Kaua'i and O'ahu islands, where it was spreading from cultivation in dry sites."]

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata is native to South Africa and introduced as an ornamental into most tropical and subtropical countries."
	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	"Plumbago auriculata is native to South Africa and is widely grown elsewhere as an attractive hedge or tall ground cover."
	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.	"Plumbago auriculata Lam. , a species with blue or rarely white corollas more than 25 mm long and oblanceolate to elliptic leaves, is cultivated in Hawai'i and sometimes persists in urban areas."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Herbarium Pacificum Staff. (1999). New Hawaiian plant records for 1998. Bishop Museum Occasional Papers 58: 3-11	[East Maui] "Plumbago auriculata Lam. New state record The Cape leadwort is a familiar cultivated shrub and hedge plant widely grown in Hawai'i. Native to South Africa, it differs from the indigenous <i>P. zeylanica</i> in having pale blue (rarely white) flowers 1-1.5 inches long and 1 inch in diameter; <i>P. zeylanica</i> has white flowers less than 1 inch long and 0.5-0.66 inches in diameter (G. Staples & D. Herbst, unpubl.). Not previously documented as escaping from cultivation, it is apparently doing so on the dry, scrubby slopes at around 2,500 ft elevation in Kēōkea on the slopes of Kula, East Maui. Rounded shrubs are randomly scattered in openings of <i>Acacia mearnsii</i> forest, associated with <i>Lantana</i> and <i>Pennisetum clandestinum</i> . Material examined. EAST MAUI: Kēōkea, dry scrubland downslope of Kula Hwy, large, rounded, 7 ft tall shrub, ca. 2500 ft, 18 Aug 1998, C. Imada, W. Char, & C. Morden 98-14."
	Luteyn, J. L. (1990). The Plumbaginaceae in the flora of the Southeastern United States. SIDA, Contributions to Botany, 14(2), 169-178	[Florida] "Plumbago auriculata Lam. (= <i>P. capensis</i> Thunb.), a native of South Africa, is widely cultivated and has become naturalized locally in Florida." ... "Escaped from cultivation and naturalized in Florida in hammocks, thickets, and disturbed sites in dry soil."

Qsn #	Question	Answer
	Murphy, M. (2023). BIISC Plant Pono Specialist - Invasive Plant Prevention. personal communication. 09 Nov	[Hawaii island. Naturalized or naturalizing] "Plumbago auriculata This is more commonly found on the leeward side of Hawaii Island. We found scattered populations near Puuanahulu. Some were ground in open scrubland, others growing underneath Casuarina trees."
	Frohlich, D. & Lau, A. (2012). New plant records for the Hawaiian islands. Bishop Museum Occasional Papers 113: 27-54	[Oahu and Kauai] "Plumbago auriculata lam. New island record Also known as Blue plumbago, this species has previously been documented as naturalized on Maui. it is documented here as sparingly naturalized on both Kaua'i and o'ahu islands, where it was spreading from cultivation in dry sites. The o'ahu population was on the dry rocky slopes of Punchbowl crater, among Cenchrus ciliaris, Hylocereus undatus, and other secondary vegetation. Because of the attractive and vigorous nature of this ornamental hedge plant (Staples & Herbst 2005) it is likely this species escapes often in lowland residential areas, only to be tolerated and maintained. Material examined. KAUAI: Po'ipū. in mixed alien lowland vegetation. Shrub about 3 ft tall, flowers lavender, 17 May 2010, OED 2010051701. O'AHU: Punchbowl area, on Prospect St. Vining shrub to about 1.5 m, flowers lavender. At least locally naturalized on Punchbowl slope, growing along road cut area as well as through a Hylocereus thicket above road cut, across road from the probable planting site. 21 Aug 2008, D. Frohlich & A. Lau 2008082101."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Ventosa-Febles, E. (2017). Plumbago auriculata (cape leadwort). CABI Compendium. <a href="https://doi.org/10.1079/cabicompendium.41933">https://doi.org/10.1079/cabicompendium.41933</a> . [Accessed 5 Mar 2024]	"It has escaped from cultivation and become naturalized outside of its native range. There are no reports of this plant acting as an invasive, but it has been listed as potentially invasive in Cuba."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Ventosa-Febles, E. (2017). Plumbago auriculata (cape leadwort). CABI Compendium. <a href="https://doi.org/10.1079/cabicompendium.41933">https://doi.org/10.1079/cabicompendium.41933</a> . [Accessed 5 Mar 2024]	"Plumbago auriculata is an evergreen, climbing shrub native to South Africa that has been introduced in tropical and subtropical climates of Europe, Asia, Africa and the Americas. It is widely cultivated as an ornamental, and is used in traditional medicine and as a source of dye. It has escaped from cultivation and become naturalized outside of its native range. There are no reports of this plant acting as an invasive, but it has been listed as potentially invasive in Cuba."

