

<b>Taxon:</b> Mimusops elengi	<b>Family:</b> Sapotaceae
<b>Common Name(s):</b> bullet wood medlar Spanish cherry	<b>Synonym(s):</b> NA

<b>Assessor:</b> Assessor	<b>Status:</b> Assessor Approved	<b>End Date:</b> 22 Oct 2014
<b>WRA Score:</b> 0.0	<b>Designation:</b> L	<b>Rating:</b> Low Risk

**Keywords:** Naturalized, Tropical, Ornamental Tree, Shade-Tolerant, Bird-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		
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	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	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	n
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
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n
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	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
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	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/m <sup>2</sup> )		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	[No evidence] "Genetic resources and breeding: Trees may differ markedly in size depending on their origin, which offers potential for selection and possibly breeding activities." ... "Prospects Because of its superior wood quality, it is worthwhile starting silvicultural trials with <i>Mimusops elengi</i> , which is hitherto known in Africa mainly as an ornamental and shade tree."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2014. 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
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	" <i>Mimusops elengi</i> is native to India, Sri Lanka, the Andaman Islands, Myanmar and Indo-China, but is commonly planted as an ornamental tree throughout the tropics, also in Africa, where it has been recorded from e.g. Ghana, Tanzania, Mozambique, Réunion and Mauritius. It has become naturalized locally in Réunion."
202	Quality of climate match data	High
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	
203	Broad climate suitability (environmental versatility)	
	Source(s)	Notes

Qsn #	Question	Answer
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"In its natural area of distribution in Asia <i>Mimusops elengi</i> is fairly common near the sea, but may also be found in rocky locations and inland forest, up to 600 m altitude. It thrives in areas with perhumid or slightly seasonal rainfall types, but is usually found in seasonally dry habitats."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[Possibly, Elevation range may exceed 1000 m, although this conflicts with other references cited] "- Altitude range: 0 - 1200 m - Mean annual rainfall: 750 - 4000 mm - Rainfall regime: summer; uniform - Mean maximum temperature of hottest month: 30 - 40°C - Mean minimum temperature of coldest month: 13 - 27°C - Absolute minimum temperature: 8 - 13°C"

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	" <i>Mimusops elengi</i> is native to India, Sri Lanka, the Andaman Islands, Myanmar and Indo-China, but is commonly planted as an ornamental tree throughout the tropics, also in Africa, where it has been recorded from e.g. Ghana, Tanzania, Mozambique, Réunion and Mauritius. It has become naturalized locally in Réunion."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	" <i>Mimusops elengi</i> is native to India, Sri Lanka, the Andaman Islands, Myanmar and Indo-China, but is commonly planted as an ornamental tree throughout the tropics, also in Africa, where it has been recorded from e.g. Ghana, Tanzania, Mozambique, Réunion and Mauritius. It has become naturalized locally in Réunion."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	"It has become naturalized locally in Réunion."

Qsn #	Question	Answer
	Frohlich, D.& Lau, A. 2014. New plant records for the Hawaiian Islands 2012–2013. Bishop Museum Occasional Papers 115: 7–17	" <i>Mimusops elengi</i> , which can be differentiated from other <i>Mimusops</i> species present in Hawai'i by its abruptly pointed leaf apices and sweetly fragrant flowers (Staples & Herbst 2005), was recently collected spreading near the Kaunala Trail in Pūpūkea, O'ahu. Tens of individuals of varying size (including seedlings) were seen in the area. Material examined. O'AHU: Kaunala Trail, Pūpūkea, 24 aug 2013, K. Kawelo US Army 325."

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence. Listed as naturalized

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence. Listed as naturalized

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence. Listed as naturalized

305	Congeneric weed	
	Source(s)	Notes
	Eat the Weeds, and other things, too. 2014. Monkey's Apple, <i>Mimusop coriacea</i> . <a href="http://www.eattheweeds.com/monkeys-apple-mimusop-coriacea/">http://www.eattheweeds.com/monkeys-apple-mimusop-coriacea/</a> . [Accessed 20 Oct 2014]	[Regarded as a weed. No impacts specified] "Originally from Madagascar, Monkey's Apple is well-established in the tropics from Southern Florida to Northern Australia. " ... "Its spread in south Florida is of great concern. West Palm Beach, where I teach classes, specimens have been found."
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	<i>Mimusops balata</i> is listed as a weed, and <i>M. coriacea</i> and <i>M. elengi</i> listed as naturalized, but no evidence of negative impacts are reported

