Taxon: Euphorbia unispina N. E. Br. **Family:** Euphorbiaceae

Common Name(s): candle plant **Synonym(s):**

Assessor: Chuck Chimera **Status:** Approved **End Date:** 20 Oct 2024

WRA Score: 4.0 **Designation:** L **Rating:** Low Risk

Keywords: Spiny Shrub, Succulent, Toxic Sap, Medicinal Uses, Ballistic Dispersal

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y = -3, n = 0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	0 = low, 1 = intermediate, 2 = high (see Appendix 2)	High
202	Quality of climate match data	0 = low, 1 = intermediate, 2 = high (see Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y = 1, n = 0	n
204	Native or naturalized in regions with tropical or subtropical climates	y = 1, n = 0	y
205	Does the species have a history of repeated introductions outside its natural range?	y= -2, ? = -1, n = 0	n
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n = question 205	n
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	y = 1*multiplier (see Appendix 2), n = 0	y
401	Produces spines, thorns or burrs	y = 1, n = 0	y
402	Allelopathic		
403	Parasitic	y = 1, n = 0	n
404	Unpalatable to grazing animals	y = 1, n = -1	y
405	Toxic to animals	y = 1, n = 0	y
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y = 1, n = 0	y
408	Creates a fire hazard in natural ecosystems	y = 1, n = 0	n
409	Is a shade tolerant plant at some stage of its life cycle	y = 1, n = 0	n
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

Qsn #	Question	Answer Option	Answer
412	Forms dense thickets	y = 1, n = 0	n
501	Aquatic	y = 5, n = 0	n
502	Grass	y = 1, n = 0	n
503	Nitrogen fixing woody plant	y = 1, n = 0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y = 1, n = 0	n
601	Evidence of substantial reproductive failure in native habitat	y = 1, n = 0	n
602	Produces viable seed	y = 1, n = -1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic	y = 1, n = -1	y
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation	y = 1, n = -1	n
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y = 1, n = -1	n
702	Propagules dispersed intentionally by people	y = 1, n = -1	y
703	Propagules likely to disperse as a produce contaminant	y = 1, n = -1	n
704	Propagules adapted to wind dispersal		
705	Propagules water dispersed	y = 1, n = -1	n
706	Propagules bird dispersed	y = 1, n = -1	n
707	Propagules dispersed by other animals (externally)	y = 1, n = -1	n
708	Propagules survive passage through the gut	y = 1, n = -1	n
801	Prolific seed production (>1000/m2)		
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		
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
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	[No evidence of domestication] "Although Euphorbia unispina has useful biological activities, its use for medicinal purposes is limited by the toxicity of the latex."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	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
	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	"Origin and geographic distribution Euphorbia unispina occurs from Guinea and Mali east to southern Sudan."

202	Quality of climate match data	High
	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	"Origin and geographic distribution Euphorbia unispina occurs from Guinea and Mali east to southern Sudan."

203	Broad climate suitability (environmental versatility)	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	"Euphorbia unispina occurs on rocky hills and slopes in savanna. It is locally common."
	Dave's Garden. (2024). Euphorbia unispina. https://davesgarden.com/guides/pf/go/65019. [Accessed 17 Oct 2024]	"Hardiness USDA Zone 9b: to -3.8 °C (25 °F)"
	LLIFLE. (2024). Euphorbia unispina. http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Euphorbiaceae/28018/Euphorbia_unispina. [Accessed 17 Oct 2024]	"Hardiness: It is a cold sensitive species, however when dormant, plants are relatively cold tolerant."

204	Native or naturalized in regions with tropical or subtropical climates	y

Qsn #	Question	Answer
	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	"Origin and geographic distribution Euphorbia unispina occurs from Guinea and Mali east to southern Sudan."
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 14 Oct 2024]	No evidence in the Hawaiian Islands

205	Does the species have a history of repeated introductions outside its natural range?	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	"In Europe and the United States it is a rare pot plant in succulent collections."
	WRA Specialist. (2024). Personal Communication	Euphorbia unispina has not been widely cultivated outside its native range in comparison to more popular members of the Euphorbia genus. However, it can still be found in specialty collections, botanical gardens, and among succulent enthusiasts due to its unique appearance.
	GBIF Secretariat (2024). Euphorbia unispina N.E.Br. GBIF Backbone Taxonomy. Checklist dataset. https://www.gbif.org/species/3064759. [Accessed 14 Oct 2024]	No evidence