304	Environmental weed	n
	Source(s)	Notes
	Ventosa-Febles, E. (2017). Plumbago auriculata (cape leadwort). CABI Compendium. <a href="https://doi.org/10.1079/cabicompendium.41933">https://doi.org/10.1079/cabicompendium.41933</a> . [Accessed 5 Mar 2024]	"Plumbago auriculata is an evergreen, climbing shrub native to South Africa that has been introduced in tropical and subtropical climates of Europe, Asia, Africa and the Americas. It is widely cultivated as an ornamental, and is used in traditional medicine and as a source of dye. It has escaped from cultivation and become naturalized outside of its native range. There are no reports of this plant acting as an invasive, but it has been listed as potentially invasive in Cuba."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Cited as an agricultural and environmental weed, but cited references do not describe or document negative impacts

Qsn #	Question	Answer
305	Congeneric weed	
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	[ <i>Plumbago zeylanica</i> cited as a weed, but it is also a native, indigenous species in the Hawaiian Islands] "Weed of: Cereals, Pastures"

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Flora of North America Editorial Committee. (2005). Flora of North America: Volume 5: Magnoliophyta: Caryophyllidae, Part 2. Oxford University Press, Oxford, UK	[No evidence] " <i>Plumbago auriculata</i> is an evergreen, climbing shrub native to South Africa that has been introduced in tropical and subtropical climates of Europe, Asia, Africa and the Americas. It is widely cultivated as an ornamental, and is used in traditional medicine and as a source of dye. It has escaped from cultivation and become naturalized outside of its native range. There are no reports of this plant acting as an invasive, but it has been listed as potentially invasive in Cuba."

402	Allelopathic	n
	Source(s)	Notes
	Meyer, J. M., Van der Kooy, F., & Joubert, A. (2007). Identification of plumbagin epoxide as a germination inhibitory compound through a rapid bioassay on TLC. <i>South African Journal of Botany</i> , 73(4), 654-656	[Potentially yes. Extracts demonstrate allelopathic effects] "The main aim of this study was to develop a rapid and cheap bioassay to identify germination inhibitory compounds directly from plant crude extracts. Extracts of <i>Plumbago auriculata</i> and <i>Carya illinoensis</i> as well as their previously identified allelopathic compounds, plumbagin and juglone, respectively, were developed on TLC plates. The plates were covered with a thin layer of agar (2-4 mm) and <i>Lactuca sativa</i> (lettuce) and <i>Arabidopsis thaliana</i> seeds placed onto it. After incubation of the plates for three days complete germination inhibition correlating to specific compounds in the extract was clearly visible. Plumbagin and juglone inhibited the growth of the seeds completely while a second compound in the <i>P. auriculata</i> extract also showed inhibition. This compound was identified through chemical synthesis as plumbagin epoxide. This is the first report of its presence in <i>P. auriculata</i> . By using this bioassay on TLC, plant extracts can be tested cheaply and rapidly and the compounds responsible for germination inhibition be identified."

403	Parasitic	n
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Perennial herb or small shrub up to 2(-3) m tall; stems erect, trailing or climbing, diffusely branched." [No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Fuller, T.C. & McClintock, E.M. (1986). Poisonous plants of California: Issue 53 of California natural history guides. University of California Press, Berkeley and Los Angeles, CA	[Palatable, but potentially toxic] "In South Africa the foliage is eaten by livestock, especially sheep, and by poultry, but under certain undetermined conditions it becomes poisonous to animals."

