

**Family:** *Myrtaceae*

**Taxon:** *Syzygium jambos*

**Synonym:** ) *Eugenia jambos* L. (*basionym*)

**Common Name:** jambos  
Malabar-plum  
rose-apple

<b>Questionnaire :</b>	current 20090513	<b>Assessor:</b>	Patti Clifford	<b>Designation:</b> H(HPWRA)
<b>Status:</b>	Assessor Approved	<b>Data Entry Person:</b>	Patti Clifford	<b>WRA Score</b> 20
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
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		n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)	y
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)	y
305	Congeneric weed		n=0, y = 1*multiplier (see Appendix 2)	y
401	Produces spines, thorns or burrs		y=1, n=0	n
402	Allelopathic		y=1, n=0	
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		y=1, n=0	y
407	Causes allergies or is otherwise toxic to humans		y=1, n=0	n
408	Creates a fire hazard in natural ecosystems		y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		y=1, n=0	y

411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	y
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
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	y
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)	y=1, n=-1	y
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	y
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	y=1, n=-1	n
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	
803	Well controlled by herbicides	y=-1, n=1	y
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: H(HPWRA)

WRA Score 20

---

**Supporting Data:**

101	2011. WRA Specialist. Personal Communication.	[Is the species highly domesticated?? No] No evidence of domestication that reduces invasive characteristics.
102	2011. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown?] NA
103	2011. WRA Specialist. Personal Communication.	[Does the species have weedy races?] NA
201	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"?] Probable origin Malasia.
202	2011. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network (GRIN) [Online Database Index]. National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Quality of climate match data?] Probable origin Malasia.
203	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Broad climate suitability? Yes] "The rose apple flourishes in the tropical and near-tropical climates only. In Jamaica, it is naturalized from near sea-level up to an altitude of 3,000 ft (915 m); in Hawaii, from sea-level to 4,000 ft (1,200 m). In India, it ranges up to 4,400 ft (1,350 m); in Ecuador, to 7,500 ft (2,300 m). At the upper limits, as in California, the tree grows vigorously but will not bear fruit."
203	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Broad climate suitability? Yes] 0-2300 m. Does not produce fruit at higher elevations.
204	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Native or naturalized in regions with tropical or subtropical climates?] "The rose apple is native to the East Indies and Malaya and is cultivated and naturalized in many parts of India, Ceylon and former Indochina and the Pacific Islands. It was introduced into Jamaica in 1762 and became well distributed in Bermuda, the Bahamas, the West Indies and, at low and medium elevations, from southern Mexico to Peru. In Guatemala, the tree may be planted as a living fencepost or in hedgerows around coffee plantations. For this purpose, it is drastically pruned to promote dense growth. It grows wild abundantly, forming solid stands and thickets, in Puerto Rico, the Virgin Islands, Guatemala, Honduras and Panama."
205	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Does the species have a history of repeated introductions outside its natural range? Yes] "The rose apple is native to the East Indies and Malaya and is cultivated and naturalized in many parts of India, Ceylon and former Indochina and the Pacific Islands. It was introduced into Jamaica in 1762 and became well distributed in Bermuda, the Bahamas, the West Indies and, at low and medium elevations, from southern Mexico to Peru. In Guatemala, the tree may be planted as a living fencepost or in hedgerows around coffee plantations. For this purpose, it is drastically pruned to promote dense growth. It grows wild abundantly, forming solid stands and thickets, in Puerto Rico, the Virgin Islands, Guatemala, Honduras and Panama."
205	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Does the species have a history of repeated introductions outside its natural range? Yes] "Introduced range: Invasive in the Caribbean, Hawaii, Galapagos, Seychelles, Fiji, Cook Islands, Mauritius and a small part of Australia. Introduced but not considered invasive in southern Africa and Tanzania, southeastern USA, Mexico and tropical South America."
301	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Naturalized beyond native range?] "The rose apple is native to the East Indies and Malaya and is cultivated and naturalized in many parts of India, Ceylon and former Indochina and the Pacific Islands. It was introduced into Jamaica in 1762 and became well distributed in Bermuda, the Bahamas, the West Indies and, at low and medium elevations, from southern Mexico to Peru. In Guatemala, the tree may be planted as a living fencepost or in hedgerows around coffee plantations. For this purpose, it is drastically pruned to promote dense growth. It grows wild abundantly, forming solid stands and thickets, in Puerto Rico, the Virgin Islands, Guatemala, Honduras and Panama."
302	2011. WRA Specialist. Personal Communication.	[Garden/amenity/disturbance weed?] Scored as an environmental weed.