301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2024). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabidigitallibrary.org/product/qi. [Accessed 14 Oct 2024]	No evidence
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2024). Plants of Hawai'i. http://www.plantsofhawaii.org. [Accessed 14 Oct 2024]	No evidence in the Hawaiian Islands

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2024). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabidigitallibrary.org/product/qi. [Accessed 14 Oct 2024]	No evidence

Qsn #	Question	Answer
303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2024). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabidigitallibrary.org/product/qi. [Accessed 14 Oct 2024]	No evidence

304	Environmental weed	n
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	Euphorbia unispina has not been reported as a weedy or invasive species anywhere in the world, although it remains relatively rare in cultivation.
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2024). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabidigitallibrary.org/product/qi. [Accessed 14 Oct 2024]	No evidence

305	Congeneric weed	y
	Source(s)	Notes
	Weber, E. (2017). Invasive Plant Species of the World, 2nd Edition: A Reference Guide to Environmental Weeds. CABI Publishing, Wallingford, UK	[Euphorbia esula] "Leafy spurge has become one of the worst invaders in northern America causing both ecological and economic damage."
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	Numerous Euphorbia species have become invasive weeds

401	Produces spines, thorns or burrs	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	"Monoecious, candelabriform, sparsely b ranching shrub up to 3.5 m tall; branches cylindrical, up to 2.5 cm in diameter, silvery grey, covered with shallow tubercles and horny spine shields up to 1 cm in diameter, grey, with 1 spine, with white latex. Leaves arranged spirally at stem apex in 4-5 ranks, simple, soon falling; stipules modified into 2 stout spines 6-- 10 mm long"

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. (2024). Personal Communication	Unknown. There is no specific evidence indicating that Euphorbia unispina is allelopathic. However, many species within the Euphorbia genus, including Euphorbia unispina, produce a milky latex sap that can be toxic to other plants and animals. This sap contains various compounds, including diterpenes, which are known to have toxic or inhibitory effects on certain organisms.

403	Parasitic	n

Qsn #	Question	Answer
	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	"Monoecious, candelabriform, sparsely branching shrub up to 3.5 m tall"

404	Unpalatable to grazing animals	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	[Toxic, spiny, and used as a hedge. Presumably unpalatable] "The latex of Euphorbia unispina is very caustic and toxic , and very irritating to the skin and m ucous membranes. It can cause blindness when in contact with eyes." ... "In West Africa Euphorbia unispina is sometimes planted in gardens as an ornamental plant or as a hedge around fields and graveyards."

405	Toxic to animals	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	"The latex of Euphorbia unispina is very caustic and toxic , and very irritating to the skin and mucous membranes. It can cause blindness when in contact with eyes."

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	World of Succulents. (2024). Euphorbia unispina (Candle Plant). https://worldofsucculents.com/euphorbia-unispina-candle-plant/. [Accessed 18 Oct 2024]	"They tend to grow problem-free, but there are a few pests and diseases to be alert for."

407	Causes allergies or is otherwise toxic to humans	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	"The latex of Euphorbia unispina is very caustic and toxic , and very irritating to the skin and mucous membranes. It can cause blindness when in contact with eyes. Despite its toxicity, it is medicinally used . In Guinea, Mali and Cote d'Ivoire the latex is applied to the neck to cure sleeping sickness, because it is believed that the disease is caused by ganglia in the neck. In Cote d'Ivoire and Nigeria the latex is applied to leprosy sores . Two drops of latex on an egg are eaten as an anthelmintic. In Benin stem ash is inhaled to treat asthma; palm oil with latex is taken to treat constipation and colic; a macerate of the cut stems in water is applied to skin diseases and haemorrhoids. In northern Nigeria the latex is rubbed onto the body to treat mental illness. In Cameroon the latex is placed in a carious tooth to relieve toothache or to help to loosen the tooth and render extraction easier. Dried leaves are smoked in a pipe to treat bronchitis ."

