

Taxon: <i>Pouteria macrophylla</i> (Lam.) Eyma	Family: Sapotaceae
Common Name(s): caimo canistel cutite lúcuma	Synonym(s): <i>Chrysophyllum macrophyllum</i> Lam. <i>Lucuma rivicoa</i> C. F. Gaertn. <i>Lucuma rivicoa</i> C. F. Gaertn. var. <i>rivicoa</i> <i>Richardella macrophylla</i> (Lam.) Aubrév. <i>Richardella rivicoa</i> (C. F. Gaertn.) Pierre

Assessor: Chuck Chimera	Status: Approved	End Date: 21 Jul 2023
WRA Score: -2.0	Designation: L	Rating: Low Risk

Keywords: Tropical Tree, Edible Fruit, Shade-Tolerant, Animal-Dispersed, Recalcitrant Seeds

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	?
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		
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		
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	y = 1, n = 0	n
408	Creates a fire hazard in natural ecosystems	y = 1, n = 0	n

Qsn #	Question	Answer Option	Answer
409	Is a shade tolerant plant at some stage of its life cycle	y = 1, n = 0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
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		
605	Requires specialist pollinators	y = -1, n = 0	n
606	Reproduction by vegetative fragmentation		
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	n
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y = 1, n = -1	y
801	Prolific seed production (>1000/m2)		
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		
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
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"The species appears to have originated in eastern Amazonia or northern South America and is found eastwards as far as Maranhao and parts of Ceara and southwestward to Mato Grosso. To the north it occurs in the three Guyanas, Venezuela, Colombia and through Central America to Guatemala. It is possible that the species has been introduced into Central America and possibly elsewhere."
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	[No evidence] "Distribution. Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2023). 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
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	"Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

202	Quality of climate match data	High
	Source(s)	Notes
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	"Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes

Qsn #	Question	Answer
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	" <i>Pouteria macrophylla</i> occurs on well-drained, nutrient poor oxisols and ultisols of the high forest, disturbed areas and transitional forest with an annual rainfall of between 1200 and 2800 mm and mean annual temperatures of about 26°C."
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	"Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 20 Jul 2023]	"Only found in cultivation"
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	"Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	Hanelt, P. (ed.). 2001. Mansfeld's Encyclopedia of Agricultural and Horticultural Crops, Volume 3. Springer-Verlag, Berlin, Heidelberg, New York	"Cultivated as fruit tree in the Amazonas basin and Cuba. Selected strains have fruits up to 6 cm in diameter."
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 21 Jul 2023]	"Only found in cultivation"
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"The tree is valued for its edible fruit which is both gathered from the wild and also often cultivated [317, 416]."
	WRA Specialist. (2023). Personal Communication	Sometimes cultivated, but unclear how widespread this tree has been introduced outside its native range.

301	Naturalized beyond native range	n
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 20 Jul 2023]	"Only found in cultivation"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 21 Jul 2023]	"Only found in cultivation"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 21 Jul 2023]	"Only found in cultivation"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2023). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabdigitallibrary.org/product/qi. [Accessed 21 Jul 2023]	No evidence

304	Environmental weed	n
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 21 Jul 2023]	"Only found in cultivation"
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	CABI. (2023). Invasive Species Compendium. Wallingford, UK: CAB International. https://www.cabdigitallibrary.org/product/qi. [Accessed 21 Jul 2023]	No evidence

305	Congeneric weed	
	Source(s)	Notes
	Morton, J.F. (1976). Pestiferous spread of many ornamental and fruit species in South Florida. Proceedings of the Florida State Horticultural Society 89: 348-353	[Possibly, <i>P. campechiana</i> controlled in Florida, but rated as Low Risk by HPWRA] "Abstract. The massive invasion of large tracts of South Florida by <i>Melaleuca quinquenervia</i> and <i>Casuarina equisetifolia</i> from Australia and <i>Schinus terebinthifolius</i> from Brazil is an environmental problem now receiving serious attention. There are dozens of other introduced ornamental plants and fruit trees which have been multiplying spontaneously in our area for many years or have recently become conspicuous as weeds on private and public properties!some because of seed distribution by exotic birds new to our fauna. Outstanding examples are <i>Cestrum diurnum</i> , <i>Bischofia javanica</i> , <i>Washingtonia robusta</i> , <i>Ptychosperma elegans</i> , <i>Aurarraya paniculata</i> , <i>Eriobotrya japonica</i> , <i>Pouteria campechiana</i> and <i>Pithecellobium dulce</i> . We should try to discourage the planting of some undesirable species and warn of the need to control the spread of others, in order to reduce the maintenance load of cultivated grounds and the threat to undeveloped areas which are being overrun by vigorous alien vegetation."

