

Family: *Arecaceae*

Taxon: *Calamus caesius*

Synonym: *Calamus glaucescens* Blume

Common Name: rattan palm
Sega Rattan

Questionnaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** EVALUATE
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **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	?
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	y
402	Allelopathic	y=1, n=0	n
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals	y=1, n=-1	n
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens	y=1, n=0	
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	
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	y

412	Forms dense thickets	y=1, n=0	
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	n
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed	y=1, n=-1	
706	Propagules bird dispersed	y=1, n=-1	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/m ²)	y=1, n=-1	
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides	y=-1, n=1	
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score 3

Supporting Data:

101	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is the species highly domesticated? No] No evidence
102	2011. WRA Specialist. Personal Communication.	NA
103	2011. WRA Specialist. Personal Communication.	NA
201	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Species suited to tropical or subtropical climate(s) 2-high] "The natural distribution of <i>C. caesius</i> is in the Malay Peninsular (including southern Thailand), Sumatra, Borneo and Palawan."
202	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Quality of climate match data? 2-high] "The natural distribution of <i>C. caesius</i> is in the Malay Peninsular (including southern Thailand), Sumatra, Borneo and Palawan."
203	1998. Rao, A.N./Rao, V.R./Williams, J.T. (eds.). Priority Species of Bamboo and Rattan. IPGRI-APO, Serdang, Malaysia	[Broad climate suitability (environmental versatility)? No] "The natural distribution suggests that <i>C. caesius</i> is adapted to perhumid tropical climates. Attempts to cultivate it outside such climates have been disappointing."
203	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Broad climate suitability (environmental versatility)? No. Borderline] " <i>C. caesius</i> is confined to the perhumid areas of the Malay Peninsular, Sumatra and Borneo, and to the south of Palawan. It is found primarily in lowland dipterocarp forest at elevations up to about 1000 m above sea level. It seems to prefer alluvial soils, but has also been found in Borneo growing on steep slopes in hill dipterocarp forest."
204	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Native or naturalized in regions with tropical or subtropical climates? Yes] "The natural distribution of <i>C. caesius</i> is in the Malay Peninsular (including southern Thailand), Sumatra, Borneo and Palawan."
205	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Does the species have a history of repeated introductions outside its natural range? Questionable. Most plantings occur within natural range] "Location of introductions: <i>C. caesius</i> is now widely planted in Peninsular Malaysia, Sumatra, west Java, Borneo and southern Thailand, on both a commercial and a smallholding scale. This species has been introduced into rattan research collections elsewhere in Southeast Asia."
205	2008. Meyer, J-Y./Lavergne, C./Hodel, D. R.. Time Bombs in Gardens: Invasive Ornamental Palms in Tropical Islands, with Emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). Palms. 52: 71-83.	[Does the species have a history of repeated introductions outside its natural range? Uncertain] "The rattan, <i>Calamus caesius</i> , a climbing, vinelike, spiny species native to Southeast Asia, is reported to have started to naturalize on the island of Upolu, Western Samoa in the South Pacific where it was intentionally introduced in the early 1990s (Mark J. Bonin, pers. comm. 2007)."
301	2008. Meyer, J-Y./Lavergne, C./Hodel, D. R.. Time Bombs in Gardens: Invasive Ornamental Palms in Tropical Islands, with Emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). Palms. 52: 71-83.	[Naturalized beyond native range? Potentially] "The rattan, <i>Calamus caesius</i> , a climbing, vinelike, spiny species native to Southeast Asia, is reported to have started to naturalize on the island of Upolu, Western Samoa in the South Pacific where it was intentionally introduced in the early 1990s (Mark J. Bonin, pers. comm. 2007)."
301	2008. Ministry of Natural Resources, and Environment. National Invasive Species Action Plan - Jul 2008 - June 2011. MNRE, Apia, Samoa	[Naturalized beyond native range? Potentially in Samoa] "The Rattan Palm (<i>Calamus caesius</i>) was intentionally introduced in the early 1990's by the Samoan Forestry Division (then of MAFF) for trial and observation through a FAO sponsored programme investigating its' potential as a commercial crop species for furniture production in Samoa. The palm was planted for trial in three main locations on Upolu Island (Vailima, Papaseea and Togitogiga) but there is a great concern over its un-intentional spread (by man or other animals such as birds or rats) to other parts of the country. So far, little has been documented about where rattan was planted in Samoa making the work of the SNITT team quite complicated. The information gathered through informal discussions with the forestry staff have been used as the basis for planning and implementing the eradication programme. In 1998 when it was advised that this plant had potential invasiveness, an eradication attempt was made. Unfortunately, many plants were missed in the original eradication effort or actually re established. Plants at Papaseea have actually flowered, seeded and produced thousands of seedlings, which are being removed and will require continued monitoring for the next several years. Should Rattan Palm become naturalized in Samoa it could render agricultural lands unsuitable for cultivation and be a serious threat to our native forests, making the eradication of this plant a management priority for Samoa."