303	. Bingelli, P.. The human dimensions of invasive woody plants. <a href="http://members.multimania.co.uk/woodyplantecology/docs/McNeely01-145.pdf">http://members.multimania.co.uk/woodyplantecology/docs/McNeely01-145.pdf</a>	[ Agricultural/forestry/horticultural weed? Yes] "Similarly on Pitcairn Island the dense and extensive root mat produced by mature <i>Syzygium jambos</i> trees is detrimental to shifting agriculture or in agroforestry systems."
304	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Environmental weed? Yes] "Forms dense, fast growing canopies that block out light for lower vegetation, leading to monospecific stands. Trees are able to resprout quickly if damaged. Has the ability to invade undisturbed forest due to shade tolerance. Rapidly invades disturbed areas.'
305	2007. Richarc, A./Ramey, V.. Invasive and non-native plants you should know, recognition cards Publ. No.SP431. UF/IFAS Center for Aquatic and Invasive Plants, <a href="http://plants.ifas.ufl.edu/node/441">http://plants.ifas.ufl.edu/node/441</a>	[Congeneric weed? Yes] <i>Syzygium cumini</i> is an invasive weed in Florida, where it forms dense canopies that shade out young native trees in wet pinlands, hammocks, and well drained uplands.
401	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Produces spines, thorns or burrs? Yes] "Trees 6-15 m tall, bark grayish brown, smooth, glabrous throughout. Leaves thin, coriaceous, somewhat pendent, narrowly lanceolate."
402	2004. Kueffer, C./Lavergne, C.. Case studies on the status of invasive woody plant species in the Western Indian Ocean 4. Reunion. Food and Agriculture Organization of the United Nations, Rome <a href="http://www.fao.org/forestry/6842-04f45dce1364a6bd9ed43e68e8d39">http://www.fao.org/forestry/6842-04f45dce1364a6bd9ed43e68e8d39</a>	[Allelopathic?] <i>Syzygium jambos</i> has been reported to exhibit allelopathic effects.
403	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Parasitic? No] Myrtaceae.
404	1996. Dhakal,M.R./Aziz, A.. General survey of fodder trees and shrubs of Biratnagar and surrounding locality. Tribhuvan University Journal. 19: 77-82. <a href="http://nepjol.info/index.php/TUJ/article/viewFile/3882/3311">http://nepjol.info/index.php/TUJ/article/viewFile/3882/3311</a>	[Unpalatable to grazing animals? No] <i>Syzygium jambos</i> is used as fodder for goats in Biratnagar.
405	2011. National Center for Biotechnology Information. PubMed. U.S. National Library of Medicine, Bethesda, Maryland <a href="http://www.ncbi.nlm.nih.gov/">http://www.ncbi.nlm.nih.gov/</a>	[Toxic to animals? No] No evidence of toxicity.
406	2008. Cannon, P.. Developing an agreement for the University of Vicoso , in Brazil, to study guava rust for the State of Hawaii. USDA Forest Service, <a href="http://www.fs.fed.us/outernet/r6/nr/fid/iat/reports/central-south-america/2008-cannon-brazil-guava_rust">http://www.fs.fed.us/outernet/r6/nr/fid/iat/reports/central-south-america/2008-cannon-brazil-guava_rust</a> .	[Host for recognized pests and pathogens? Yes] <i>Syzygium jambos</i> is extremely vulnerable to <i>Puccinia psidii</i> rust.
407	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Causes allergies or is otherwise toxic to humans? No] "Around the tropical world, rose apples are mostly eaten out-of-hand by children. They are seldom marketed. In the home, they are sometimes stewed with some sugar and served as dessert." Medicinal uses: "In India, the fruit is regarded as a tonic for the brain and liver. An infusion of the fruit acts as a diuretic. A sweetened preparation of the flowers is believed to reduce fever. The seeds are employed against diarrhea, dysentery and catarrh. In Nicaragua, it has been claimed that an infusion of roasted, powdered seeds is beneficial to diabetics. They say in Colombia that the seeds have an anesthetic property. The leaf decoction is applied to sore eyes, also serves as a diuretic and expectorant and treatment for rheumatism. The juice of macerated leaves is taken as a febrifuge. Powdered leaves have been rubbed on the bodies of smallpox patients for the cooling effect. The bark contains 7-12.4% tannin. It is emetic and cathartic. The decoction is administered to relieve asthma, bronchitis and hoarseness. Cuban people believe that the root is an effective remedy for epilepsy."
408	2011. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems? No] No evidence of biomass loading on ecosystems.

