

Family: *Moraceae*

Taxon: *Artocarpus nitidus*

Synonym: *Artocarpus lingnanensis* Merr.

Artocarpus parvus Gagnep.

Artocarpus sampor Gagnep.

Common Name: ma hat

hung kwai muk

kwai muk

Questionnaire :	current 20090513	Assessor:	Assessor	Designation:	EVALUATE
Status:	Assessor Approved	Data Entry Person:	Assessor	WRA Score	3
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		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		n
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205		y
302	Garden/amenity/disturbance weed		n=0, y = 1*multiplier (see Appendix 2)		n
303	Agricultural/forestry/horticultural weed		n=0, y = 2*multiplier (see Appendix 2)		n
304	Environmental weed		n=0, y = 2*multiplier (see Appendix 2)		n
305	Congeneric weed		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		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		

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	
605	Requires specialist pollinators	y=-1, n=0	
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	
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	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	
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 3

Supporting Data:

101	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Is the species highly domesticated? No] No evidence
102	2013. WRA Specialist. Personal Communication.	NA
103	2013. WRA Specialist. Personal Communication.	NA
201	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Species suited to tropical or subtropical climate(s) 2-High] "Mixed forests. Guangdong, Guangxi, Hainan, S Hunan, S Yunnan [cultivated in Cambodia, Thailand, and N Vietnam]."
202	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Quality of climate match data 2-High]
203	1960. Jarrett, F. M.. Studies in Artocarpus and allied genera. IV. A revision of Artocarpus subgenus Pseudojaca (concluded). Journal of the Arnold Arboretum. 41(2): 111-140.	[Broad climate suitability (environmental versatility)? Elevation range almost exceeds 1000 m] "in evergreen and mixed forest, and in savannah, to 3000 ft.; Siam, Indochina, southern China (Kwangtung, Hainan); cultivated, especially in Tonkin."
203	1996. Schulte, A./Hans-Friedrich Schöne, D. (eds.). Dipterocarp Forest Ecosystems: Towards Sustainable Management. World Scientific, London, UK	[Broad climate suitability (environmental versatility)? Presumably No] "Artocarpus dadah, Artocarpus nitidus, and Artocarpus rigidus are common trees especially in the lowlands and hills up to 600 m altitude." [Presumably restricted to lower elevation, tropical climates]
203	2013. Nickrent, D.L./Barcelona, J./Pelser, P./Molina, J.E./Callado, J.R.. Co's Digital Flora of the Philippines. http://www.philippineplants.org/	[Broad climate suitability (environmental versatility)? No. Species restricted to low elevation tropics] "Lowland primary and secondary forests, in regions with rather marked dry seasons, 0 150m. Four other subspecies extend from Assam to continental SE Asia, S China to W Malesia (Sumatra, Peninsular Malaysia, and Borneo)."
204	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Mixed forests. Guangdong, Guangxi, Hainan, S Hunan, S Yunnan [cultivated in Cambodia, Thailand, and N Vietnam]."
205	1992. Flynn, T./Ragone, D.. Specimen Details for Artocarpus nitidus subsp. lingnanensis (Merr.) Jarrett [BISH 634527]. Bishop Museum, http://nsdb.bishopmuseum.org/5681216E-DE32-4BB3-9DA8-2C1D15BABF3D	[Does the species have a history of repeated introductions outside its natural range? No] "USA - Hawaii - Maui - East Maui, Hana District, cultivated the National Tropical Botanical Garden's Kahanu Garden." [Sparingly cultivated in the Hawaiian Islands]
205	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	[Does the species have a history of repeated introductions outside its natural range? No evidence] "Locally grown plants belong to subsp. lingnanensis (Merrill) F.M. Jarrett, native from southern China throughout Southeast Asia." ... "Trees are cultivated in Asia for their edible fruit, and the bark and roots are added to betel. Kwai muk is said to have been introduced to Hawaii around 1960 from southern China. It is sparingly grown elsewhere."
301	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Naturalized beyond native range? No evidence elsewhere]
301	2013. Kaneholani, L.. KISC Field Crew Supervisor. Pers. Comm. 09 Sep 2013.	[Naturalized beyond native range? Possibly Yes] "may be Artocarpus nitidus var. lingnanensis" ... "there are lots of seedling popping up around her home in the Wailua/Kapahi area" [Showing signs of naturalization on Kauai]
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No evidence]
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No] No evidence
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No] No evidence
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No. Several Artocarpus species are listed as naturalized, but none are regarded as a serious agricultural or environmental weed]