Qsn #	Question	Answer
	Langeland, K.A.& Stocker, R.K. (2001). Control of Non-native Plants in Natural Areas of Florida. SP 242. Institute of Food & Agricultural Sciences, University of Florida, Gainesville, FL	[Possibly. <i>P. campechiana</i> controlled in Florida, but rated as Low Risk by HPWRA] " <i>Pouteria campechiana</i> ... Treatment: Hand pull seedlings; basal bark application of 10% Garlon III Comments: Small to medium tree; yellow, edible fruit; prolific invader of hammocks but local in distribution; fruit eaten by raccoons and opossums."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	[No evidence] "Tree; young shoots appressed puberulous with golden hairs, eventually glabrous, greyish or pale brown, finely cracked, usually without lenticels. Leaves spaced or loosely clustered, spirally arranged, 6.5-21 x 2.2-8.5 cm, usually oblanceolate, less frequently elliptic, apex obtusely cuspidate, acute, narrowly attenuate, rarely rounded, base narrowly attenuate, chartaceous to thinly coriaceous, slightly glaucous below, subglabrous above, sparsely puberulous below with minute, closely appressed hairs (visible only with lens); venation eucamptodromous, midrib flat or slightly raised on the upper surface, thin marginal vein present, secondary veins 12-18 pairs, parallel, straight or slightly arcuate; intersecondaries absent; tertiaries horizontal to oblique (often rather obscure), finer higher order reticulum often visible on upper surface. Petiole 0.9-2 cm long, not channelled, finely appressed puberulous."

402	Allelopathic	
	Source(s)	Notes
	Nasctmento, M., Alcantara, S. F., Haddad, C. R. B., & Martins, F. R. (2007). Allelopathic potential of <i>Pouteriu tortu</i> (Mart.) Radlk., a species of the Brazilian cerrado. <i>Allelopathy Journal</i> , 20(2), 279-286	[Unknown. Other species may be allelopathic] "We investigated the effects of 1, 5 and 10% of extracts from green and senesced leaves of <i>P. tor/a</i> on the germination and growth of lettuce. The higher concentration of extracts affected these processes most. To test whether the inhibition resulted from the acidity of the extracts, lettuce seeds were germinated in the presence of buffered extracts and of an acetic-acid solution with a pH similar to that of the mostconcentrated extracts. Adjusting the pH of the extracts did not annul the inhibition of germination and growth of lettuce. and an acetic acid solution with the same pH did not affect these processes. The osmotic effect was evaluated using polyethyleneglycol 6000 solutions, with osmotic potentials similar to the 1 0% extracts. The ionic effect was determined using leaf ashes solutions with conductivity identical to the 1 0% extracts. The ash solutions and the polyethyleneglycol did not inhibit the germination or growth of lettuce. Therefore, the inhibitory effects of extracts cannot be attributed to their higher acidity, or to higher concentration of toxic ions, or to the lower osmotic potential. We conclude that allelopathic compounds may be present in the leaves of <i>P. torta</i> , which may explain the spatial pattern of this specie in the Brazilian cerrado." ... "In Cerrado areas of Itirapina city, Sao Paulo, <i>Pouteria torta</i> (Mart.) Radlk. Plants grow in groups, with no herbaceous vegetation beneath them and large amounts of leaf litter (ca. 20 - 40 cm) accumulate beneath the trees. The absence of herbaceous plants beneath these trees may be owing to (i) a mechanical impediment from abundant litter, (ii) shading, or (iii) release of allelopathic substances from wetting or decomposition of <i>P. torta</i> leaves."

Qsn #	Question	Answer
403	Parasitic	n
	Source(s)	Notes
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	"Tree; young shoots appressed puberulous with golden hairs, eventually glabrous, greyish or pale brown, finely cracked, usually without lenticels." [Sapotaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	Unknown if foliage is palatable. Fruit consumed by animals and humans.