408	Creates a fire hazard in natural ecosystems	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	[A succulent with no evidence of flammability or increased fire risk] "Botany Monoecious, candelabriform, sparsely b ranching shrub up to 3.5 m tall"

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

Qsn #	Question	Answer
	Source(s)	**Notes**
	World of Succulents. (2024). Euphorbia unispina (Candle Plant). https://worldofsucculents.com/euphorbia-unispina-candle-plant/. [Accessed 18 Oct 2024]	"Euphorbias need well-draining soil and lots of sunlight."
	Dave's Garden. (2024). Euphorbia unispina. https://davesgarden.com/guides/pf/go/65019. [Accessed 18 Oct 2024]	"Sun Exposure - Full Sun"
	LLIFLE. (2024). Euphorbia unispina. http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Euphorbiaceae/28018/Euphorbia_unispina. [Accessed 18 Oct 2024]	"Sun Exposure: Light shade."
	WRA Specialist. (2024). Personal Communication	Euphorbia unispina is not particularly shade-tolerant. Like many species in the Euphorbia genus, it thrives best in bright, indirect light or full sun. It can tolerate some partial shade but may struggle if kept in deep shade for long periods, as this can stunt growth and lead to weaker stems or a less robust appearance.

410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y**
	Source(s)	**Notes**
	Dave's Garden. (2024). Euphorbia unispina. https://davesgarden.com/guides/pf/go/65019. [Accessed 18 Oct 2024]	"Soil pH requirements 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral) 7.6 to 7.8 (mildly alkaline)"
	LLIFLE. (2024). Euphorbia unispina. http://www.llifle.com/Encyclopedia/SUCCULENTS/Family/Euphorbiaceae/28018/Euphorbia_unispina. [Accessed 18 Oct 2024]	"Soil. They grow well in a very draining mineral potting substrate."
	World of Succulents. (2024). Euphorbia unispina (Candle Plant). https://worldofsucculents.com/euphorbia-unispina-candle-plant/. [Accessed 18 Oct 2024]	"They are not particular about soil pH but cannot tolerate wet soil."
	WRA Specialist. (2024). Personal Communication	Euphorbia unispina prefers well-draining soil and thrives best in sandy or gritty soils, similar to what you would use for other succulents and cacti. It can tolerate a variety of soil types as long as they don't retain too much moisture. Heavy, clayey soils or those that hold water can lead to root rot, which is a common issue for Euphorbias.

411	**Climbing or smothering growth habit**	**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	"Monoecious, candelabriform, sparsely b ranching shrub up to 3.5 m tall; branches cylindrical, up to 2.5 cm in diameter, silvery grey, covered with shallow tubercles and horny spine shields up to 1 cm in diameter, grey, with 1 spine, with white latex."

412	**Forms dense thickets**	**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	"Euphorbia unispina occurs on rocky hills and slopes in savanna. It is locally common." [No evidence]

501	**Aquatic**	**n**

Qsn #	Question	Answer
	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	[Terrestrial] "Euphorbia unispina occurs on rocky hills and slopes in savanna. It is locally common."

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. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 17 Oct 2024]	"Genus: Euphorbia Family: Euphorbiaceae Subfamily: Euphorbioideae Tribe: Euphorbieae Subtribe: Euphorbiinae"

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. https://npgsweb.ars-grin.gov/gringlobal/taxon/taxonomysearch. [Accessed 17 Oct 2024]	"Genus: Euphorbia Family: Euphorbiaceae Subfamily: Euphorbioideae Tribe: Euphorbieae Subtribe: Euphorbiinae"

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	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	"Monoecious, candelabriform, sparsely b ranching shrub up to 3.5 m tall"

601	Evidence of substantial reproductive failure in native habitat	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	"Euphorbia unispina is locally common and probably not threatened by genetic erosion. As a (semi-) succulent Euphorbia species, its trade is controlled under CITES appendix 2."

