Key Words: Evaluate; Naturalized; Early detection weed; Edible Fruit; Animal-dispersed

Family: ***Clusiaceae***

Taxon: ***Garcinia xanthochymus***

Synonym: *Garcinia pictoria (Roxb.) Engl.*
Garcinia tinctoria (DC.) W. Wight, orth. var.
Xanthochymus pictorius Roxb.
Xanthochymus tinctorius DC., orth. var.

Common Name: Gambogetree
Mysore gamboge
Sour mangosteen
False Mangosteen
Yellow Mangosteen

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** EVALUATE
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score** 4

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)**	**y**
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)**	
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**n**
402	**Allelopathic**	**y=1, n=0**	**n**
403	**Parasitic**	**y=1, n=0**	**n**
404	**Unpalatable to grazing animals**	**y=1, n=-1**	
405	**Toxic to animals**	**y=1, n=0**	**n**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
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**	**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**	**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**	**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**	**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/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**	
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: EVALUATE **WRA Score** **4**

Supporting Data:

101	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Is the species highly domesticated? No] No evidence
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Species suited to tropical or subtropical climate(s) 2-High] "Yellow mangosteen is believed to have originated in India and Myanmar and southwards into Thailand. It is cultivated and has become semi-naturalised in many southeast Asian countries and elsewhere in the tropics."
202	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	]Quality of climate match data 2-High]
203	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Broad climate suitability (environmental versatility)? Potentially Yes] "It is a tropical fruit species that occurs as understorey tree in the dense humid forests of valleys or on hills from 100 to 1,400 m altitude." [Elevation range exceeds 1000 m, demonstrating environmental versatility]
203	2012. Trade Winds Fruit. Gamboge - Garcinia xanthochymus. http://www.tradewindsfruit.com/gamboge.htm	[Broad climate suitability (environmental versatility)? Yes] "Hardiness: Trees are fairly hardy, easily surviving temperatures to 32F with no injury. Protection should be given if temperatures drop below 32F for any length of time. "
204	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Native or naturalized in regions with tropical or subtropical climates? Yes["Garcinia pictorius is a native of eastern India and Burma, and it is cultivated as an ornamental tree." [Garcinia xanthochymus = Syn. Garcinia pictorius]
205	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Does the species have a history of repeated introductions outside its natural range? Yes] "All collections of this species from Panama are from cultivated trees. On these specimens the fruit has dried conspicuously wrinkled, but it is reportedly smooth in vivo."
205	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Does the species have a history of repeated introductions outside its natural range? Yes] "Guangdong (cultivated), SW Guangxi, S, SW, and W Yunnan [Bangladesh, Bhutan, Cambodia, India, Japan (introduced and cultivated), Laos, Myanmar, Nepal, Thailand, Vietnam]."
301	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga http://cookislands.bishopmuseum.org	[Naturalized beyond native range? No evidence from Cook Islands] "COOK ISLANDS STATUS: Introduced - Recent, Not naturalised; S.Group - rare.; Land, lowlands, gardens"
301	2009. Chong, K.Y./Tan, H.T.W./Corlett, R.T.. A Checklist of the Total Vascular Plant Flora of Singapore: Native, Naturalized and Cultivated Species. Raffles Museum of Biodiversity Research, National University of Singapore, Singapore	[Naturalized beyond native range? No evidence from Singapore] "Garcinia xanthochymus Hook. f.; tree; exotic; cultivated only"
301	2010. Bostock, P.D./Holland, A.E. (eds). Census of the Queensland Flora 2010. Queensland Herbarium, Department of Environment and Resource Management, Brisbane	[Naturalized beyond native range? Yes] "* Garcinia xanthochymus Hook.f. Districts: CO(2) MO(1) NK(1)" ["Naturalised species (*) Naturalised species are those that are considered to have successfully established populations outside their native range, by reproducing there without cultivation or other human intervention."]
301	2010. Hawaii Invasie Species Countil. Report to the Twenty-Sixth Legislature Regular Session of 2011. Budgetary and Other Issues Regarding Invasive Species. State of Hawaii DLNR Division of Forestry and Wildlife, Honolulu	[Naturalized beyond native range? Potentially on Molokai] "During a survey for Barbados gooseberry (Pereskia aculeata) in Hālawa Valley, a specimen from a large-leafed tree was collected and sent to Bishop Museum for identification. Botanists at the museum identified the plant as Garcinia xanthochymus, also known as gourka or false mangosteen. Consultation with plant experts supported controlling the trees. MoMISC cut down and treated approximately 25 trees and will monitor for re-growth."
302	2010. Maui Invasive Species Committee. Quarterly Report to the MISC Committee FY 2010, Fourth Quarter April 1 to June 30, 2010. http://www.hawaiiinvasivespecies.org/iscs/misc/pdfs/2010fy_miscq4report.pdf	[Garden/amenity/disturbance weed? Yes] "Gourka (Garcinia xanthochymus): an early detection control of five juvenile and 20 mature gourka (false mangosteen) was completed. The trees were detected during a Hälawa Valley survey for gooseberry. A specimen was sent to and identified by Bishop Museum." [Controlled as an early detection weed]