405	Toxic to animals	n
	Source(s)	Notes
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"Known Hazards None known"
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"The fruit is always eaten as a fresh fruit. It is most used by the poorer classes and peasants, as well as being widely consumed by children and domestic animals."
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	CABI. (2023). <i>Pouteria macrophylla</i> . https://www.cabidigitallibrary.org/doi/10.1079/cabicompendium.99679107 . [Accessed 21 Jul 2023]	"Host of (source-data mining): <i>Bactrocera carambolae</i> (carambola fruit fly)"
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"No information is available about pests or special requirements."

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"Known Hazards None known"
	Pennington, T. D. (1990). Sapotaceae. <i>Flora Neotropica</i> , 52, 1-770	"The edible fruit is said to be rather starchy and sweet, with a strong scent. Fruits of selected strains attain a diameter of up to 6 cm."
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	[No evidence] "The starchy mesocarp is the part consumed. The cuticle has a strong aroma that is not always immediately appreciated by those who do not know it. However the flavour is agreeable and generally sweet. The fruit is always eaten as a fresh fruit. It is most used by the poorer classes and peasants, as well as being widely consumed by children and domestic animals."
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	[Flammability unknown, but no evidence that this tree contributes to fire risk or occurs in areas of high fire frequency. Densities unlikely to contribute to significant fuel load] " <i>Pouteria macrophylla</i> occurs on well-drained, nutrient poor oxisols and ultisols of the high forest, disturbed areas and transitional forest with an annual rainfall of between 1200 and 2800 mm and mean annual temperatures of about 26C. It is widely dispersed in the forest, although there may be no more than 1 or 2 trees/ha."

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"Succeeds in full sun or dappled shade"
	Markesteyn, L., & Poorter, L. (2009). Seedling root morphology and biomass allocation of 62 tropical tree species in relation to drought and shade tolerance. <i>Journal of Ecology</i> , 97(2), 311-325	[<i>Pouteria macrophylla</i> has a crown exposure of 1.55, suggesting it is shade tolerant] "Crown exposure (CE) varies from 1 if the tree does not receive any direct light, to 2 if it receives lateral light, 3 if it receives overhead light on 10-90% of the vertical projection of the crown surface, 4 when it receives full overhead light on > 90% of the vertical projection of the crown, and 5 when it has an emergent crown." ... "Species with a low juvenile CE mainly regenerate in the shaded understorey (shade-tolerant species), whereas species with a high juvenile CE mainly regenerate in the high-light conditions of gaps (light-demanding pioneer species)." ... "Table 2. List of 62 species with scientific and family names and abbreviations as used in the graphs. The species' drought index (relative distribution of species along the rainfall gradient) (DI) is given, as well as their juvenile crown exposure (CE)." [<i>Pouteria macrophylla</i> - CE = 1.55]

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes

Qsn #	Question	Answer
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"Pouteria macrophylla occurs on well-drained, nutrient poor oxisols and ultisols of the high forest, disturbed areas and transitional forest with an annual rainfall of between 1200 and 2800 mm and mean annual temperatures of about 26°C."
	Alves-Araújo, A., Swenson, U., & Alves, M. (2014). A Taxonomic Survey of Pouteria (Sapotaceae) from the Northern Portion of the Atlantic Rainforest of Brazil. Systematic Botany, 39(3), 915-938	[Widely distributed. May not be substrate limited] "Distribution-It is widely distributed in the Neotropics [Amazonian and Atlantic (Bahia, Ceara) forests, and gallery forests in Cerrado]."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"Small to medium forest tree up to 20-25 m; trunk straight, up to 50 cm in diameter, often with deep crevices near base; bark exuding abundant white latex when cut; crown dense, branches of juvenile trees sharply ascending, becoming more horizontal at maturity; mature trees with extensive superficial roots."

412	Forms dense thickets	n
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"It is widely dispersed in the forest, although there may be no more than 1 or 2 trees/ha."

501	Aquatic	n
	Source(s)	Notes
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	[Terrestrial] "Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)."