Qsn #	Question	Answer
	Hester, A. J., Scogings, P. F., & Trollope, W. S. W. (2006). Long-Term Impacts of Goat Browsing on Bush-Clump Dynamics in a Semi-Arid Subtropical Savanna. <i>Plant Ecology</i> , 183(2), 277-290	[ <i>Plumbago auriculata</i> only occurred in unbrowsed plots, suggesting it is palatable to goats, or may not have been present in browsed plots prior to the study] "The effects of 16 years of continuous browsing by goats in a South African savanna at stocking rates intended for bush control were compared with plots unbrowsed for the same period of time. Differences in bush-clump density, structure and species composition were recorded. Bush-clump density did not differ between browsed and unbrowsed plots." ... " <i>Plumbago auriculata</i> was omitted as it was a major outlier, only occurring in five sample clumps, all of which were in unbrowsed plots."

405	Toxic to animals	y
	Source(s)	Notes
	Tornio, S. (2017). <i>Plants That Can Kill: 101 Toxic Species to Make You Think Twice</i> . Skyhorse Publishing Inc., New York	"All parts of this plant are considered toxic, so keep it away from pets. Also, be aware if you handle it directly while planting because it could cause some skin irritation."
	Quattrocchi, U. (2012). <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Used in Ayurveda and Sidha. The entire plant, especially the root, contains plumbagin, a toxic naphthoquinone derivative (oil of plumbago), which may cause severe skin irritation or blistering in humans and may also be toxic to other animals. Maceration of root and seed given in pyorrhea and dental caries."
	Fuller, T.C. & McClintock, E.M. (1986). <i>Poisonous plants of California: Issue 53 of California natural history guides</i> . University of California Press, Berkeley and Los Angeles, CA	[Potentially under certain conditions] "Entire plant, especially the root, contains plumbagin, a toxic naphthoquinone derivative, and oil of plumbago. The plant can cause severe skin irritation; in some people it may blister the skin. In South Africa the foliage is eaten by livestock, especially sheep, and by poultry, but under certain undetermined conditions it becomes poisonous to animals."
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). <i>Plant Resources of Tropical Africa 11(1). Medicinal Plants 1</i> . PROTA Foundation, Wageningen, Netherlands	[Potentially] "Plumbagin possesses various interesting pharmacological activities, but because of its toxicity the use of <i>Plumbago auriculata</i> in traditional medicine is not without risk. Decoctions of plant parts from <i>Plumbago auriculata</i> in local medicine should therefore be taken with caution."

406	Host for recognized pests and pathogens	
	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	"Pests include nematode , cottony cushion scale, and mites."

Qsn #	Question	Answer
	<p>Cham, D., Davis, H., Obeng-Ofori, D., &amp; Owusu, E. (2011). Host range of the newly invasive mealybug species <i>Paracoccus marginatus</i> Williams and Granara De Willink (Hemiptera: Pseudococcidae) in two ecological zones of Ghana. <i>Research in Zoology</i>, 1(1), 1-7</p>	<p>[One of several potential hosts] "Abstract The papaya mealybug <i>Paracoccus marginatus</i> Williams and Granara De Willink (Hemiptera: Pseudococcidae) has a wide host range and great potential to cause damage to economically important fruits, vegetables, and ornamental plants. It has already caused serious damage to the papaya industry since it invaded Ghana lately in 2009. To determine the host range of this mealybug species, host plants were sampled in 3 districts in the Eastern region and Legon in the Greater Accra region of Ghana. A total of 50 plant species in 20 families were identified as host of <i>P. marginatus</i>, including economically important hosts such as <i>Carica papaya</i>, <i>Manihot esculenta</i>, <i>Mangifera indica</i>, <i>Solanum melongena</i> <i>Citrus</i> sp and <i>Theobroma cacao</i>. Favourite hosts included <i>Carica papaya</i>, <i>Manihot esculenta</i>, <i>Solanum melongena</i>, <i>hibiscus</i> sp, <i>Jathropha</i> sp, <i>Plumeria</i> sp, <i>Abutilon indicum</i> and <i>Adansonia digitata</i>. Three new families, <i>Plumbaginaceae</i>, <i>Bombaceae</i>, and <i>Lythraceae</i> and eight new plant species; <i>Launaea taraxacifolia</i>, <i>Euphorbia heterophylla</i>, <i>Codiacum variegatum</i>, <i>Codiacum aucubae- folium</i>, <i>Securinega virosa</i>, <i>Adansonia digitata</i>, <i>Lagerstroemia indica</i>, and <i>Plumbago auriculata</i> were identified as hosts of <i>P. marginatus</i>. <i>Paracoccus marginatus</i> was also found to co-exist with other mealybug species in some economically important host plants. The wide host range of <i>P. marginatus</i> calls for quick action to be taken in other to reduce its devastating impact on economically important food crops, fruits, and vegetables in Ghana and to prevent its spread to other African countries."</p>