Qsn #	Question	Answer
602	**Produces viable seed**	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	"Euphorbia unispina can also be grown from seed."
	Dave's Garden. (2024). Euphorbia unispina. https://davesgarden.com/guides/pf/go/65019. [Accessed 19 Oct 2024]	"Methods From woody stem cuttings Allow cut surface to callous over before planting From seed; direct sow after last frost Seed Collecting Bag seedheads to capture ripening seed Properly cleaned, seed can be successfully stored"

603	**Hybridizes naturally**	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown. No evidence found

604	**Self-compatible or apomictic**	y
	Source(s)	**Notes**
	Kubitzki, K. (ed.). (2014). The Families and Genera of Vascular Plants. Vol. XI. Flowering Plants. Eudicots: Malpighiales. Springer, New York	"In Euphorbiaceae, with open-pollinated strictly unisexual flowers, self-incompatibility is rare, and earlier reports of it appear to be incorrect. Self-incompatibility has been shown to be absent or incomplete in Chamaesyce (herbaceous species, Ehrenfeld 1976), Hevea (Bouharmont 1962), and Manihot (Jennings 1963; George and Shifriss 1967)."
	Schmelzer, G.H. & Gurib-Fakim, A. (Eds.). (2008). Plant Resources of Tropical Africa 11(1). Medicinal Plants 1. PROTA Foundation, Wageningen, Netherlands	"Inflorescence an axillary cyme at the ends of branches, consisting of clusters of flowers, each cluster called a 'cyathium'; peduncle short; cyme branches c. 2, short; bracts 2, ovate, c. 2 mm long, membranaceous; cyathia c. 4 mm in diameter, with a shortly funnel-shaped involucre, green, 5-lobed with broadly ovate, fringed lobes, glands 5 , elliptical, touching, red, each cyathium containing 1 female flower surrounded by many male flowers . Flowers unisexual ; male flowers sessile, perianth absent, stamen shortly exserted, red; female flowers with curved pedicel 4-8 mm long in fruit, perianth 5-lobed, ovary superior, 3-celled, glabrous, styles 3, up to 2 mm long, slender, fused at base, bifid at apex." [While outcrossing is generally preferred, some Euphorbia species, including E. unispina, may be capable of self-pollination (selfing) if pollinators are scarce. However, self-pollination is often less efficient and may lead to lower genetic diversity in the offspring.]

605	**Requires specialist pollinators**	n
	Source(s)	**Notes**
	Kubitzki, K. (ed.). (2014). The Families and Genera of Vascular Plants. Vol. XI. Flowering Plants. Eudicots: Malpighiales. Springer, New York	"In Euphorbiaceae, with open-pollinated strictly unisexual flowers, self-incompatibility is rare, and earlier reports of it appear to be incorrect. Self-incompatibility has been shown to be absent or incomplete in Chamaesyce (herbaceous species, Ehrenfeld 1976), Hevea (Bouharmont 1962), and Manihot (Jennings 1963; George and Shifriss 1967)."

Qsn #	Question	Answer
	Bruyns, P. V. (2022). Euphorbia in Southern Africa: Volume 1. Springer Nature, Cham, Switzerland	"In the larger species, cyathia mature roughly simultaneously over much of the tree or shrub and the plant is then visited by quite noisy clouds of insects for several days until flowering is over. Flying visitors include bees, beetles, flies and wasps of many sizes and these are accompanied on foot by many different ants, so it appears that pollination is generally an unspecialised process in Euphorbia (as suggested by Webster 1967: 408). Struck (1992) observed 10 species of bee, beetle, fly and wasp on Euphorbia rhombifolia and 13 on E. mauritanica in Goegab Nature Reserve, east of Springbok, Namaqualand during their ± one month-long flowering period."

606	Reproduction by vegetative fragmentation	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	[No evidence] "Euphorbia unispina is easily propagated by stem cuttings; these should be at least 20 cm long, preferably cut at the base of a branch where the cut surface will be woody. After cutting they should be allowed to lie in a shaded place for at least 2 weeks for a callus to form on the cut end. Euphorbia unispina can also be grown from seed."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown. Euphorbia unispina may reach reproductive maturity within 2 to 5 years, with the timeline being shorter in ideal cultivated settings and longer in natural or less optimal conditions.

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [No means of attachment. The seeds of Euphorbia unispina are primarily dispersed through a mechanism called explosive dehiscence, which is common in many species within the Euphorbia genus.]