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 20 Jul 2023]	"Genus: Pouteria Family: Sapotaceae Subfamily: Chrysophylloideae"

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2023). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 20 Jul 2023]	"Genus: Pouteria Family: Sapotaceae Subfamily: Chrysophylloideae"

Qsn #	Question	Answer
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"Small to medium forest tree up to 20-25 m; trunk straight, up to 50 cm in diameter, often with deep crevices near base;"
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Alves-Araújo, A., Swenson, U., & Alves, M. (2014). A Taxonomic Survey of <i>Pouteria</i> (Sapotaceae) from the Northern Portion of the Atlantic Rainforest of Brazil. Systematic Botany, 39(3), 915-938	"Distribution-It is widely distributed in the Neotropics [Amazonian and Atlantic (Bahia, Ceara) forests, and gallery forests in Cerrado]."
602	Produces viable seed	y
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"Germination will start about 50 to 60 days after sowing fresh seed. In about one month the seedlings attain between 10 and 15 cm in height which suggests relatively slow propagation."
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"Propagation - Seed - best sown as soon as it is ripe in individual pots in a position in semishade [420]. Germination usually occurs in 4 - 5 weeks, though the germination rate is normally low [420]."
603	Hybridizes naturally	
	Source(s)	Notes
	Pennington, T. D. (1990). Sapotaceae. Flora Neotropica, 52, 1-770	Unknown. No evidence found.
604	Self-compatible or apomictic	
	Source(s)	Notes
	Alves-Araújo, A., Swenson, U., & Alves, M. (2014). A Taxonomic Survey of <i>Pouteria</i> (Sapotaceae) from the Northern Portion of the Atlantic Rainforest of Brazil. Systematic Botany, 39(3), 915-938	"Flowers 5-merous, 2-8 per fascicle, axillary, bisexual; pedicel 1.0-1.5 cm long, puberulent. Sepals 4-5 mm long, ovate, chartaceous, glabrous inside, puberulent outside, apex rounded (inner sepals) to acute (outer sepals); margin entire (outer sepals) to lacerate or ciliate (inner sepals). Corolla tubular, 5-7 mm long; tube 3-4 mm long; lobes 2-3 mm long, lanceolate, glabrous, greenish, apex rounded; margin ciliate. Stamens 1.8-2.8 mm long, inserted at the upper half of corolla tube; filaments and anthers glabrous. Staminodes 2.7-3.0 mm long, subulate, papillate."

Qsn #	Question	Answer
	Gama, L. U., Barbosa, A. A. A., & Oliveira, P. E. A. M. D. (2011). Sistema sexual e biologia floral de <i>Pouteria ramiflora</i> e <i>P. torta</i> (Sapotaceae). <i>Brazilian Journal of Botany</i> , 34, 375-387	[Related species self-sterile] "Sexual system and floral biology of <i>Pouteria ramiflora</i> and <i>P. torta</i> (Sapotaceae). <i>Pouteria ramiflora</i> and <i>P. torta</i> are tree species sympatric in the Cerrado and were studied in the Natural Reserve of Clube Caça e Pesca Itororó (Uberlândia-MG) in order to compare various aspects of their reproductive biology. The phenophases were evaluated weekly and their intensity was quantified. The floral biology, breeding system, sexual system and floral visitors were studied in the field and/or laboratory. In both species, leaf fall occurred in the end of the dry season, leaf flushing between the dry and the rainy season, flowering in the dry season and fruit maturation during the rainy season. They have tubular small greenish flowers, with small amounts of nectar and high pollen viability. They are self-sterile, non-agamospermic and had low fruiting success from natural pollination. <i>P. torta</i> is a hermaphrodite species, with protogynous and hercogamous flowers, while <i>P. ramiflora</i> is morphologically gynomonoeicous but functionally unisexual. The apparently low pollen flow and the abortion of young fruits resulted in low fruit set from natural pollinations. Both species are visited by several small insects, including butterflies, moths, flies and bees"

605	Requires specialist pollinators	n
	Source(s)	Notes
	Van Roosmalen, M. G., & Garcia, O. M. D. C. G. (2000). Fruits of the amazonian forest. Part II: Sapotaceae. <i>Acta Amazonica</i> , 30, 187-290	"Fascicles axillary and clustered below the leaves, 3-12-flowered, flowers bisexual, sepals 0.3 x 0.6 cm and 0.25 x 0.4 cm, densely appressed puberulous; pedicels 0.4-1.8 cm long, appressed puberulous."
	Paz, F. S., Pinto, C. E., de Brito, R. M., Imperatriz-Fonseca, V. L., & Giannini, T. C. (2021). Edible Fruit Plant Species in the Amazon Forest Rely Mostly on Bees and Beetles as Pollinators. <i>Journal of Economic Entomology</i> , 114(2), 710-722	"Table 2. Pollination syndrome of edible plants from Brazilian Amazon" [<i>Pouteria macrophylla</i> - Syndrome = Mellitophily (pollination by bees)]

606	Reproduction by vegetative fragmentation	
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. <i>FAO Forestry Paper</i> , 44(3). Food & Agriculture Organization of the United Nations, Rome	"No information is available about vegetative propagation."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. <i>FAO Forestry Paper</i> , 44(3). Food & Agriculture Organization of the United Nations, Rome	"Although growth is slow the cutite is reputed to start producing in 7 to 10 years."