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

Qsn #	Question	Answer
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	[No evidence] "Evergreen, small to medium-sized tree up to 30(–40) m tall; bole up to 100 cm in diameter, often short and divided into several large main branches but sometimes branchless for up to 15(–20) m, buttresses absent or up to 2 m high; bark surface becoming deeply fissured and sometimes peeling off in thin scales, grey, brown or dark red to blackish, inner bark fibrous, pink or reddish, with scanty watery or white sticky latex; crown dense, rounded and spreading, glossy dark green. Leaves arranged spirally, more or less in tufts at the ends of branches, simple; stipules minute and caducous; petiole 1–3.5 cm long, grooved above; blade ovate to elliptical or oblong-elliptical, 4.5–17 cm × 2–7 cm, rounded at base, acuminate at apex, margins often wavy and upcurled, glabrous, with 10–20 pairs of lateral veins."

402	Allelopathic	
	Source(s)	Notes
	Fujii, Y., Parvez, S. S., Parvez, M., Ohmae, Y., & Iida, O. 2003. Screening of 239 medicinal plant species for allelopathic activity using the sandwich method. <i>Weed Biology and Management</i> , 3(4): 233-241	"Table 1. Screening of leaf litter of 239 medicinal plant species under different families using the sandwich method" [Extracts of <i>Mimusops elengi</i> may cause some inhibitory and promotive responses to lettuce radicle growth, but the effects measured were not significant]

403	Parasitic	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	"Evergreen, small to medium-sized tree up to 30(–40) m tall" [Sapotaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	CAB International, 2005. <i>Forestry Compendium</i> . CAB International, Wallingford, UK	"The leaves provide fodder."
	Elangovan, V., Marimuthu, G., & Kunz, T. H. 2001. Temporal patterns of resource use by the short-nosed fruit bat, <i>Cynopterus sphinx</i> (Megachiroptera: Pteropodidae). <i>Journal of Mammalogy</i> , 8(1): 161-165	[The short-nosed fruit bat, <i>Cynopterus sphinx</i> , consumes leaves of <i>M. elengi</i> ] "We quantified foraging behavior of <i>C. sphinx</i> as individuals fed on fruits of <i>Annona squamosa</i> , leaves of <i>Cassia fistula</i> and <i>Mimusops elengi</i> , and fruits and leaves of <i>Coccinia indica</i> ."

Qsn #	Question	Answer
405	Toxic to animals	n
	Source(s)	Notes
	Riffle, R.L. 1998. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	"A genus of 60 trees and large shrubs in the Old World tropics. All have nontoxic milky sap..."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[No evidence] "Descriptors: oils; medicinal products; pesticides; food; fodder; bark products"

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Diseases and pests: In India a foliar disease of <i>Mimusops elengi</i> is caused by <i>Colletotrichum gloeosporioides</i> . A mortality of about 20% of one-month-old seedlings was recorded by a collar rot disease, caused by <i>Cylindrocladium</i> spp."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Handling after harvest: The sawdust is irritating to nose and throat."
	CSIRO. 2010. Australian Tropical Rainforest Plants Edition 6.1 - <i>Mimusops elengi</i> . <a href="http://keys.trin.org.au/key-server/data/Oe0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Mimusops_elengi.htm">http://keys.trin.org.au/key-server/data/Oe0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Mimusops_elengi.htm</a> . [Accessed 20 Oct 2014]	"This species may have medicinal properties and it may also be poisonous."
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Northern Land Manager. 2011. Fire responses of <i>Mimusops elengi</i> . <a href="http://www.landmanager.org.au/fire-responses-mimusops-elengi">http://www.landmanager.org.au/fire-responses-mimusops-elengi</a> . [Accessed 21 Oct 2014]	"Adult fire response: Resprouter (<30% mortality when subject to 100% leaf scorch) Resprouting type: Basal (lignotuber) +/- epicormic"
	Veach, R., Lee, D., & Philippi, T. 2003. Human disturbance and forest diversity in the Tansa Valley, India. <i>Biodiversity &amp; Conservation</i> , 12(5): 1051-1072	[No evidence. Occurs in moist forest] "We would add <i>Mimusops elengi</i> , <i>Carallia brachiata</i> , <i>Mammea suriga</i> , <i>Ixora brachiata</i> , <i>Albizia procera</i> and <i>Bauhinia malabarica</i> as indicators of moist forest."