401	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Produces spines, thorns or burrs? No] "Trees to 17 m tall. Petiole 0.5-1.5 cm; leaf blade oblongelliptic to obovate-elliptic, 7-15 × 3-7 cm, thinly leathery, base cuneate to ± rounded, margin entire or irregularly shallowly toothed, apex mucronate to caudate; secondary veins 6-10 on each side of midvein, adaxially prominent."
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? Unknown for <i>A. nitidus</i> . <i>Artocarpus heterophyllus</i> & <i>Artocarpus altilis</i> tested for allelopathic properties in lab conditions, but incisory activity not greater than the mean]
403	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Parasitic? No] "Trees to 17 m tall." [Moraceae]
404	1991. Seibert, B./Jansen, P.C.M.. <i>Artocarpus</i> J.R. & G. Forster[Internet] Record from Proseabase. Verheij, E. and Coronel, R.E (Eds). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia http://www.proseanet.org [Accessed 11 Sep 2013]	[Unpalatable to grazing animals? Unknown for <i>A. nitidus</i>] " <i>Artocarpus chaplasha</i> is an important timber tree especially in India; its leaves are also used for elephant fodder."
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	2013. Leblanc, L.. Dacine Fruit Flies of Asia-Pacific. University of Hawaii at Manoa. Museum Consortium, http://www.herbarium.hawaii.edu/fruitfly/index.php	[Host for recognized pests and pathogens? Yes] Host of <i>Bactrocera dorsalis</i> ("A major pest of cultivated fruits"). Also a host of <i>Bactrocera raiensis</i> ("A potential minor pest of breadfruit")
407	1991. Saw, L.G./LaFrankie, J.V./Kochummen, K.M./Yap, S.K.. Fruit Trees in a Malaysian Rain Forest. Economic Botany. 45(1): 120-136.	[Causes allergies or is otherwise toxic to humans? No evidence] "fruit rather flattened, 3-5 cm across, shiny, green turning orange, with bright pink flesh, edible in its entirety, but gummy."
407	2001. Hanelt, P. (ed.). Mansfeld's Encyclopedia of Agricultural and Horticultural Crops (except Ornamentals), Volume 1. Springer-Verlag, Berlin, Heidelberg, New York	[Causes allergies or is otherwise toxic to humans? No evidence] "Cultivated in Thailand and North Vietnam for its edible fruits. Bark and roots are chewed together with betel."
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No evidence]
408	2003. Ze-peng, L.X.C.W./Yao-dong, C.H.T.L./Ke-na, H.X.C.X./Zhi-yang, W.U.. The Selection of Forest-fire Resistant Species in Urban Forestry in Pearl River Delta. Journal of Tropical and Subtropical Botany. 4 DOI: cnki:ISSN:1005-3395.0.2003-04-001: .	[Creates a fire hazard in natural ecosystems? No] "Species with moisture content ≥ 40%, crude fat ≤ 20‰ and crude ash ≥ 5% are considered to be fire resistant species" [Includes <i>A. nitidus</i>]
409	1987. Ho, C. C./Newbery, D.M./Poore, M.E.D.. Forest Composition and Inferred Dynamics in Jengka Forest Reserve, Malaysia. Journal of Tropical Ecology. 3(1): 25-56.	[Is a shade tolerant plant at some stage of its life cycle? Presumably Yes] "Mr K. M. Kochummen of the Forest Research Institute, Kepong, Malaysia has observed <i>Artocarpus nitidus</i> and <i>A. rigidus</i> in open and closed forest canopy..." [Occurs in closed canopy forest, so must be shade tolerant]
410	2009 onwards. Slik, J.W.F.. Plants of Southeast Asia. http://www.asianplant.net/	[Tolerates a wide range of soil conditions ? Unknown] "Mostly on hillsides and ridges with sandy to clay soils."
411	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Climbing or smothering growth habit? No] "Trees to 17 m tall." [Moraceae]
412	1960. Jarrett, F. M.. Studies in <i>Artocarpus</i> and allied genera, IV. A revision of <i>Artocarpus</i> subgenus <i>Pseudojaca</i> (concluded). Journal of the Arnold Arboretum. 41(2): 111-140.	[Forms dense thickets? No evidence] "...in evergreen and mixed forest, and in savannah, to 3000 ft.; Siam, Indochina, southern China (Kwangtung, Hainan); cultivated, especially in Tonkin."
412	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Forms dense thickets? No evidence] "Mixed forests. Guangdong, Guangxi, Hainan, S Hunan, S Yunnan [cultivated in Cambodia, Thailand, and N Vietnam]."
501	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Aquatic? No] "Trees to 17 m tall." [Terrestrial]