Qsn #	Question	Answer
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"Fruit an ovoid berry up to 6 cm in diameter, the seed long^-ovoid with a dark brown, crustaceous testa embedded in a starchy, yellow, undifferentiated pulp." ... "The fruit fall from the tree when ripe and must be collected from the ground quickly before wild animals arrive." [Fruit and seeds lack means of attachment]
702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Gallaher, T.J., Brock, K., Kennedy, B.H., Imada, C.T., Imada, K., & Walvoord, N. (2023). Plants of Hawai'i. http://www.plantsofhawaii.org.. [Accessed 21 Jul 2023]	"Only found in cultivation"
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"The tree is valued for its edible fruit which is both gathered from the wild and also often cultivated [317, 416]. Trees in the forest are often there because of semi-cultivation by the local people [420]. The fruits are sold in local markets [420]."
703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Van Roosmalen, M. G., & Garcia, O. M. D. C. G. (2000). Fruits of the amazonian forest. Part II: Sapotaceae. <i>Acta Amazonica</i> , 30, 187-290	[No evidence. Fruits and seeds large and unlikely to be accidentally dispersed] "Fruit globose or broadly ellipsoid to obliquely ovoid, 6 x 3.5- 4.7 cm, apex and base rounded or obtuse, at first green with yellow speckles, maturing yellow, shining, epicarp chartaceous, very thin, easily peeling, 256 smooth, glabrous, pulp yellowish-orange, edible, starchy and sweet tasting; seeds 1-2, broadly ellipsoid (in 1-seeded fruit) or piano-convex (in 2-seeded fruit), 2-3 x 2.3 x 2.3 cm, with a small abaxial crest near the base, testa smooth, brown, shining, scar broad, extending over the base, covering one third to half the seed surface, dull light brown, rugulose and irregularly furrowed."
704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Alves-Araújo, A., Swenson, U., & Alves, M. (2014). A Taxonomic Survey of <i>Pouteria</i> (Sapotaceae) from the Northern Portion of the Atlantic Rainforest of Brazil. <i>Systematic Botany</i> , 39(3), 915-938	"Fruit 1-2- seeded, 2-3 cm long, globoid, smooth, glabrous, yellowish; seeds 1.7-2.4 cm long, smooth; seed scar 1.4-2.1 cm long, wide, covering one third of the surface."
705	Propagules water dispersed	n
	Source(s)	Notes
	Quattrocchi, U. (2012). CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Occurring in lowland forest on non-flooded land up to 350 m altitude, also frequently in old secondary forest, in drier semideciduous forest (Mato Grosso) and occurring occasionally in cerrado-type vegetation, or transitional forest between campina and taller forest (Para)." [Buoyancy of animal-dispersed seeds unknown. <i>Pouteria macrophylla</i> generally occurs in non-flooded land and is not associated with riparian habitats. Water is therefore unlikely to play an important role in seed dispersal.]
706	Propagules bird dispersed	

Qsn #	Question	Answer
	Source(s)	Notes
	Alves-Araújo, A., Swenson, U., & Alves, M. (2014). A Taxonomic Survey of <i>Pouteria</i> (Sapotaceae) from the Northern Portion of the Atlantic Rainforest of Brazil. <i>Systematic Botany</i> , 39(3), 915-938	"Fruit 1-2- seeded, 2-3 cm long, globose, smooth, glabrous, yellowish; seeds 1.7-2.4 cm long, smooth; seed scar 1.4-2.1 cm long, wide, covering one third of the surface." [Fruits and seeds are likely too large to be dispersed by birds present in the Hawaiian Islands, although some large game birds may be able to move seeds while feeding on fruit pulp]
	Van Roosmalen, M. G., & Garcia, O. M. D. C. G. (2000). Fruits of the amazonian forest. Part II: Sapotaceae. <i>Acta Amazonica</i> , 30, 187-290	"red-faced black spider monkeys (<i>Ateles paniscus</i>) fed on the starchy pulp swallowing and exclusively dispersing the large seeds of this species, whereas in Brazil, 20 km north of Manaus, tapir (<i>Tapirus terrestris</i>) were seen feeding on the whole mature fruits fallen to the ground, crushing the seeds"
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	"The fruit fall from the tree when ripe and must be collected from the ground quickly before wild animals arrive."