409	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Is a shade tolerant plant at some stage of its life cycle? Yes] Prefers full sun but is shade tolerant.
410	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Yes] "A deep, loamy soil is considered ideal for the rose apple but it is not too exacting, for it flourishes also on sand and limestone with very little organic matter."
410	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Yes] Tolerates a wide range of soil conditions.
411	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Climbing or smothering growth habit? No] Tree 6-15 m tall.
412	2003. Motooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Forms dense thickets? Yes] Forms dense stands in mesic forests and pastures, shading out undergrowth.
501	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Aquatic? No] Terrestrial.
502	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Grass? No] Myrtaceae.
503	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Nitrogen fixing woody plant? No] Myrtaceae.
504	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No]. Tree.
601	2011. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence.
602	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL <a href="http://www.hort.purdue.edu/newcrop/morton">http://www.hort.purdue.edu/newcrop/morton</a>	[Produces viable seed? Yes] Mainly grown from seeds.
603	2011. WRA Specialist. Personal Communication.	[Hybridizes naturally?] Unknown.
604	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Self-compatible or apomictic? Yes] Fruits are produced after self-pollination.
605	1994. Shivaramu, K./Jagan Moha, N.. Impact of bee flora in a plantation-based ecosystem. <a href="http://www.betuco.be/agroforestry/Multipurpose%20tree%20india%20.pdf#page=112">http://www.betuco.be/agroforestry/Multipurpose%20tree%20india%20.pdf#page=112</a>	[Requires specialist pollinators? No] Syzygium jambos trees were planted as bee foraging plants to assist pollination and honey production at the central horticultural experiment station at Chettalli in Kodagu.
606	2011. Tropical Biology Association. Syzygium jambos. Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Reproduction by vegetative fragmentation? Yes]. Dispersed by vegetative fragments in flowing water.

607	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Minimum generative time (years)? >3] Fruits are produced after five years.
701	. Bingelli, P.. The human dimensions of invasive woody plants. <a href="http://members.multimania.co.uk/woodyplantecology/docs/McNeely01-145.pdf">http://members.multimania.co.uk/woodyplantecology/docs/McNeely01-145.pdf</a>	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Yes] "Similarly on Pitcairn Island the dense and extensive root mat produced by mature <i>Syzygium jambos</i> trees is detrimental to shifting agriculture or in agroforestry systems."
702	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Propagules dispersed intentionally by people? Yes] Introduced by humans for use as an ornamental tree, fruit tree or for fuel.
703	2011. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence of produce contamination.
704	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules adapted to wind dispersal? No] Berries.
705	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Propagules dispersed by ? Yes] Seeds and root fragments are dispersed by flowing water.
706	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules bird dispersed? Yes] Berries subglobose, 2-4 cm long. Seed usually one.
707	1999. Wagner, W.L./Herbst, D.R./Sohmer, S.H.. Manual of the flowering plants of Hawaii. Revised edition.. University of Hawai'i Press and Bishop Museum Press, Honolulu, HI.	[Propagules dispersed by other animals (externally)? No] Berries. [no means of external attachment]
708	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Propagules survive passage through the gut? Yes] The fruit is dispersed by humans and pigs.
802	2011. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)?] Unknown.
803	2003. Motoooka, P./Castro, L./Nelson, D./Nagai, G./Ching, L.. Weeds of Hawaii's Pastures and Natural Areas: An Identification and Management Guide. CTAHR, UH Manoa, Honolulu, HI <a href="http://www.ctahr.hawaii.edu/invweed/weedsHi.htm">http://www.ctahr.hawaii.edu/invweed/weedsHi.htm</a>	[Well controlled by herbicides? Yes]. "Sensitive to picloram applied cut-surface and to glyphosate applied to drilled holes. Good control with triclopyr applied basal bark and cut-surface(30)."
804	2011. Tropical Biology Association. <i>Syzygium jambos</i> . Tropical Biology Association Inc., <a href="http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm">http://www.tropical-biology.org/research/dip/species/Syzygium%20jambos.htm</a>	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Forms dense, fast growing canopies that block out light for lower vegetation, leading to monospecific stands. Trees are able to resprout quickly if damaged. Has the ability to invade undisturbed forest due to shade tolerance. Rapidly invades disturbed areas."
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)?] Unknown.