702	Propagules dispersed intentionally by people	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	"In West Africa Euphorbia unispina is sometimes planted in gardens as an ornamental plant or as a hedge around fields and graveyards. In Europe and the United States it is a rare pot plant in succulent collections."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	There is no specific evidence to suggest that Euphorbia unispina is commonly dispersed as a seed contaminant. However, the possibility of its seeds being dispersed accidentally through human activity exists, as is the case with many plants.

704	Propagules adapted to wind dispersal	

Qsn #	Question	Answer
	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [The seeds of Euphorbia unispina are primarily dispersed through a mechanism called explosive dehiscence, which is common in many species within the Euphorbia genus. Wind may facilitate movement of seeds.]

705	Propagules water dispersed	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [Unlikely. Euphorbia unispina seeds are not specifically adapted for water dispersal (hydrochory), and their primary dispersal mechanism is explosive dehiscence, where the seed capsules burst open and eject the seeds forcefully away from the parent plant. However, secondary dispersal by water could potentially occur under certain conditions, even though this is not a common or primary mode of dispersal for the species.]

706	Propagules bird dispersed	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [No evidence. The primary dispersal method for E. unispina seeds is explosive dehiscence, where the seed capsules burst open and forcefully eject seeds away from the parent plant.]

707	Propagules dispersed by other animals (externally)	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [There is no strong evidence to suggest that Euphorbia unispina seeds are commonly dispersed externally by animals (epizoochory). While animal-mediated seed dispersal is a common mechanism in some plant species, E. unispina primarily relies on explosive dehiscence, where its seed capsules burst open and eject the seeds away from the parent plant.]

708	Propagules survive passage through the gut	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [No evidence of ingestion or internal dispersal]

801	Prolific seed production (>1000/m2)	
	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	"Fruit an obtusely 3-lobed capsule c. 6 mm in diameter, glabrous, 3 - seeded. Seeds ovoid." [Unknown]

802	Evidence that a persistent propagule bank is formed (>1 yr)	

Qsn #	Question	Answer
	Source(s)	**Notes**
	Dave's Garden. (2024). Euphorbia unispina. https://davesgarden.com/guides/pf/go/65019. [Accessed 19 Oct 2024]	"Properly cleaned, seed can be successfully stored "
	WRA Specialist. (2024). Personal Communication	Unknown. The specific longevity of Euphorbia unispina seeds in the soil under natural conditions is not well-documented.

803	Well controlled by herbicides	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species. Euphorbia unispina may be moderately difficult to control with herbicides due to its succulent, waxy structure and potential resistance to some chemical treatments.

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	**Notes**
	WRA Specialist. (2024). Personal Communication	Unknown

Summary of Risk Traits:

Euphorbia unispina (candle plant) is a spiny candelabriform, sparsely branching shrub native from from Guinea and Mali east to southern Sudan. It grows on rocky hills and slopes in savanna and is locally common. In its native range, it is sometimes planted in gardens as an ornamental plant or as a hedge around fields and graveyards, and is sometimes cultivated in Europe and the United States as a rare pot plant in succulent collections.
There are no documented reports of naturalization or invasiveness outside its native range, but this may be due to limited cultivation elsewhere in the world. Caution should be exercised if growing this plant due its spines, and to the caustic and toxic latex that could poison animals and humans.

High Risk / Undesirable Traits
• Grows and could potentially spread in regions with arid, tropical climates
• Other Euphorbia species are invasive or high-risk weeds
• Leaf stipules modified into 2 stout spines, 6-10 mm long
• Presumably unpalatable to animals due to latex and spines
• Latex caustic and toxic to animals and people
• Tolerates many soil types (as long as well-drained)
• Reproduces by seed
• Presumably self-compatible, but primarily outcrossing
• Seeds dispersed by ballistic dehiscence and through intentional cultivation
• Gaps in biological and ecological information may reduce accuracy of the risk prediction

Low Risk Traits
• No reports of invasive or negative impacts where cultivated (but limited evidence outside native range)
• Grows best in high light environments (dense shade may inhibit spread)

Second Screening Results for Tree / tree-like shrub
A) Shade tolerant OR known to form dense stands? No.
B) Bird- OR clearly wind-dispersed? Not bird- or clearly wind dispersed.
C) Life cycle <4 years? Unknown
Outcome = Accept (Low Risk)