301	2009. Atherton, J.. Rattan Palm (<i>Calamus caesius</i>) Eradication Program. PILN Soundbites. January 2009: .	[Naturalized beyond native range? Yes] "Su'emalo Talie Foliga and I went to the Papaseea rattan site this morning and uprooted 38 small seedlings and 2 adult trees, including one tree that we had found in early 2008 but were not able to remove at that time. The number of rattan seedlings found continues to drop. In the last visit in April 2008 we found 126 seedlings and the time before that 5 trees and 602 seedlings were removed. The next visit will take place in May 2009 and all are welcome to attend as the more eyes the better..."
302	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Garden/amenity/disturbance weed? No] No evidence
303	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Agricultural/forestry/horticultural weed? No] No evidence
304	2008. Meyer, J.-Y./Lavergne, C./Hodel, D. R.. Time Bombs in Gardens: Invasive Ornamental Palms in Tropical Islands, with Emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). <i>Palms</i> . 52: 71-83.	[Environmental weed? No] "The rattan, <i>Calamus caesius</i> , a climbing, vinelike, spiny species native to Southeast Asia, is reported to have started to naturalize on the island of Upolu, Western Samoa in the South Pacific where it was intentionally introduced in the early 1990s (Mark J. Bonin, pers. comm. 2007)." [Concern that it may become an environmental weed]
305	2007. Randall, R.P.. Global Compendium of Weeds - Index [Online Database]. http://www.hear.org/gcw/	[Congeneric weed? No] No evidence
401	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces spines, thorns or burrs? Yes] "Clustering, slender high-climbing dioecious rattan climbing up to 100 m or more, the clump tending to be close and dense. Stem without sheaths 7-18 mm diameter, with sheaths to 25 mm diameter; internodes to 50 cm in length, but usually less; stem surface highly polished, even pale creamy-yellow, the outer surface snapping off in flakes when cane is bent. Leaf cirrate to 1.5 m in length; sheath dull green armed with sparse pale triangular spines to 15 x 5 mm and sparse grey indumentum, smaller spines sometimes also present; knee conspicuous; petiole absent in mature individuals, present and short in juveniles; cirrus to 75 cm in length, armed with grapnel groups of spines; leaflets about 15 on each side of the rachis, grouped, the longest to approximately 30 x 5 cm, dark green on the upper surface, with pale bluish-grey indumentum on the lower surface."
402	2004. López, C./Shanley, P.. Riches of the forest: Food, spices, crafts and resins of Asia. Center for International Forestry Research, Jakarta, Indonesia	[Allelopathic? No evidence. Cultivated with other crops] "Dayak farmers plant rattan seeds or seedlings, mainly <i>Calamus caesius</i> , in newly created agricultural fields (or 'ladang'). Their main agricultural crop is upland rice but food crops like maize, cassava and banana are also planted. The young rattan plants are protected in the ladang and when farmers shift to a new plot 1-2 years later, the rattan is left to grow up with the secondary forest* vegetation, creating a 'kebun rotan' or rattan garden. The growing rattan requires little attention - only 7-8 days in the first year plus small inputs of time for weeding and protecting the young plants. Once established, the rattan can then be harvested periodically, using simple technology, for some decades."
402	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Allelopathic? No] "Cultivation of <i>C. caesius</i> has potential to aid soil conservation and forest protection in areas such as watersheds or buffer zones of protected areas." [No evidence]
403	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Parasitic? No] "Clustering, slender high-climbing dioecious rattan climbing up to 100 m or more, the clump tending to be close and dense." [Arecaceae; not parasitic]
404	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Unpalatable to grazing animals? No] "In the field shoots can be eaten by elephants, squirrels, rats, porcupines and weevils (Dransfield and Manokaran, 1993)."
405	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Toxic to animals? No] "In the field shoots can be eaten by elephants, squirrels, rats, porcupines and weevils (Dransfield and Manokaran, 1993)." [No evidence]
406	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Host for recognized pests and pathogens? Possibly] "In the nursery pest and disease attack can be kept to a minimum by proper hygiene. The commonest problem is with leaf spot diseases caused by species of <i>Curvularia</i> , <i>Colletotrichum</i> , <i>Phomopsis</i> and <i>Pestalotiopsis</i> . Blight caused by <i>Colletotrichum gloeosporioides</i> can kill seedlings in a few weeks but can be controlled by the application of fungicide."
407	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Causes allergies or is otherwise toxic to humans? No] No evidence