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	Tornio, S. (2017). <i>Plants That Can Kill: 101 Toxic Species to Make You Think Twice</i> . Skyhorse Publishing Inc., New York	"All parts of this plant are considered toxic, so keep it away from pets. Also, be aware if you handle it directly while planting because it could cause some skin irritation."
	Quattrocchi, U. (2012). <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	[Potentially Yes] "Used in Ayurveda and Sidha. The entire plant, especially the root, contains plumbagin, a toxic naphthoquinone derivative (oil of plumbago), which may cause severe skin irritation or blistering in humans and may also be toxic to other animals. Maceration of root and seed given in pyorrhea and dental caries."
	Schmidt, E., Lötter, M. & McClelland, W. (2002). <i>Trees and shrubs of Mpumalanga and Kruger National Park</i> . Jacana Media, Johannesburg, South Africa	[Powdered bark potentially toxic. Unlikely unless prepared medicinally] "Leaves and roots used in traditional medicine for treating wounds, broken bones and headaches. Powdered bark has been reported causing human fatality."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Calitz, W., Potts, A. J., & Cowling, R. M. (2015). Investigating species-level flammability across five biomes in the Eastern Cape, South Africa. <i>South African Journal of Botany</i> , 101, 32-39	"[Each variable was relativized across all samples to a scale of 0-1; these were then summed to provide an overall flammability index from 0 (minimum flammability) to 3 (maximum flammability).] ... "Appendix B. Flammability for 99 species from 5 biomes" [ <i>Plumbago auriculata</i> has a flammability index ranging below 1, suggesting it's flammability is relatively low]
	Moritz, R. & Svihra, P. (1998). <i>Pyrophytic vs. Fire Resistant Plants</i> . Fire Safe Marin. University of California Cooperative Extension. <a href="https://www.firesafemarin.org">https://www.firesafemarin.org</a> . [Accessed 5 Mar 2024]	"Below are some "relatively more fire-resistant" species, if properly maintained:" [ <i>Plumbago auriculata</i> included as a relatively fire resistant plant]

409	Is a shade tolerant plant at some stage of its life cycle	



Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	"Full sun for best growth and flowering but tolerates part shade"
	Tropical Plants Database, Ken Fern. (2024). <i>Plumbago auriculata</i> . <a href="https://tropical.theferns.info/viewtropical.php?id=Plumbago+auriculata">https://tropical.theferns.info/viewtropical.php?id=Plumbago+auriculata</a> . [Accessed 5 Mar 2024]	"Grows best in a very sunny position, but tolerate light shade"

410	<b>Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	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	"Blue plumbago thrives in full sun and heat and is adaptable to a wide array of soils."
	Dehgan, B. (2023). Garden Plants Taxonomy: Volume 1: Fern.s, Gymnosperms, and Angiosperms (Monocots). Springer Nature, Cham, Switzerland	"Full sun for best growth and flowering but tolerates part shade, in various fertile organic moist soils; slight salt tolerance"
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Plumbago auriculata prefers fertile, well-drained, slightly acidic, sandy soils in sunny localities and is drought resistant once established."

