

Family: *Clusiaceae*

Taxon: *Mammea americana*

Synonym: *Mammea emarginata* Moc. & Sessé ex Choisy **Common Name:** mammee-apple
mammy-apple
tropical-apricot

Questionnaire :	current 20090513	Assessor:	Patti Clifford	Designation: L
Status:	Assessor Approved	Data Entry Person:	Patti Clifford	WRA Score -1
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	
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		n=0, y = 1*multiplier (see Appendix 2)	n
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	
405	Toxic to animals		y=1, n=0	y
406	Host for recognized pests and pathogens		y=1, n=0	n
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	
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0	
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	
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	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)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	
706	Propagules bird dispersed	y=1, n=-1	
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	
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	n
803	Well controlled by herbicides	y=-1, n=1	
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: L

WRA Score -1

Supporting Data:

101	2012. WRA Specialist. Personal Communication.	[Is the species highly domesticated?? No] No evidence of domestication that reduces invasive traits.
102	2012. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown? NA]
103	2012. WRA Specialist. Personal Communication.	[Does the species have weedy races? NA]
201	2012. USDA, ARS National Genetics Resources Program. <i>Mammea americana</i> Germplasm Resources Information Network (GRIN) [online database]. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?23319#syn	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical" 2 - high] Native distribution: Antigua and Barbuda; Bahamas; Cuba; Dominica; Dominican Republic; Grenada; Guadeloupe; Haiti; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Vincent and Grenadines; Trinidad and Tobago - Trinidad; Virgin Islands (British) - Tortola; Virgin Islands (U.S.) - St. Croix, St. John, St. Thomas.
202	2012. USDA, ARS National Genetics Resources Program. <i>Mammea americana</i> Germplasm Resources Information Network (GRIN) [online database]. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?23319#syn	[Quality of climate match data? 2 - High] Native distribution: Antigua and Barbuda; Bahamas; Cuba; Dominica; Dominican Republic; Grenada; Guadeloupe; Haiti; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Vincent and Grenadines; Trinidad and Tobago - Trinidad; Virgin Islands (British) - Tortola; Virgin Islands (U.S.) - St. Croix, St. John, St. Thomas.
203	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Broad climate suitability (environmental versatility)? Yes] The mamey is limited to tropical or near-tropical climates. In Central America, it thrives from near sea-level to 3,300 ft (1,000 m).
203	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Broad climate suitability (environmental versatility)? Yes] Limited to tropical or semi-tropical areas. Frost sensitive. BIOPHYSICAL LIMITS Altitude: 0-1 600 m Mean annual temperature: 27-30 deg C Mean annual rainfall: 1 500-4 000 mm
204	2012. USDA, ARS National Genetics Resources Program. <i>Mammea americana</i> Germplasm Resources Information Network (GRIN) [online database]. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?23319#syn	[Native or naturalized in regions with tropical or subtropical climates? Yes] Native distribution: Antigua and Barbuda; Bahamas; Cuba; Dominica; Dominican Republic; Grenada; Guadeloupe; Haiti; Jamaica; Martinique; Montserrat; Puerto Rico; St. Kitts and Nevis; St. Vincent and Grenadines; Trinidad and Tobago - Trinidad; Virgin Islands (British) - Tortola; Virgin Islands (U.S.) - St. Croix, St. John, St. Thomas.
205	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Does the species have a history of repeated introductions outside its natural range? Yes] "Introduced into the tropics of the Old World, it is of very limited occurrence in West Africa (particularly Sierra Leone), Zanzibar, southeastern Asia, Java, the Philippines, and Hawaii.
301	2007. Randall, R.. Global Compendium of Weeds <i>Mammea americana</i> . http://www.hear.org/gcw/species/mammea_americana/	[Naturalized beyond native range?] The Global Compendium of Weeds lists <i>Mammea</i> as naturalized in the Galapagos. However the reference does not indicate whether <i>Mammea</i> is just introduced or naturalized.
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No] No evidence.
303	2007. Randall, R.. Global Compendium of Weeds <i>Mammea americana</i> . http://www.hear.org/gcw/species/mammea_americana/	[Agricultural/forestry/horticultural weed? No] No evidence.
304	2007. Randall, R.. Global Compendium of Weeds <i>Mammea americana</i> . http://www.hear.org/gcw/species/mammea_americana/	[Environmental weed? No] No evidence.
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] No evidence.
401	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Produces spines, thorns or burrs? No] "The mamey tree, handsome and greatly resembling the southern magnolia, reaches 60 to 70 ft (18-21 m) in height, has a short trunk which may attain 3 or 4 ft (0.9-1.2 m) in diameter, and ascending branches forming an erect, oval head, densely foliated with evergreen, opposite, glossy, leathery, dark-green, broadly elliptic leaves, up to 8 in (20 cm) long and 4 in (10 cm) wide. The fragrant flowers, with 4 to 6 white petals and with orange stamens or pistils or both, are 1 to 1 1/2 in (2.5-4 cm) wide when fully open and borne singly or in groups of 2 or 3 on short stalks."