302	2011. The Nature Conservancy of Hawai'i. Kamakou Preserve Moloka'i, Hawaii FY2011 Semi-annual Progress Report. hawaii.gov/dlnr/dofaw/.../kamakou_2011_semi_annual_report.pdf	[Garden/amenity/disturbance weed? Yes] "Albizia (Falcataria moluccana), gourka (Garcinia xanthochymus) and rubbervine (Cryptostegia madagascariensis) are now at seed bank detection level, meaning these populations have no reproducing individuals; the only new individuals are those from a previous existing seed bank." [Early detection weed eradicated from natural area before further spread]
303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Agricultural/forestry/horticultural weed? No] No evidence
304	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Environmental weed? No] No evidence to date
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? Possibly] Garcinia dulcis, Garcinia mangostana and Garcinia ponapensis listed as naturalized or weeds of unspecified impacts
401	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Produces spines, thorns or burrs? No] "Medium size or large tree; trunk straight, the branches drooping, angular; sap yellow. Leaves oblong, to narrowly obovate, apically acute or short acuminate, basally rounded, sometimes somewhat dimidiate, the costa broad, plane or impressed above, elevated beneath, coriaceous, shiny, often drying yellowish; petiole sharply angled with a basal enclosed pit, often drying yellow, the lateral veins arcuate, loop connected to form a submarginal vein 2-3 mm from the margin."
402	2003. Fujii, Y./Parvez, S. S./Parvez, M.M./Ohmae, Y./Iida, O.. Screening of 239 medicinal plant species for allelopathic activity using the sandwich method. Weed Biology and Management. 3: 233–241.	[Allelopathic? No] "Table 1. Screening of leaf litter of 239 medicinal plant species under different families using the sandwich method" [Garcinia xanthochymus was tested and did not show significant inhibitory effects]
403	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Parasitic? No] "Medium size or large tree; trunk straight, the branches drooping, angular; sap yellow." [Clusiaceae / Guttiferae]
404	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Unpalatable to grazing animals? Unknown] "The young shoots and fruits are edible and have a sour taste. The fruits are usually cooked." [Unknown, but palatability to people suggests plant may be palatable to grazing animals]
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No] No evidence
405	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Toxic to animals? No] "The young shoots and fruits are edible and have a sour taste (Poomipamorn and Kumkong, 1997). The fruits are usually cooked." [Palatability to people suggests plant should not be toxic to animals]
406	2005. Staples, G.W./Herbst, D.R.. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	[Host for recognized pests and pathogens? No evidence]
407	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Causes allergies or is otherwise toxic to humans? No evidence] "The fruits can be used for making sherbets, preserves and jams. The gummy resins of the fruit have been used to make water colors. In India, the rootstocks are sometimes used for grafting on mangosteen (G. mangostana)."
407	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Causes allergies or is otherwise toxic to humans? No evidence] "The young shoots and fruits are edible and have a sour taste. The fruits are usually cooked."
408	2006. Bin Osman, M./Milan, A.R.. Mangosteen - Garcinia mangostana. Southampton Centre for Underutilised Crops, University of Southampton, Southampton, UK	[Creates a fire hazard in natural ecosystems? No] "G. tinctoria (D.C.) Wight Syn. G. xanthochymus Hook. ex T. Anders" … "The species is a medium-sized tree 10-20m high. The trees are found scattered in undulating lowland areas and peat swamp forests." [No evidence]
408	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Creates a fire hazard in natural ecosystems? No] "It is a tropical fruit species that occurs as understorey tree in the dense humid forests of valleys or on hills from 100 to 1,400 m altitude." [No evidence, and unlikely in humid forests]
409	2007. Ecocrop. Garcinia xanthochymus. FAO, http://ecocrop.fao.org/ecocrop/srv/en/cropView?id=1125	[Is a shade tolerant plant at some stage of its life cycle? Yes] "The tree is well adapted to shade and humid conditions."