409	Is a shade tolerant plant at some stage of its life cycle	y
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	" <i>Mimusops elengi</i> is shade-tolerant; it retains a full crown and reproduces satisfactorily under fairly dense shade."
	Troup, R.S. 1921. The Silviculture of Indian Trees. Volume II. Leguminosae (Caesalpinieae) to Verbenaceae. Oxford University Press, London, UK	"The tree is a shade-bearer, retaining a full crown under fairly dense shade. Gamble says it appears to reproduce well in shade and to remain small until an opportunity offers for removal of the cover, when it grows up at once."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 21 Oct 2014]	"It requires fertile soil."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"Soil descriptors - Soil drainage: seasonally waterlogged - Special soil tolerances: shallow; saline"

411	Climbing or smothering growth habit	n
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	"Evergreen, small to medium-sized tree up to 30(-40) m tall; bole up to 100 cm in diameter"

412	Forms dense thickets	n
	<b>Source(s)</b>	<b>Notes</b>
	Bowman, D. M. J. S., & Dunlop, C. R. 1986. Vegetation pattern and environmental correlates in coastal forests of the Australian monsoon tropics. <i>Vegetatio</i> , 65(2): 99-104	[ <i>Mimusops elengi</i> is a component of thicket vegetation, but does not form pure stands in this study] "Table 3. Percentage basal area of trees (>15 cm DBH) and density (ha) of saplings (< 5 cm DBH) ( ) for the three terres trial forests.* a: Eucalypt forest, b: Mixed thicket, c: Pure thicket."



Qsn #	Question	Answer
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 21 Oct 2014]	[No evidence] "In its natural area of distribution in Asia <i>Mimusops elengi</i> is fairly common near the sea, but may also be found in rocky locations and inland forest, up to 600 m altitude. It thrives in areas with perhumid or slightly seasonal rainfall types, but is usually found in seasonally dry habitats."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	[No evidence] " <i>M. elengi</i> is a small tree up to 15 m tall. It is found in India in the Western Ghats, but is probably indigenous to much of Indo-China, Thailand and the Andaman Islands as well. This species has been much planted in Malasia as far east as the Solomon Islands and tropical Australia. The tree and seedlings grow relatively slowly. It can tolerate shade, but also grows in rocky locations, and is common close to the sea."

501	Aquatic	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	[Terrestrial] "In its natural area of distribution in Asia <i>Mimusops elengi</i> is fairly common near the sea, but may also be found in rocky locations and inland forest, up to 600 m altitude. It thrives in areas with perhumid or slightly seasonal rainfall types, but is usually found in seasonally dry habitats. It can stand waterlogging for up to 2 months. It requires fertile soil. It is tolerant of light frost."

502	Grass	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Evergreen, small to medium-sized tree up to 30(-40) m tall" [Sapotaceae]

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Evergreen, small to medium-sized tree up to 30(-40) m tall" [Sapotaceae]

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

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Evergreen, small to medium-sized tree up to 30(–40) m tall; bole up to 100 cm in diameter, often short and divided into several large main branches but sometimes branchless for up to 1 (–20) m, buttresses absent or up to 2 m high; bark surface becoming deeply fissured and sometimes peeling off in thin scales, grey, brown or dark red to blackish, inner bark fibrous, pink or reddish, with scanty watery or white sticky latex; crown dense, rounded and spreading, glossy dark green."

<b>601</b>	<b>Evidence of substantial reproductive failure in native habitat</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	[No evidence in native or introduced range] " <i>Mimusops elengi</i> is native to India, Sri Lanka, the Andaman Islands, Myanmar and Indo-China, but is commonly planted as an ornamental tree throughout the tropics, also in Africa, where it has been recorded from e.g. Ghana, Tanzania, Mozambique, Réunion and Mauritius. It has become naturalized locally in Réunion."

<b>602</b>	<b>Produces viable seed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	" <i>Mimusops elengi</i> can be propagated by seed or cuttings. Seed can be stored for about 9 months and needs 'after-ripening' during the first month of storage. There are about 2000 dry seeds/kg. Seed germinates in 17–82 days and the germination rate is 70–90%. It is best sown directly in containers. Seedlings can be planted out when 20–30 cm tall. The rooting success of 10–15 cm long cuttings with a diameter of 0.5–1 cm is 70–90%."

<b>603</b>	<b>Hybridizes naturally</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 22 Oct 2014]	[Unknown] " <i>Mimusops</i> comprises about 40 species, 20 of which occur in mainland Africa, 15 in Madagascar, 5 in the Seychelles and Mascarene islands, and 1 ( <i>Mimusops elengi</i> ) in Asia and the Pacific."