411	<b>Climbing or smothering growth habit</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	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	[Scrambling] "Erect, prostrate, or scrambling shrub; stems to 30' long, much branched, glabrous."

412	<b>Forms dense thickets</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Aubrey, A. (2001). <i>Plumbago auriculata</i> . PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 5 Mar 2024]	"In nature <i>Plumbago auriculata</i> is a scrambling shrub, about 3 m x 3 m. It grows in scrub and thicket (valley bushveld)." [A component of thicket vegetation]
	Mucina, L., & Rutherford, M. (eds) (2006). The vegetation of South Africa, Lesotho and Swaziland. <i>Strelitzia</i> 19. South African National Biodiversity Institute, Pretoria	A component of thicket vegetation, but no indication that plants form thickets or monocultural stands.

501	<b>Aquatic</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Manning, J. (2013). Field Guide to Wild Flowers of South Africa. Struik Nature, Cape Town, SA	[Terrestrial] "Thicket and scrub through eastern South Africa."

Qsn #	Question	Answer
502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 5 Mar 2024]	"Genus: <i>Plumbago</i> Family: <i>Plumbaginaceae</i> Subfamily: <i>Plumbaginoideae</i> "

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2024). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch">https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch</a> . [Accessed 5 Mar 2024]	"Genus: <i>Plumbago</i> Family: <i>Plumbaginaceae</i> Subfamily: <i>Plumbaginoideae</i> "

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Luteyn, J. L. (1990). The <i>Plumbaginaceae</i> in the flora of the Southeastern United States. <i>SIDA, Contributions to Botany</i> , 14(2), 169-178	"Perennial shrub, erect, trailing or climbing; stems glabrous below becoming pubescent above."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). <i>Plant Resources of Tropical Africa 11(1). Medicinal Plants 1</i> . PROTA Foundation, Wageningen, Netherlands	" <i>Plumbago auriculata</i> is widely cultivated and there is no risk of genetic erosion."

602	Produces viable seed	y
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). <i>Plant Resources of Tropical Africa 11(1). Medicinal Plants 1</i> . PROTA Foundation, Wageningen, Netherlands	" <i>Plumbago auriculata</i> is propagated by seed, division of older plants, rooted suckers or semi-ripe cuttings. The seeds are sown in seedling trays in a light soil, after which the soil needs to remain moist."
	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	"Propagation is usually by leafy cuttings in Hawai'i, although it can also be by seed, root cuttings, or division of old plants."

603	Hybridizes naturally	
	Source(s)	Notes

Qsn #	Question	Answer
	<p>Chen, X. et al. (2021). Genetic diversity analysis of intraspecific hybridization between <i>Plumbago auriculata</i> and <i>Plumbago auriculata</i> f. <i>alba</i> based on horticultural traits and molecular markers. <i>Acta Physiologiae Plantarum</i>, 43, 1-12</p>	<p>[Unknown. Artificial hybrids possible] "<i>Plumbago auriculata</i> Lam. is an ornamental plant native to South Africa and widely cultivated in China, but the cultivated plants are dominated by a single variety. The development of new varieties is of great commercial interest, and genetic diversity is the foundation of breeding programs. In this study, 85 progenies were obtained by crosses between <i>Plumbago auriculata</i> and <i>Plumbago auriculata</i> f. <i>alba</i>. The genetic diversity of these hybrids was evaluated using horticultural traits and ISSR and SRAP markers. Of the 25 horticultural traits evaluated, the largest variation was found in the beginning of the blooming period, and sepal length was the least variable trait. Correlation analysis showed that the wider the plant, the greater the number of inflorescences and the earlier the flowering. Seven factors explained 65.171% of the total variance; the first factor was leaf morphology, and the second factor was flower morphology. The genetic diversity of the 85 progenies was analyzed using seven pairs of SRAP primers and eight ISSR primers. The average number of effective alleles for 85 hybrids was 1.638, and the average Shannon index value was 0.507. The Nei genetic similarity coefficient indicated that the similarity between WLBS and WSBL was the highest, while that between BLWS and BSWL was the lowest. Analysis of molecular variance (AMOVA) indicated that the main variation was within populations. Cluster analysis based on horticultural traits and molecular markers divided all progenies into seven and five groups, respectively, and there were obvious differences between the two clusters. In this study, we created intermediate materials for future breeding, taking the first step in the cross-breeding of <i>P. auriculata</i>."</p>