502	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Grass? No] Moraceae
503	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Nitrogen fixing woody plant? No] Moraceae
504	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Trees to 17 m tall." [Moraceae]
601	2007. Brearley, F.Q./Proctor, J./Nagy, L./Dalrymple, G./Voysey, B.C.. Reproductive phenology over a 10-year period in a lowland evergreen rain forest of central Borneo. <i>Journal of Ecology</i> . 95(4): 828-839.	[Evidence of substantial reproductive failure in native habitat? No] No evidence
602	1986. Nagata, K.M.. Specimen Details for <i>Artocarpus nitidus</i> subsp. <i>lingnanensis</i> (Merr.) Jarrett [BISH 508664]. Bishop Museum, http://nsdb.bishopmuseum.org/C9EB5B62-B55D-4A8F-BDBE-CF1FE1F9F2E0	[Produces viable seed? Presumably Yes] "SA - Hawaii - Oahu - Kapalama Heights near Kamehameha School" ... "Spreading tree, 20' ht., 20' crown spread. Leaves coriaceous, glossy green. Fruits yellow when ripe, irregularly globose or subglobose, 5-6 cm x 5 6 cm. Flesh red-orange, pleasantly sweet. Seeds 10-15 mm x 8 mm."
602	1992. Staples, G.W./Young, T.. Specimen Details for <i>Artocarpus nitidus</i> subsp. <i>lingnanensis</i> (Merr.) Jarrett [BISH 629192]. Bishop Museum, http://nsdb.bishopmuseum.org/D33F28F9-4355-4A86-94EE-55F7226663EB	[Produces viable seed? Presumably Yes] "Cultivated tree ca 30 years old, edible fruit. Sap copious, milky; lvs glossy above; frt lumpy, turning yellow when ripe, flesh salmon orange, subacid; seeds pea-sized, oyster gray."
603	2006. Haq, N.. Jackfruit, <i>Artocarpus heterophyllus</i> . Southampton Centre for Underutilised Crops, University of Southampton, Southampton, UK	[Hybridizes naturally? Unknown. Hybridization possible within genus] " <i>Artocarpus heterophyllus</i> is a tetraploid and the somatic chromosome number is (2n) 56 (2n=4x=56), hence the basic chromosome number (x) is 14 (Darlington and Wylie, 1956; Habib, 1965). Although it is an outcrossing species, it freely crosses with <i>A. integer</i> . <i>Artocarpus lanceaefolius</i> and <i>A. rigidus</i> are closely linked to <i>A. heterophyllus</i> according to Kanzaki et al. (1997) whereas <i>A. nitidus</i> appears to be quite separate. No reports have been found on interspecific crosses involving these species or any clear chromosome counts. However in <i>A. integer</i> there are both diploid and tetraploid representatives."
605	1991. Seibert, B./Jansen, P.C.M.. <i>Artocarpus</i> J.R. & G. Forster[Internet] Record from Proseabase. Verheij, E. and Coronel, R.E (Eds). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia http://www.proseanet.org [Accessed 11 Sep 2013]	[Requires specialist pollinators? Unknown for <i>A. nitidus</i>] "Some species appear to be equipped for insect pollination, the male heads having a sweet scent of honey and sticky pollen (<i>Artocarpus heterophyllus</i> , <i>Artocarpus integer</i>). Others are possibly wind-pollinated — male heads emit no scent but on being tapped release clouds of pollen (<i>Artocarpus altilis</i> , <i>Artocarpus rigidus</i>). Pollination requires further study to show that insects visit female as well as male heads, and to relate pollination intensity to fruit size. Generally only a few of the flowers in a female head set seed; the remainder extend as the head swells, to form the straps or strings between the seeds in the ripe fruit."
606	2013. Trade Winds Fruit. Butong - <i>Artocarpus nitidus</i> . http://www.tradewindsfruit.com/content/butong.htm [Accessed 11 Sep 2013]	[Reproduction by vegetative fragmentation? No evidence] "Propagation - By seeds."
607	1985. Primack, R.B./Ashton, P.S./Chai, P./Lee, H.S.. Growth rates and population structure of Moraceae trees in Sarawak, East Malaysia. <i>Ecology</i> . 66(2): 577-588.	[Minimum generative time (years)? Unknown] "At Semengoh Forest, mean annual growth rates for <i>Artocarpus</i> species were mostly between 1.4 and 1.9 mm/yr, with <i>A. odoratissimus</i> and <i>A. nitidus</i> showing somewhat lower growth rates of 0.9 and 1.0 mm/yr (Table 1)." [Relatively slow growth rates]
607	1998. Masripatin, N.. Modelling growth of a tropical rain forest in East Kalimantan, Indonesia. PhD Diss. University of Canterbury, Christchurch, New Zealand	[Minimum generative time (years)? Probably 3+] "Medium, small, and other slower growing species" [<i>Artocarpus nitidus</i> included among slower growing species]
701	1992. Staples, G.W./Young, T.. Specimen Details for <i>Artocarpus nitidus</i> subsp. <i>lingnanensis</i> (Merr.) Jarrett [BISH 629192]. Bishop Museum, http://nsdb.bishopmuseum.org/D33F28F9-4355-4A86-94EE-55F7226663EB	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Possibly] "Sap copious, milky; lvs glossy above; frt lumpy, turning yellow when ripe, flesh salmon orange, subacid; seeds pea-sized, oyster gray." [Sticky sap may aid in dispersal of seeds]
702	1960. Jarrett, F. M.. Studies in <i>Artocarpus</i> and allied genera, IV. A revision of <i>Artocarpus</i> subgenus <i>Pseudojaca</i> (concluded). <i>Journal of the Arnold Arboretum</i> . 41(2): 111-140.	[Propagules dispersed intentionally by people? Yes] "...planted for the edible fruit; the bark and roots are also added to betel."