409	2012. Dave's Gardern. PlantFiles: False Mangosteen, Yellow Mangosteen - Garcinia xanthochymus. http://davesgarden.com/guides/pf/go/109821/	[Is a shade tolerant plant at some stage of its life cycle? Possibly Yes["Sun Exposure: Sun to Partial Shade Light Shade"
410	2009. Gardening with Wilson. Getting to know Garcinia xanthochymus. http://gardeningwithwilson.com/2009/06/25/garcinia-xanthochymus/	[Tolerates a wide range of soil conditions? Yes] "Garcinia xanthochymus is relatively easy to grow. Like many other Garcinia species, young individuals should be given shade when young. Plants should be given ample amounts of water during the hot and dry season. When established, this tree grows very vigorously and can adapt to a variety of soil types."
411	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Climbing or smothering growth habit? No] "Medium size or large tree; trunk straight, the branches drooping, angular; sap yellow."
412	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Forms dense thickets? No] "Dense humid forests of valleys or on hills; (100–)600– 1000(–1400) m. Guangdong (cultivated), SW Guangxi, S, SW, and W Yunnan [Bangladesh, Bhutan, Cambodia, India, Japan (introduced and cultivated), Laos, Myanmar, Nepal, Thailand, Vietnam]." [In dense forests, but no evidence that it forms dense thickets]
412	2008. Datta, A./Rawat, G.S.. Dispersal modes and spatial patterns of tree species in a tropical forest in Arunachal Pradesh, northeast India. Tropical Conservation Science. 1(3): 163-185.	[Forms dense thickets? No] "Appendix 1. List of identified tree species, fruit type and color, dispersal mode, major consumers and tree density (trees per ha)." [Garcinia xanthochymus - Tree Density = 0.76 trees/ha]
501	2012. Lim, T.K.. Edible Medicinal and Non-Medicinal Plants. Volume 2, Fruits. Springer, New York	[Aquatic? No] "A medium sized, branched evergreen perennial, up to 17 m high."
502	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Grass? No] Clusiaceae
503	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Nitrogen fixing woody plant? No] Clusiaceae
504	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Medium size or large tree; trunk straight, the branches drooping, angular; sap yellow."
601	2008. Datta, A./Rawat, G.S.. Dispersal modes and spatial patterns of tree species in a tropical forest in Arunachal Pradesh, northeast India. Tropical Conservation Science. 1(3): 163-185.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	2012. Trade Winds Fruit. Gamboge - Garcinia xanthochymus. http://www.tradewindsfruit.com/gamboge.htm	[Produces viable seed? Yes] "Propagation: By seeds."
603	2007. Kubitzki, K./Bayer, C./ Stevens, P.F.. The families and genera of vascular plants: Volume IX. Flowering Plants. Eudicots. Springer-Verlag, Berlin, Heidelberg, New York	[Hybridizes naturally? Unknown} "There is little information about hybridization in Clusiaceae (for Calophyllum, see Stevens 1980); fairly extensive artificial crosses have been made in Clusia (V. Bittrich, pers. comm.)."
604	2009. Gardening with Wilson. Getting to know Garcinia xanthochymus. http://gardeningwithwilson.com/2009/06/25/garcinia-xanthochymus/	[Self-compatible or apomictic? Yes] "Like other species in the same genus, male and female flowers usually occur on separate plants. Garcinia xanthochymus is observed to produce both male flowers and bisexual (hermaphrodite) flowers in clusters. The latter can be distinguished by their longer axils. The bisexual flowers apparently self pollinate so that fruits can form."
605	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Requires specialist pollinators? No] "Corymbose cyme (2–)5–10(–14)-flowered, arising from leafless axils; peduncle 6–12 mm. Pedicels 1.8–3 cm. Flowers 5-merous, only female observed. Sepals and petals 3 large and 2 small, apparently ciliate. Staminode fascicles 5, ca. 3 mm, complanate, united below, upper parts free, each fascicle with 2–5 staminodes; fasciclodes 5, square, ca. 1 mm, strongly rugose. Ovary globose, usually 5-loculed; style short, ca. 1 mm; stigma peltate, apex concave, (3–)5-cleft." [Floral morphology not highly specialized]
606	2012. Trade Winds Fruit. Gamboge - Garcinia xanthochymus. http://www.tradewindsfruit.com/gamboge.htm	[Reproduction by vegetative fragmentation? No] "Propagation: By seeds." [No evidence]