402	2012. WRA Specialist. Personal Communication.	[Allelopathic?] Unknown.
403	2012. USDA, ARS National Genetics Resources Program. <i>Mammea americana</i> Germplasm Resources Information Network (GRIN) [online database]. http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?23319#syn	[Parasitic? No] Clusiaceae.
404	1962. Oakes, A.J./Butcher, J.O.. Poisonous and injurious plants of the U.S. Virgin Islands. Agricultural Research Service, U.S. Dept. of Agriculture, http://books.google.com/books?hl=en&lr=&id=K-vGN6QF5JcC&oi=fnd&pg=PA1&dq=mammea+americana+%2B+%22dropping	[Unpalatable to grazing animals?] Ordinarily livestock do not consume the large, woody <i>Mammea americana</i> fruits, which enclose poisonous seeds. A greater source of danger is presented by dry seeds lying within reach of hungry animals, particularly hungry hogs.
405	1962. Oakes, A.J./Butcher, J.O.. Poisonous and injurious plants of the U.S. Virgin Islands. Agricultural Research Service, U.S. Dept. of Agriculture, http://books.google.com/books?hl=en&lr=&id=K-vGN6QF5JcC&oi=fnd&pg=PA1&dq=mammea+americana+%2B+%22dropping	[Toxic to animals? Yes] Ordinarily livestock do not consume the large, woody <i>Mammea americana</i> fruits, which enclose poisonous seeds. A greater source of danger is presented by dry seeds lying within reach of hungry animals, particularly hungry hogs.
405	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Toxic to animals? Yes] "Morris et al. (1952) commented that, while the delicious mamey "has formed part of the diet of the inhabitants of the Caribbean Islands for many generations, it is well known that this fruit produces discomfort, especially in the digestive system, in some persons." They reported also that "a concentrated extract of the fresh fruit" proved fatally toxic to guinea pigs, and was also found poisonous to dogs and cats. The extract was made from the edible portion only. The authors likened the mamey to the akee (<i>Blighia sapida</i>), q.v., as a human hazard, and Djerassi, et al., aver that "reports of poisoning in humans are known."
406	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Host for recognized pests and pathogens? No] Resistant to pests and diseases. A black mildew (<i>Aulographum melioloides</i>) attacks leaves and heart rot infects older trees entering through basal scars. Wet-wood termites attack dead trunks and branches and dry-wood termites attack seasoned lumber.
407	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Causes allergies or is otherwise toxic to humans"? Yes] Morris et al. (1952) commented that, while the delicious mamey "has formed part of the diet of the inhabitants of the Caribbean Islands for many generations, it is well known that this fruit produces discomfort, especially in the digestive system, in some persons." They reported also that "a concentrated extract of the fresh fruit" proved fatally toxic to guinea pigs, and was also found poisonous to dogs and cats. The extract was made from the edible portion only. The authors likened the mamey to the akee (<i>Blighia sapida</i>), q.v., as a human hazard, and Djerassi, et al., stated that "reports of poisoning in humans are known." [edible fruit] [medicinal]
407	1997. Nellis, D.W.. Poisonous plants and animals of Florida and the Caribbean. Pineapple Press Inc., Sarasota, FL	[Causes allergies or is otherwise toxic to humans"? Yes] The seeds are toxic.
408	2012. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems?] Unknown.
409	2012. Hortipocopia. <i>Mammea americana</i> Mamme Apple, South American Apricot, Mamme. http://www.hortipocopia.com/hortpix/html/mamame00.htm	[Is a shade tolerant plant at some stage of its life cycle?] Partial shade to partial sun to full sun.
409	2012. Tropilab.com. <i>Mammea americana</i> . Tropilab.com, http://www.tropilab.com/mamey.html	[Is a shade tolerant plant at some stage of its life cycle?] Full sun to light shade.
410	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Yes] The mamey tree favors deep, rich, well-drained soil, but is quite adaptable to even shallow, sandy terrain, and it grows naturally in limestone areas of Jamaica, as well as oolitic limestone of the Bahamas and southeastern Florida.
411	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Climbing or smothering growth habit? No] <i>Mammea americana</i> is an evergreen tree, 18-21 m tall, with a short trunk that may attain 0.9-1.2 m in diameter, and ascending, densely foliated branches forming an erect, oval head.