702	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules dispersed intentionally by people? Yes] "Mixed forests. Guangdong, Guangxi, Hainan, S Hunan, S Yunnan [cultivated in Cambodia, Thailand, and N Vietnam]... The fruit are edible and also used medicinally."
703	1986. Nagata, K.M.. Specimen Details for <i>Artocarpus nitidus</i> subsp. <i>lingnanensis</i> (Merr.) Jarrett [BISH 508664]. Bishop Museum, http://nsdb.bishopmuseum.org/C9EB5B62-B55D-4A8F-BDBE-CF1FE1F9F2E0	[Propagules likely to disperse as a produce contaminant? No] "Fruits yellow when ripe, irregularly globose or subglobose, 5-6 cm x 5 6 cm. Flesh red-orange, pleasantly sweet. Seeds 10-15 mm x 8 mm." [Fruits and seeds relatively large and unlikely to become a produce contaminant]
703	1991. Seibert, B./Jansen, P.C.M.. <i>Artocarpus</i> J.R. & G. Forster[Internet] Record from Proseabase. Verheij, E. and Coronel, R.E (Eds). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia http://www.proseanet.org [Accessed 11 Sep 2013]	[Propagules likely to disperse as a produce contaminant? No] "Seeds have no dormant period; they germinate immediately and are unable to withstand desiccation." [Seeds of genus not likely to be spread with other produce due to lack of dormancy]
704	2003. Wu, Z.Y./Raven,P.H./Hong, D.Y. (eds.). Flora of China. Vol. 5 (Ulmaceae through Basellaceae). Science Press & Missouri Botanical Garden Press, Beijing & St. Louis	[Propagules adapted to wind dispersal? No] "Fruiting syncarp red, reddish orange, or yellow, brown when dry, ± globose, ca. (1.5-)5 cm in diam., fleshy, glabrous or sparsely covered with coarse pubescence; peduncle to 5 mm; bracts persistent."
705	2000. Richter, F.. Structure and dynamics of riverine forest vegetation. Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, Germany	[Propagules water dispersed? Possibly] "Mean, maximum and minimum flooding duration per year at stem base of trees species in the survey area according to flooding tolerance classes; compartment A; vegetation > 10 cm DBH; sample area 8.55 ha" [List includes <i>Artocarpus nitidus</i> - Class 2 = low inundation tolerance as a rule, the sites are flooded for short periods of up to 20 days/year with shallow water.] [Fruits and seeds may possibly be moved by water during inundation periods]
706	1960. Jarrett, F. M.. Studies in <i>Artocarpus</i> and allied genera, IV. A revision of <i>Artocarpus</i> sub-genus <i>Pseudojaca</i> (concluded). Journal of the Arnold Arboretum. 41(2): 111-140.	[Propagules bird dispersed? Potentially Yes] "Syncarp to 5 cm. across, red with pink flesh, drying brown, velutinous; seeds c. 5-12; peduncle 1.5-3 X 2 mm., velutinous." [Fleshy-fruited, and seeds small enough to be dispersed by local, introduced avifauna]
706	1995. Visayas State University. Guide to Reforestation Timber Species. Visayas State University, Institute of Tropical Ecology, Baybay City, Philippines	[Propagules bird dispersed? Yes] "Table 5.Indigenous forest trees recommended for habitat restoration/wildlife conservation with reproductive parts eaten by some animals based on field observations." [<i>Artocarpus nitidus</i> provides food for Bats, birds/bees]