604	Self-compatible or apomictic	n
	Source(s)	Notes
	<p>Ferrero, V., De Vega, C., Stafford, G. I., Van Staden, J., &amp; Johnson, S. D. (2009). Heterostyly and pollinators in <i>Plumbago auriculata</i> (Plumbaginaceae). <i>South African Journal of Botany</i>, 75(4), 778-784</p>	<p>"Plants with hermaphrodite flowers risk conflict between male and female sexual function due to close proximity of sexual organs. Heterostyly, a genetic floral polymorphism characterized mainly by reciprocal herkogamy, may reduce this sexual conflict by increasing the precision of pollen transfer between morphs. This sexual organ reciprocity is often associated with various ancillary characters and a heteromorphic incompatibility system. Here we describe the morphometrics associated with heterostyly and ancillary characters in <i>Plumbago auriculata</i>. Using controlled pollination experiments, we show that this species has a heteromorphic incompatibility system. We also document the fauna of long-proboscid fly and butterfly pollinators in a <i>P. auriculata</i> population in KwaZulu-Natal, South Africa."</p>

Qsn #	Question	Answer
605	Requires specialist pollinators	n
	Source(s)	Notes
	Ferrero, V., De Vega, C., Stafford, G. I., Van Staden, J., & Johnson, S. D. (2009). Heterostyly and pollinators in <i>Plumbago auriculata</i> (Plumbaginaceae). <i>South African Journal of Botany</i> , 75(4), 778-784	"During the period of this study (November and December, 2008), long-proboscid flies ( <i>Philoliche aethiopica</i> , Tabanidae) were the primary visitors to flowers of <i>P. auriculata</i> at the Richmond study site with occasional visits by the large swallowtail butterflies, <i>Papilio demodocus</i> and <i>P. nireus</i> , smaller <i>Pieris</i> butterflies (Lepidoptera) and small, pollen-collecting bees in the family Halictidae (Table 4 and Fig. 4). Individuals of <i>P. aethiopica</i> carried the most pollen: up to 144 pollen grains per proboscis of $\pm 20$ mm long (Table 4). Unfortunately no information on the pollen loads or proboscis length was obtained for <i>Papilio</i> butterflies, but our observations suggest that they are potentially important pollinators of <i>P. auriculata</i> . Long tongue pollinators should be able to reach nectar produced by the plant (proboscis length longer or close to 20 mm)."

606	Reproduction by vegetative fragmentation	y
	Source(s)	Notes
	Aubrey, A. (2001). <i>Plumbago auriculata</i> . PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"It is very useful in large gardens and landscapes as it forms suckers and will cover fairly big areas."
	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	"Propagation is usually by leafy cuttings in Hawai'i, although it can also be by seed, root cuttings, or division of old plants."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Fine Gardening. (2024). Cape leadwort - <i>Plumbago auriculata</i> . <a href="https://www.finegardening.com/plant/cape-leadwort-plumbago-auriculata">https://www.finegardening.com/plant/cape-leadwort-plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"Easily grown from seed, but takes 2 years to flower (sow seed at 55° to 64°F in spring)."
	Aubrey, A. (2001). <i>Plumbago auriculata</i> . PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"It is fast growing, drought resistant and rewarding and will grow in any soil, but will perform best if planted with plenty of compost."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Rachmilevitz, T. & Joel, D. M. (1976). Ultrastructure of the calyx glands of <i>Plumbago capensis</i> Thunb. in relation to the process of secretion. <i>Israel Journal of Botany</i> 25 (3/4):127-139	"The resin-secreting tissue of the calyx trichomes of <i>P. capensis</i> forms a cap separated from the rest of the trichome by an endodermis-like region. The secreted substance occurs in the cytoplasm in the form of light osmiophilic droplets which apparently develop from electron-dense regions of the vacuole commonly forming vacuolar buds. It is assumed that the vacuolar buds develop from groups of vesicular elements occurring in the cytoplasm of young secretory cells."
	Aubrey, A. (2001). <i>Plumbago auriculata</i> . PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [Potentially yes, although direct evidence of dispersal along heavily trafficked corridors is lacking]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes

Qsn #	Question	Answer
	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	"Plumbago auriculata is native to South Africa and is widely grown elsewhere as an attractive hedge or tall ground cover."
	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.	"Plumbago auriculata Lam. , a species with blue or rarely white corollas more than 25 mm long and oblanceolate to elliptic leaves, is cultivated in Hawai'i and sometimes persists in urban areas."
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	"Plumbago auriculata, Cape plumbago, sometimes called Cape leadwort or blue plumbago, is native to South Africa but is widely cultivated in the tropics and subtropics, and in the greenhouse in temperate regions, for its pale blue flowers, white in one cultivar."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Aubrey, A. (2001). Plumbago auriculata. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [No evidence]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Geldenhuys, C. J. (1997). Composition and biogeography of forest patches on the inland mountains of the southern Cape. Bothalia, 27 (1), 57-74	"TABLE 7.—Distribution and fruit/seed dispersal of species which have a limited or disjunct distribution in, or which are absent from the coastal forests of the southern Cape" [+ Plumbago auriculata = +, small/large dry seed not dispersed by wind]
	Aubrey, A. (2001). Plumbago auriculata. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed ]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [No evidence]

705	Propagules water dispersed	n
	Source(s)	Notes
	Aubrey, A. (2001). Plumbago auriculata. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [No evidence. Is not commonly found near aquatic habitats]

706	Propagules bird dispersed	n
	Source(s)	Notes
	Aubrey, A. (2001). Plumbago auriculata. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [Possibly dispersed externally by birds, but not fleshy-fruited, and direct evidence of dispersal by birds is lacking]

707	Propagules dispersed by other animals (externally)	y
	Source(s)	Notes
	Aubrey, A. (2001). Plumbago auriculata. PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out."

Qsn #	Question	Answer
708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Aubrey, A. (2001). <i>Plumbago auriculata</i> . PlantZAfrica. SANBI. <a href="https://pza.sanbi.org/plumbago-auriculata">https://pza.sanbi.org/plumbago-auriculata</a> . [Accessed 6 Mar 2024]	"The seed capsule retains the stickiness which presumably helps disperse the seed by attaching to animals. The top of the capsule splits opens and drops the seed out." [Capsules not adapted for consumption and internal dispersal]

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). <i>Plant Resources of Tropical Africa 11(1). Medicinal Plants 1</i> . PROTA Foundation, Wageningen, Netherlands	"Fruit an oblong, membranous capsule up to 8 mm long, tapering to the apex, enclosed in the persistent calyx, dehiscent, 1-seeded. Seed oblong, c. 7 mm long, slightly flattened, dark brown or black."
	Shen, P., Gao, S., Hu, J., Li, Y., Lei, T., & Shi, L. (2021). In vitro flowering of the distylous plant <i>Plumbago auriculata</i> Lam. <i>South African Journal of Botany</i> , 137, 492-498	"Its seed setting and seed germination percentages are low under natural conditions, and its seedlings are prone to death (Chen and Gao, 2013; Ferrero et al., 2009). In addition, <i>P. auriculata</i> is an insect-pollinated plant (Zhang and Gao, 2014), and its reproduction may be restricted by the absence of pollinators at the site of introduction."
	Wen-Hui, S., Su-Ping, G., Pei-Wen, W., & Zhi-Hui, Z. (2017). Study on the seed biological characteristics and seed collection and storage technologies of <i>Plumbago auriculata</i> . <i>Plant Science Journal</i> , 35(5), 759-766	" <i>Plumbago auriculata</i> Lam. is native to South Africa. Due to its self-incompatibility, the natural seed setting rate is extremely low, and thus seeds often rely on imports."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	Unknown