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	Unknown. Seed caching animals are reported to carry and disperse seeds of other <i>Pouteria</i> species. In the Hawaiian Islands, rodents, and possibly mongoose, feral pigs, and larger game birds may consume fruit pulp, or possibly carry fruit away to consume pulp or seeds away from the parent tree.

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Van Roosmalen, M. G., & Garcia, O. M. D. C. G. (2000). Fruits of the amazonian forest. Part II: Sapotaceae. <i>Acta Amazonica</i> , 30, 187-290	[Dispersed by monkeys. Tapirs may act as seed predators by crushing the seeds] "red-faced black spider monkeys (<i>Ateles paniscus</i>) fed on the starchy pulp swallowing and exclusively dispersing the large seeds of this species, whereas in Brazil, 20 km north of Manaus, tapir (<i>Tapirus terrestris</i>) were seen feeding on the whole mature fruits fallen to the ground, crushing the seeds"
	WRA Specialist. (2023). Personal Communication	Seeds could possibly be dispersed by feral pigs, or may be crushed, as they have been by tapirs in South America.

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	FAO. (1986). Food and fruit-bearing forest species 3: Examples from Latin America. FAO Forestry Paper, 44(3). Food & Agriculture Organization of the United Nations, Rome	[Older trees may produce prolific numbers of seeds, but actually densities are unknown] "Mature wild trees are known to fruit heavily, even to the point of breaking large branches. A case is reported of one large tree producing more than 5000 fruits, each weighing between 75 and 150 g."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Tropical Plants Database, Ken Fern. (2023). <i>Pouteria macrophylla</i> . https://tropical.theferns.info/viewtropical.php?id=Pouteria+macrophylla . [Accessed 21 Jul 2023]	"Seed - best sown as soon as it is ripe in individual pots in a position in semishade [420]. Germination usually occurs in 4 - 5 weeks, though the germination rate is normally low [420]."

Qsn #	Question	Answer
	Barros, H. S. D. (2017). Classificação fisiológica de sementes de espécies florestais quanto a tolerância à dessecação. PhD Dissertation. UNESP, Botucatu	[Recalcitrant] "Outras espécies da família Sapotaceae como <i>Pouteria macrophylla</i> (Lam.) Eyma e <i>Pouteria ramiflora</i> (Mart.) Radlk., também apresentam o comportamento recalcitrante (CAMPOS FILHO, 2015)." [Translation from Portugues: Other species of the Sapotaceae family, such as <i>Pouteria macrophylla</i> (Lam.) Eyma and <i>Pouteria ramiflora</i> (Mart.) Radlk., also show recalcitrant behavior (CAMPOS FILHO, 2015).]

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	Unknown. No evidence was found that this species has been controlled with herbicides. Other <i>Pouteria</i> species are sensitive to certain herbicides.

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	Unknown. Other <i>Pouteria</i> species resprout after fires.

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. (2023). Personal Communication	Unknown

Summary of Risk Traits:

Pouteria macrophylla is a small to medium forest tree native to non-flooded lowland forests and secondary forests of Surinam and French Guiana, Amazonian and coastal Brazil, to Amazonian Peru and Bolivia. The edible fruits are consumed fresh by both people and animals, and the seeds are dispersed by monkeys in the tree's native range. The fruits and seeds may be too large for many of the potential dispersers that occur in the Hawaiian Islands. It is not reported to be naturalized or invasive anywhere in the world, although records of cultivation outside its native range are limited.

High Risk / Undesirable Traits

- Thrives and could spread in regions with tropical climates
- Potentially allelopathic
- Shade tolerant (could potentially invade intact forest).
- Reproduces by seeds.
- Seeds dispersed by fruit-eating animals, and through intentional cultivation.
- Larger trees capable of prolific fruit and seed production.

Low Risk Traits

- No reports of naturalization or invasiveness, but there are limited reports of cultivation outside its native range.
- Unarmed (no spines, thorns, or burrs).
- Non-toxic
- Reaches maturity in 7-10 years.
- Relatively large fruit and seeds may limit the risk of long-distance or accidental dispersal.
- Seeds reported to lose viability quickly (unlikely to form a persistent seed bank).