607	2009. Gardening with Wilson. Getting to know Garcinia xanthochymus. http://gardeningwithwilson.com/2009/06/25/garcinia-xanthochymus/	[Minimum generative time (years)? 5+] "It is a slow-growing tree like many other Garcinia species and can attain a height of 10 m." … "It usually starts to produce fruits about 5 years after seed-sowing."
701	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Mature berry yellow, globose or ovoid, sometimes oblique, 3–5 cm in diam., smooth or sometimes with orbicular lenticels, apiculate, sepals and staminal bundles usually persistent. Seeds 1–4, oblong or ovoid; testa brown, smooth." [Unlikely. Fruits & seeds lack means of external attachment]
702	2012. Trade Winds Fruit. Gamboge - Garcinia xanthochymus. http://www.tradewindsfruit.com/gamboge.htm	[Propagules dispersed intentionally by people? Yes] "Uses: Fruits can be eaten fresh out of hand. Often used in making jams. Can be used as a substitute for tamarind in cooking. Fruit juice and bark extract are used as dyes." [Grown for edible fruit & other purposes]
703	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules likely to disperse as a produce contaminant? No] "Mature berry yellow, globose or ovoid, sometimes oblique, 3–5 cm in diam., smooth or sometimes with orbicular lenticels, apiculate, sepals and staminal bundles usually persistent. Seeds 1–4, oblong or ovoid; testa brown, smooth." [Unlikely. Fruits & seeds relatively large, and fruit are harvested as a product]
704	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Propagules adapted to wind dispersal? No] "Fruit baccate, ca. 6.5 cm across, subglobose, pointed, dark yellow with copious yellow gum when cut; seeds 1-4, imbedded in a yellow, aril like pulp."
705	2008. Datta, A./Rawat, G.S.. Dispersal modes and spatial patterns of tree species in a tropical forest in Arunachal Pradesh, northeast India. Tropical Conservation Science. 1(3): 163-185.	[Propagules water dispersed? No] "Dispersal mode = Mammals]
706	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Propagules bird dispersed? Presumably Yes] "Fruit baccate, ca. 6.5 cm across, subglobose, pointed, dark yellow with copious yellow gum when cut; seeds 1-4, imbedded in a yellow, aril like pulp."
706	2009. Kanwatanakid, C./Poonswad, P./Savini, T.. An assessment of food overlap between gibbons and hornbills. The Raffles Bulletin of Zoology. 57(1): 189-198.	[Propagules bird dispersed? Not by hornbills] "White-handed gibbons are also generalized frugivores, consuming various morphological types of fruits because of the advantage of hands for manipulation and long digestive tracts that allow consumption of fruit species with hard covers and flesh attached to seeds (e.g. Choerospondias axillaris, Sandoricum koetjape and Garcinia xanthochymus) (Kanwatanakid, 2000). Conversely, hornbills do not consume these fruit species because their feeding adaptations are restricted by their bill morphology, which significantly reduces their capability to manipulate and extract food."
707	2012. Tadwalkar, M.D./Joglekar, A.M./Mhaskar, M./Kanade, R.B./Chavan, B./Watve, A.V./Ganeshaiah, K.N./Patwardhan, A.A.. Dispersal modes of woody species from the northern Western Ghats, India. Tropical Ecology. 53(1): 53-67.	[Propagules dispersed by other animals (externally)? No] "Appendix Table 1. List of species and their dispersal attributes." … "DM = Dispersal Mode … Z = Zoochorous (Animal dispersed) … Garcinia xanthochymus … Dispersal Unit = Entire fruit" [Adapted for internal dispersal]
708	1980. Woodson, Jr., R.E./Schery, R.W./D'Arcy, W.G.. Flora of Panama. Part VI. Family 123. Guttiferae. Annals of the Missouri Botanical Garden. 67(4): 969-1043.	[Propagules survive passage through the gut? Presumably Yes] "Fruit baccate, ca. 6.5 cm across, subglobose, pointed, dark yellow with copious yellow gum when cut; seeds 1-4, imbedded in a yellow, aril like pulp."
708	2008. Datta, A./Rawat, G.S.. Dispersal modes and spatial patterns of tree species in a tropical forest in Arunachal Pradesh, northeast India. Tropical Conservation Science. 1(3): 163-185.	[Propagules survive passage through the gut? Yes] "Appendix 1. List of identified tree species, fruit type and color, dispersal mode, major consumers and tree density (trees per ha)." … "Dispersal mode - Mammals"
708	2009. Kanwatanakid, C./Poonswad, P./Savini, T.. An assessment of food overlap between gibbons and hornbills. The Raffles Bulletin of Zoology. 57(1): 189-198.	[Propagules survive passage through the gut? Presumably Yes] "White-handed gibbons are also generalized frugivores, consuming various morphological types of fruits because of the advantage of hands for manipulation and long digestive tracts that allow consumption of fruit species with hard covers and flesh attached to seeds (e.g. Choerospondias axillaris, Sandoricum koetjape and Garcinia xanthochymus) (Kanwatanakid, 2000). Conversely, hornbills do not consume these fruit species because their feeding adaptations are restricted by their bill morphology, which significantly reduces their capability to manipulate and extract food." [Or arils are removed from seeds without ingestion]
801	2007. Wu, Z.Y./Raven, P.H./Hong, D.Y. (eds.). Flora of China. Vol. 13 (Clusiaceae through Araliaceae). Science Press and Missouri Botanical Garden Press, Beijing & St. Louis	[Prolific seed production (>1000/m2)? No] "Trees 8–10 m tall, 15–45 cm in diam." … "Mature berry yellow, globose or ovoid, sometimes oblique, 3–5 cm in diam., smooth or sometimes with orbicular lenticels, apiculate, sepals and staminal bundles usually persistent. Seeds 1–4, oblong or ovoid; testa brown, smooth." [Not likely. Fruits relatively large with few seeds per fruit]