Qsn #	Question	Answer
604	Self-compatible or apomictic	n
	Source(s)	Notes
	Aluri, R.J.S. 1990. Studies on pollination ecology in India: a review. Proceedings of the Indian National Academy of Sciences B56(4): 375-388	"Three types of plants of <i>Mimusops elengi</i> occur in nature. The first has flowers having only functional stamens and bearing no fruits; the second type has flowers with functional ovaries (bearing fruits), and the third type has flowers with functional ovaries and stamens (bearing fruits). The stigma loses pollen receptivity just before pollen liberation preventing the possibility of self-pollination."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Flowers in fascicles of up to 6 in the leaf axils, bisexual or functionally unisexual, regular, fragrant; pedicel 1–1.5 cm long; sepals in 2 whorls of 4; corolla white, with a short tube and 8 lobes each deeply divided into 3, c. 1 cm long; stamens 8, alternating with 8 staminodes; ovary superior, (6– 8-celled." ... "Trees may flower and fruit throughout the year. Infrequent visits of insects and bats have been observed, but pollination is most likely by wind."
	Marshall, A.J. & Beehler, B.M. 2007. Ecology of Indonesian Papua Part One. Tuttle Publishing, North Clarendon, VT	" <i>Mimusops elengi</i> has very fragrant nocturnal flowers, but there are strong indications that this species is wind-pollinated and that the visiting bees do not contribute to the pollination (Subba Reddi and Bai 1980)."
	Aluri, R.J.S. 1990. Studies on pollination ecology in India: a review. Proceedings of the Indian National Academy of Sciences B56(4): 375-388	"The honeybees and tiny insects occasionally forage for pollen on these flowers, which have lost stigma receptivity and act as mere visitors. Wind is the sole pollination agent as confirmed experimentally."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 22 Oct 2014]	[No evidence, as has been documented in other <i>Mimusops</i> species] " <i>Mimusops elengi</i> can be propagated by seed or cuttings."

Qsn #	Question	Answer
607	Minimum generative time (years)	>3
	Source(s)	Notes
	Northern Land Manager. 2011. Fire responses of <i>Mimusops elengi</i> . <a href="http://www.landmanager.org.au/fire-responses-mimusops-elengi">http://www.landmanager.org.au/fire-responses-mimusops-elengi</a> . [Accessed 21 Oct 2014]	"First seeds: 11-over 20 years"
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 21 Oct 2014]	[Time to maturity not specified, but growth rate suggests >4+ years] "Seedlings and trees grow slowly, but occasionally trees may reach a height of 34 m in 20 years with a bole diameter of 50 cm, i.e. a mean annual diameter increment of 2.5 cm."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	Source(s)	Notes
	Frohlich, D.& Lau, A. 2014. New plant records for the Hawaiian Islands 2012–2013. Bishop Museum Occasional Papers 115: 7–17	[Possibly. Naturalized along trail, but fruits & seeds lack means of external attachment] " <i>Mimusops elengi</i> , which can be differentiated from other <i>Mimusops</i> species present in Hawai'i by its abruptly pointed leaf apices and sweetly fragrant flowers (Staples & Herbst 2005), was recently collected spreading near the Kaunala Trail in Pūpūkea, O'ahu. Tens of individuals of varying size (including seedlings) were seen in the area. Material examined. O'AHU: Kaunala Trail, Pūpūkea, 24 aug 2013, K. Kawelo US Army 325."
	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	[Possibly. Occurs along roads, but fruit & seeds otherwise lack means of external attachment] "Elengi is found occasionally on all the major islands in Hawaii, especially in older neighborhoods, where it was planted years ago as a shade and street tree, a purpose for which it is well suited."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"Elengi is found occasionally on all the major islands in Hawaii, especially in older neighborhoods, where it was planted years ago as a shade and street tree, a purpose for which it is well suited."
	CAB International, 2005. Forestry Compendium. CAB International, Wallingford, UK	"It is a multipurpose tree, often planted as an ornamental road or garden species on account of the fragrant flowers. The flowers yield an oil used as a perfume. The leaves, bark, seeds and young fruits have various medicinal uses against fever, headaches, and digestive problems. The seed oil has been utilized for cooking and lighting. "
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	" <i>Mimusops elengi</i> has fragrant flowers and is often planted as an ornamental and shade tree in gardens and along roads, also in coastal sites."