706	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	[Propagules bird dispersed? Potentially Yes] "...lumpy multiple fruit 1.5-2" in diameter with yellow, downy-hairy skin when ripe, the flesh salmon-orange and containing 1-8 pea-sized, hard gray seeds." [Fleshy-fruited, and seeds small enough to be dispersed by local, introduced avifauna]
707	2000. Hin, H.K./Lading, E.. A Species Inventory of Small Mammals for the Development of Lanjak Entimau As A Totally Protected Area. Pp 120-135 in Proceedings of ITTO Workshop 2000. International Tropical Timber Organization, Yokohama-City, Japan	"Appendix III Some of the plant species consumed or visited by small mammals In LEWS" [<i>Artocarpus nitidus</i> - Visitors / pollinators / seed predators = tree squirrel, tree shrews, fruit bats] [Unknown if animals are dispersers or predators]
707	2013. Yang, W./Liu, F./Zhang, S./An, S.. Dispersal and germination syndromes of tree seeds in a seasonal evergreen monsoon rainforest on Hainan Island, China. Seed Science Research. 23(01): 41-55.	[Propagules dispersed by other animals (externally)? Possibly] "Fruit type, dispersal agent, seed mass, reported fruiting time, month of collection and seed extraction procedure for 66 species from a seasonal evergreen monsoon forest in Hainan Island, China." [<i>Artocarpus nitidus</i> ssp. <i>Lingnanensis</i> - Dispersal mode = Animal. Possible that fruits are carried externally and seeds discarded during pulp consumption]
708	2002. McConkey, K.R./Aldy, Fi./Ario, A./Chivers, D.J.. Selection of Fruit by Gibbons (<i>Hylobates muelleri</i> & <i>agilis</i>) in the Rain Forests of Central Borneo. International Journal of Primatology. 23(1): 123 - 145.	[Propagules survive passage through the gut? Presumably Yes. Included in a list of food resources for gibbons]"Gibbons (<i>Hylobates</i> spp.) are among the main frugivorous primates in Southeast Asia, yet little is known about the criteria by which they select fruit for consumption. We studied two gibbon groups for 14 mo in the lowland dipterocarp forests of Central Borneo to determine their selectivity for different fruit species and traits. Ideal gibbon fruit were yellow, large, with a juicy-soft pulp, thin skin and available in large crops. Gibbons ultimately sought seedless fruit, but when seeds were present they selected fruit with a single, well-protected seed. Given that few fruit exhibited all the desired traits, we also carried out a multiple regression using the selection ratios of the various fruit species and their associated fruit traits to determine which traits ultimately determined gibbon choice. The analysis was stratified to account for differences in fruit availability. Selection was strongest when fruit were abundant in the forest and was based on seed width (<21 mm), color (yellow-orange), and fruit weight (1–5 g). No selection is apparent when food abundance was intermediate, but when fruit were scarce they preferentially ate larger fruit (6–30 g)."