802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Storage Behaviour: Recalcitrant? Storage Conditions: Viability can be maintained for 2-4 months in moist storage at 20°C (Riley, 1981)"
802	2012. Dave's Gardern. PlantFiles: False Mangosteen, Yellow Mangosteen - Garcinia xanthochymus. http://davesgarden.com/guides/pf/go/109821/	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Seed does not store well; sow as soon as possible"
803	2011. The Nature Conservancy of Hawai'i. Kamakou Preserve Moloka'i, Hawaii FY2011 Semi-annual Progress Report. hawaii.gov/dlnr/dofaw/.../kamakou_2011_semi_annual_report.pdf	[Well controlled by herbicides? Unknown] "Albizia (Falcataria moluccana), gourka (Garcinia xanthochymus) and rubbervine (Cryptostegia madagascariensis) are now at seed bank detection level, meaning these populations have no reproducing individuals; the only new individuals are those from a previous existing seed bank." [Presumably controlled with herbicide, but efficacy u nknown]
804	2012. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]

Summary of Risk Traits:

High Risk / Undesirable Traits:

- Thrives in tropical climates
- Grows from 100-1400 m in native range
- Naturalized in Queensland, Australia
- Possibly naturalized on Molokai (targeted for eradication)
- Shade tolerant (may be able to spread into forest understory)
- Tolerates many soil types (potential to exploit many habitats)
- Self-compatible
- Animal-dispersed seeds (Possibly certain birds, pigs, rats, & mongoose in Hawaii)

Low Risk / Desirable Traits:

- Evidence of negative impacts unspecified
- Edible fruit
- Requires 5 or more years to reach fruit bearing age
- Fruits & seeds relatively large and unlikely to be spread accidentally
- Seeds unlikely to persist in soil