803	Well controlled by herbicides	
	Source(s)	Notes
	eHow. (2024). How to Get Rid of <i>Plumbago</i> . <a href="https://www.ehow.com/how_8693592_rid-plumbago.html">https://www.ehow.com/how_8693592_rid-plumbago.html</a> . [Accessed 6 Mar 2024]	[Glyphosate recommended to control <i>Plumbago</i> ] " <i>Plumbago</i> is a shrub that grows to be approximately 9 feet wide and 9 feet tall. The leaves are small and have a light green and gray coloring. The tips of each vertical growing branch have clusters of light blue, dark blue or white flower blossoms that appear in the summer and last until the fall. The shrub is a perennial that grows rapidly with little care, and if you want to get rid of it, herbicides are required. Step 1. Put on garden gloves and cut back the stems of the <i>plumbago</i> to a height of no lower than 12 inches using loppers or pruning shears. Step 2. Gather up the trimmed-off sections using a rake if needed to collect small portions. Place all of the trimmed portions into the trash or place them in a compost pile to decompose. Step 3. Unscrew the top from a garden herbicide sprayer and fill it with an herbicide containing the ingredient glyphosate. Use the amount of glyphosate indicated on the bottle for the number of <i>plumbago</i> plants you are treating. Read the label carefully and dilute the mixture with water if the label says to. Step 4. Open an oil-based surfactant and pour the amount indicated on the bottle into the garden sprayer. Surfactants are designed to mix with the herbicide and stick to the bark of the shrub better. Step 5. Close the sprayer up and shake it well to combine all of the ingredients. Step 6. Put on safety glasses and spray all of the remaining <i>plumbago</i> stumps with the herbicide mixture until the bark is saturated."

Qsn #	Question	Answer
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"It can withstand some frost; even if killed to the ground, it usually recovers quickly."
	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 plant flowers almost year-round if regular, heavy pruning is maintained to promote vigorous growth of flower-bearing young stems."
	Whistler, W.A. (2000). Tropical Ornamentals: A Guide. Timber Press, Portland, OR	[Tolerates heavy pruning] "It is often planted to form low hedges or borders and is sometimes trained as a vine on arches or arbors. Periodic heavy pruning and bright sunlight induce prolific flowering."

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	"Pests include nematode , cottony cushion scale, and mites."

**Summary of Risk Traits:**

*Plumbago auriculata* (Cape leadwort or blue plumbago), is a flowering plant native to South Africa that is widely cultivated for its attractive, sky-blue flowers and evergreen foliage. The plant is known for its vigorous growth and ability to form dense shrubs or climbers. It has become naturalized in several locations where grown, including the Hawaiian Islands of Kauai, Oahu, Maui and now Hawaii island, and is likely spread by its sticky seed pods that may adhere to animals and people. These plants may have toxic or allergenic effects on animals and people but are otherwise not documented to have negative impacts on agriculture or the natural environment.

**High Risk / Undesirable Traits**

- Broad climate suitability (grows in regions with tropical, Mediterranean, and seasonally in temperate climates)
- Naturalized on Kauai, Oahu, Maui, and Hawaii (Hawaiian Islands) and in several other locations worldwide
- Other *Plumbago* species may be invasive weeds
- Reported to be toxic to animals under certain conditions
- Potentially toxic or allergenic to people
- Tolerates many soil types
- Reproduces by seeds and vegetatively by suckers
- Reaches maturity in 2 years.
- Sticky seed capsules aid in dispersal of seeds by animals and possibly people
- Tolerates and resprouts after heavy pruning, cutting or top kill

**Low Risk Traits**

- Not reported to have negative impacts where naturalized or cultivated
- Unarmed (no spines, thorns, or burrs)
- Palatable to browsing animals (despite reports of toxicity)
- Grows best in high light environments (dense shade may inhibit spread)
- Self-incompatible
- Low natural seed set

**Second Screening Results for Trees/tree-like shrubs**

(A) Shade tolerant or known to form dense stands? Tolerates partial shade. Not reported to form dense stands.

(B) Bird- Or clearly wind- dispersed?> No. Sticky seed capsules aid in external dispersal.

Outcome = Accept (Low Risk)