708	2007. Fredriksson, G. M./Danielsen, L.S./Swenson, J.E.. Impacts of El Nino related drought and forest fires on sun bear fruit resources in lowland dipterocarp forest of East Borneo. <i>Biodiversity and Conservation</i> . 16(6): 1823 - 1838.	[Propagules survive passage through the gut? Presumably Yes. Included in a list of food resources for sun bears]
708	2013. WRA Specialist. Personal Communication.	[Propagules survive passage through the gut? Yes] Feral pigs could presumably act as dispersers in the Hawaiian Islands and other tropical ecosystems in which they have become naturalized
801	1960. Jarrett, F. M.. Studies in Artocarpus and allied genera, IV. A revision of Artocarpus sub-genus Pseudojaca (concluded). <i>Journal of the Arnold Arboretum</i> . 41(2): 111-140.	[Prolific seed production (>1000/m ²)? No] "The type sub-species, which occurs in the Philippines, is readily distinguished by the very small, few-seeded, velutinous syncarp. The two subspecies placed following this, ssp. <i>lingnanensis</i> , which extends from southern China to peninsular Siam..."
802	1991. Seibert, B./Jansen, P.C.M.. Artocarpus J.R. & G. Forster[Internet] Record from Proseabase. Verheij, E. and Coronel, R.E (Eds). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia http://www.proseanet.org [Accessed 11 Sep 2013]	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Seeds have no dormant period; they germinate immediately and are unable to withstand desiccation." [Genus description]
803	2013. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2007. Fredriksson, G. M./Danielsen, L.S./Swenson, J.E.. Impacts of El Nino related drought and forest fires on sun bear fruit resources in lowland dipterocarp forest of East Borneo. <i>Biodiversity and Conservation</i> . 16(6): 1823 - 1838.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Possibly intolerant of fire] "Appendix List of sun bear fruit genera/species of trees (±10 cm DBH) encountered in unburned-edge (UBF) and burned (BF) vegetation plots (total 7.2 ha), 33 months after the 1997–1998 fire. A " " indicates that the genus/species was encountered in the plots, a "0" indicates it was absent. Number of plots indicates in how many of the 0.4 ha plots (9 plots in burned and 9 plots in unburned edge forest) the genus/species was encountered" [<i>Artocarpus nitidus</i> absent from burned plots]
805	2013. 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
- Naturalizing on Kauai
- Seeds may be spread by birds, mammals, and people

Low Risk Traits

- Despite ability to spread, no reports of invasiveness found
- Unarmed (no spines, thorns or burrs)
- Edible Fruit
- Not known to spread vegetatively
- Slow growing, and probably takes 3+ years to reach maturity
- Seeds lose viability quickly