412	2012. WRA Specialist. Personal Communication.	[Forms dense thickets?] Unknown.
501	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Aquatic? No] Terrestrial; tree.
502	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Grass? No] Clusiaceae.
503	2010. www.nationmaster.com. Encyclopedia Nitrogen fixation. Nationmaster.com, http://www.nationmaster.com/encyclopedia/Nitrogen-fixation	[Nitrogen fixing woody plant? No] Clusiaceae.
504	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] Tree; woody.
601	2012. 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 http://www.hort.purdue.edu/newcrop/morton	[Produces viable seed? Yes] "Seeds are the usual means of dissemination and they germinate in 2 months or less and sprout readily in leaf-mulch under the tree."
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally?] Unknown.
604	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Self-compatible or apomictic? No] Dioecious (male and female flowers on separate plants)
605	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Requires specialist pollinators? No] "The flowers are white with four fleshy petals, many stamens, and a single ovary. The fragrant flowers attract honeybees and hummingbirds."
606	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Reproduction by vegetative fragmentation? No] Grown by seeds or grafting.
606	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Reproduction by vegetative fragmentation? No] <i>Mammea americana</i> is propagated primarily by seed or by air-layering.
607	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Minimum generative time (years)? >3] Seedlings bear in 6 to 8 years in Mexico, 8 to 10 years in the Bahamas.
607	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Minimum generative time (years)? >3] The trees may fruit at 6 to 7 years.
701	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "The fruit, nearly round or somewhat irregular, with a short, thick stem and a more or less distinct tip or merely a bristle-like floral remnant at the apex, ranges from 4 to 8 in (10-20 cm) in diameter, is heavy and hard until fully ripe when it softens slightly. The skin is light-brown or grayish-brown with small, scattered, warty or scurfy areas, leathery, about 1/8 in (3 mm) thick and bitter." Small fruits are usually single-seeded; larger fruits may have 2, 3 or 4 seeds. The seed is russetbrown, rough, ovoid or ellipsoid and about 2 1/2 in (6.25 cm) long."
702	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Propagules dispersed intentionally by people? Yes] "Introduced into the tropics of the Old World, it is of very limited occurrence in West Africa (particularly Sierra Leone), Zanzibar, southeastern Asia, Java, the Philippines, and Hawaii.
703	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Propagules likely to disperse as a produce contaminant? No] "The fruit, nearly round or somewhat irregular, with a short, thick stem and a more or less distinct tip or merely a bristle-like floral remnant at the apex, ranges from 4 to 8 in (10-20 cm) in diameter, is heavy and hard until fully ripe when it softens slightly. The skin is light-brown or grayish-brown with small, scattered, warty or scurfy areas, leathery, about 1/8 in (3 mm) thick and bitter." Small fruits are usually single-seeded; larger fruits may have 2, 3 or 4 seeds. The seed is russetbrown, rough, ovoid or ellipsoid and about 2 1/2 in (6.25 cm) long."

704	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Propagules adapted to wind dispersal? No "The fruit, nearly round or somewhat irregular, with a short, thick stem and a more or less distinct tip or merely a bristle-like floral remnant at the apex, ranges from 4 to 8 in (10-20 cm) in diameter, is heavy and hard until fully ripe when it softens slightly. The skin is light-brown or grayish-brown with small, scattered, warty or scurfy areas, leathery, about 1/8 in (3 mm) thick and bitter." Small fruits are usually single-seeded; larger fruits may have 2, 3 or 4 seeds. The seed is russetbrown, rough, ovoid or ellipsoid and about 2 1/2 in (6.25 cm) long."
705	2012. WRA Specialist. Personal Communication.	[Propagules water dispersed?] Unknown.
706	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Propagules bird dispersed?] Unknown
707	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Propagules dispersed by other animals (externally)? No] "The fruit, nearly round or somewhat irregular, with a short, thick stem and a more or less distinct tip or merely a bristle-like floral remnant at the apex, ranges from 4 to 8 in (10-20 cm) in diameter, is heavy and hard until fully ripe when it softens slightly. The skin is light-brown or grayish-brown with small, scattered, warty or scurfy areas, leathery, about 1/8 in (3 mm) thick and bitter." Small fruits are usually single-seeded; larger fruits may have 2, 3 or 4 seeds. The seed is russetbrown, rough, ovoid or ellipsoid and about 2 1/2 in (6.25 cm) long." [no means of external attachment]
708	1962. Oakes, A.J./Butcher, J.O.. Poisonous and injurious plants of the U.S. Virgin Islands. Agricultural Research Service, U.S. Dept. of Agriculture, http://books.google.com/books?hl=en&lr=&id=K-vGN6QF5JcC&oi=fnd&pg=PA1&dq=mammea+americana+%2B+%22dropping	[Propagules survive passage through the gut?] Ordinarily livestock do not consume the large, woody <i>Mammea americana</i> fruits, which enclose poisonous seeds. A greater source of danger is presented by dry seeds lying within reach of hungry animals, particularly hungry hogs.
801	1987. Morton, J.. Fruits of warm climates. J.F. Morton, Miami, FL http://www.hort.purdue.edu/newcrop/morton	[Prolific seed production (>1000/m ²)? No] "The productivity of individual trees varies considerably. In Puerto Rico, high-yielding trees may bear 150 to 200 fruits per crop, totalling 300 to 400 fruits per year."
802	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Evidence that a persistent propagule bank is formed (>1 yr)?] Seed may be recalcitrant; viability is maintained for 2-4 months in moist storage at 20 deg C.
803	2002. Vozzo, J.A.. Tropical Tree Seed Manual. USDA Forest Service, Washington, D.C.	[Well controlled by herbicides?] Unknown.
804	2012. World Agroforestry Centre. Agroforestry tree database - <i>Mammea americana</i> . http://www.worldagroforestry.org/treedb2/AFTPDFS/Mammea_americana.pdf	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] Coppices well.
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)?] Unknown.