703	Propagules likely to disperse as a produce contaminant	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 22 Oct 2014]	[Unlikely. Fruits & seeds relatively large, & tree reaches reproductive maturity after a long growth period] "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar."

704	Propagules adapted to wind dispersal	n
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	[Fleshy-fruited. No adaptations for wind dispersal] "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar." ... "The seed is known to be dispersed by bats, but monkeys, squirrels and wild pigs probably also eat the fruits."

705	Propagules water dispersed	n
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 22 Oct 2014]	[No evidence from fruit morphology, dispersal ecology, or natural distribution] "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar." ... "The seed is known to be dispersed by bats, but monkeys, squirrels and wild pigs probably also eat the fruits." ... "In its natural area of distribution in Asia <i>Mimusops elengi</i> is fairly common near the sea, but may also be found in rocky locations and inland forest, up to 600 m altitude."

706	Propagules bird dispersed	y
	<b>Source(s)</b>	<b>Notes</b>
	Santhoshkumar, E., & Balasubramanian, P. 2011. Seed dispersal by the Indian Grey Hornbill <i>Ocyrceros birostris</i> in Eastern Ghats, India. <i>Ecotropica</i> , 17(2): 71-77	"Regeneration of hornbill's food plants was noticed in all the hornbill nest sites in the study area. Seed dispersal of 26 plant species including the large seeded species such as <i>Diospyros montana</i> and <i>Mimusops elengi</i> which have only a fewer seed dispersing species highlights that the hornbill is an important seed disperser."
	CSIRO. 2010. Australian Tropical Rainforest Plants Edition 6.1 - <i>Mimusops elengi</i> . <a href="http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Mimusops_elengi.htm">http://keys.trin.org.au/key-server/data/0e0f0504-0103-430d-8004-060d07080d04/media/Html/taxon/Mimusops_elengi.htm</a> . [Accessed 20 Oct 2014]	"The fruit of this tree is much sought after by fruit eating pigeons particularly Torresian Imperial Pigeons ( <i>Ducula bicolor</i> )."
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	"Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar." ... "The seed is known to be dispersed by bats, but monkeys, squirrels and wild pigs probably also eat the fruits."

Qsn #	Question	Answer
	David, J. P., Manakadan, R., & Ganesh, T. 2015. Frugivory and seed dispersal by birds and mammals in the coastal tropical dry evergreen forests of southern India: A review. <i>Tropical Ecology</i> , 5 (1): 41-55	[In the Hawaiian Islands, dispersal by birds may be limited due to size of fruit & seed. Mongoose, pigs, and rats may be the main dispersers of this species in the archipelago] "Large fruits and fruits with seed protection, such as <i>Strychnos nuxvomica</i> , <i>Phoenix sylvestris</i> , <i>Mimusops elengi</i> , and <i>Garcinia spicata</i> , are solely dependent on mammals for their dispersal." ... 'Appendix Table 1. ... <i>Mimusops elengi</i> - Fruit width (mm) = 15.8]

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 21 Oct 2014]	[Unlikely. No means of external attachment, although frugivores unable to swallow whole fruits may carry them externally & discard the seeds] "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar."

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	David, J. P., Manakadan, R., & Ganesh, T. 2015. Frugivory and seed dispersal by birds and mammals in the coastal tropical dry evergreen forests of southern India: A review. <i>Tropical Ecology</i> , 5 (1): 41-55	"In Sriharikota, the most common species in the forest such as <i>C. dichotoma</i> , <i>D. ferrea</i> , <i>G. rhamnifolia</i> , <i>M. umbellatum</i> , <i>P. farinifera</i> , and <i>S. cumini</i> and large-sized fruits such as <i>Mimusops elengi</i> and <i>Zizyphus mauritiana</i> are chiefly dependent on the Golden Jackal and Small Indian Civet for dispersal (David et al. 2011)." ... "Large fruits and fruits with seed protection, such as <i>Strychnos nuxvomica</i> , <i>Phoenix sylvestris</i> , <i>Mimusops elengi</i> , and <i>Garcinia spicata</i> , are solely dependent on mammals for their dispersal."
	Tassin, J., Boissenin, M., & Barré, N. 2010. Can <i>Ptilinopus greyii</i> (Columbidae) Disperse Seeds in New Caledonia's Dry Forests? 1. <i>Pacific Science</i> , 64(4): 527-532	"Trials with a captive bird showed that gut passage enhanced seed germination for <i>Diospyros fasciculosa</i> and <i>Mimusops elengi</i> but not for <i>Vitex cf. collina</i> , compared with whole fruits. Gut passage did not shorten duration of seed dormancy, which is consistent with evidence of a simple deinhibition effect for <i>D. fasciculosa</i> and <i>M. elengi</i> . Minimum Retention Time (MRT) of seeds in the gut differed significantly between the three tree species, from a mean of 17.4 min for <i>D. fasciculosa</i> to a mean of 52.4 min for <i>M. elengi</i> . These times are longer than observed foraging times in fruiting trees, potentially making this fruit-dove an effective seed disperser."
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed ]	[Presumably Yes] "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar." ... "The seed is known to be dispersed by bats, but monkeys, squirrels and wild pigs probably also eat the fruits."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes



Qsn #	Question	Answer
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 22 Oct 2014]	"Evergreen, small to medium-sized tree up to 30(–40) m tall; bole up to 100 cm in diameter," ... "Fruit an ovoid to ellipsoid berry 2–3 cm long, orange-red when ripe, 1–2-seeded. Seeds up to 2 cm long, laterally compressed, with small circular basal scar."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	<b>Source(s)</b>	<b>Notes</b>
	Lemmens, R.H.M.J., 2005. <i>Mimusops elengi</i> L. [Internet] Record from PROTA4U. Louppe, D., Oteng-Amoako, A.A. & Brink, M. (Editors). PROTA (Plant Resources of Tropical Africa / Ressources végétales de l'Afrique tropicale), Wageningen, Netherlands. <a href="http://www.prota4u.org/search.asp">http://www.prota4u.org/search.asp</a> . [Accessed 20 Oct 2014]	"Seed can be stored for about 9 months and needs 'after-ripening' during the first month of storage. "
	Troup, R.S. 1921. <i>The Silviculture of Indian Trees. Volume II. Leguminosae (Caesalpinieae) to Verbenaceae.</i> Oxford University Press, London, UK	"The seeds do not retain their vitality long. "
	Mai-Hong, T., Hong, T. D., Hien, N. T., Hai, H. H., Tung, T. D., Le Tam, V. T., Ngoc-Tam, B. & Ellis, R. H. 2006. Seed Development, Maturation and Storage Behaviour of <i>Mimusops elengi</i> L. <i>New Forests</i> , 32(1): 9-19	[Able to be stored, but unlikely to form a long-lived seed bank] "The results suggest that <i>Mimusops elengi</i> shows intermediate seed storage behaviour and that the optimal hermetic seed storage environment is about 10% moisture content at 10 °C, while short-term, moist, aerated storage at high (40%) moisture content is also feasible." ... "The crucial difference between the (intermediate) <i>Mimusops elengi</i> and the (orthodox) <i>Peltophorum pterocarpum</i> (and indeed orthodox species in general) is that seeds of orthodox species which remain on the mother plant maintain high viability and high desiccation tolerance for some considerable period thereafter whereas <i>M. elengi</i> did not."

803	Well controlled by herbicides	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2014. Personal Communication	No information on herbicide efficacy or chemical control of this species.

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	<b>Source(s)</b>	<b>Notes</b>
	Northern Land Manager. 2011. Fire responses of <i>Mimusops elengi</i> . <a href="http://www.landmanager.org.au/fire-responses-mimusops-elengi">http://www.landmanager.org.au/fire-responses-mimusops-elengi</a> . [Accessed 21 Oct 2014]	"Adult fire response: Resprouter (<30% mortality when subject to 100% leaf scorch) Resprouting type: Basal (lignotuber) +/- epicormic"

Qsn #	Question	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

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**Summary of Risk Traits:**

## High Risk / Undesirable Traits

- Elevation range may possibly exceed 1000 m, demonstrating environmental versatility
- Thrives in tropical climates
- Naturalized on Oahu, Hawaiian Islands & Réunion Island
- Sawdust is irritating to nose and throat
- Shade-tolerant
- Seeds dispersed by birds, mammals & intentionally by people
- Able to resprout after fires

## Low Risk Traits

- Despite naturalization, no negative impacts reported to date
- Unarmed (no spines, thorns or burrs)
- Provides fodder for livestock
- Ornamental & shade tree
- Does not self-pollinate
- Not reported to spread vegetatively
- Slow growing, & reaches maturity in 11-20 years
- Relatively large fruit & seeds unlikely to be accidentally dispersed
- Seeds lose viability quickly & are unlikely to form a persistent seed bank