407	1998. Rao, A.N./Rao, V.R./Williams, J.T. (eds.). Priority Species of Bamboo and Rattan. IPGRI-APO, Serdang, Malaysia	[Causes allergies or is otherwise toxic to humans? No] No evidence
407	2003. Riffle, R.L./Craft, P.. An encyclopedia of cultivated palms. Timber Press, Portland, OR.	[Causes allergies or is otherwise toxic to humans? No] No evidence
408	2009. Watanabe, N.M./Suzuki, E./Simbolon, H.. Reestablishment of rattans after forest fire in East Kalimantan, Borneo. Tropics. 18(1): 13-21.	[Creates a fire hazard in natural ecosystems? Unknown. Capable of burning, and could potentially act as a fuel ladder into trees] "Abstract: We quantified the reestablishment of rattans (climbing palms) after severe forest fires in 1997-1998 caused by the El Nino Southern Oscillation event in Bukit Bangkirai, East Kalimantan, Borneo...Rattans likely recolonized burned forest sites by seeds transferred from neighboring unburned forest by birds and animals. The distance from unburned forest appeared to affect the speed of the recovery in the burned plots. Although recovery of the stem density of rattans was slower than that of trees in burned plots, it will likely increase gradually because the number of recruits consistently exceeded mortality during our study period (February .2006 to August 2007). However, it is not clear whether species composition and the density in burned forests recover to preburned levels."
409	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Is a shade tolerant plant at some stage of its life cycle? Yes] "C. caesius requires initial shade (approximately 50%) for seedling establishment but is then dependent on increased light to grow at maximum growth rates. These light requirements need to be balanced with the need to provide adequate support for climbing. In good conditions, C. caesius rapidly builds up a close clump with many aerial stems."
410	1998. Rao, A.N./Rao, V.R./Williams, J.T. (eds.). Priority Species of Bamboo and Rattan. IPGRI-APO, Serdang, Malaysia	[Tolerates a wide range of soil conditions? Yes] "Although found on a variety of soils, it performs best on rich alluvial soil."
411	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Climbing or smothering growth habit? Yes] "Clustering, slender high-climbing dioecious rattan climbing up to 100 m or more, the clump tending to be close and dense. "
412	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Forms dense thickets? Potentially] "There is considerable variation in stem diameter, clumping behaviour and apparent overall vigour. The most densely clumping provenances appear to be from the lowlands of eastern Sabah. Genetic variation has been assessed in provenance trials at the Luasong Forestry Centre, Sabah. Results are not yet available."
501	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Aquatic? No] " Performance is reduced on well-drained slopes. The species cannot withstand severe flooding."
502	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Grass? No] Arecaceae
503	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Nitrogen fixing woody plant? No] Arecaceae
504	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Clustering, slender high-climbing dioecious rattan climbing up to 100 m or more, the clump tending to be close and dense. "
601	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Evidence of substantial reproductive failure in native habitat? No. But loss of habitat and overharvesting may pose a threat] "Supply of C. caesius from natural forests has been dwindling fast, especially in Malaysia and the Philippines, due to overexploitation and destruction of its natural habitat when forest is converted to agriculture."
601	1998. Rao, A.N./Rao, V.R./Williams, J.T. (eds.). Priority Species of Bamboo and Rattan. IPGRI-APO, Serdang, Malaysia	[Evidence of substantial reproductive failure in native habitat? No. But loss of habitat and overharvesting may pose a threat] "Wherever the species occurs in the wild, it is harvested, often before flowering and fruiting can take place. This presents a great danger for its conservation."
602	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Produces viable seed? Yes] "The seed is collected from mature fruit."
603	1995. Shim, P.S.. Domestication and Improvement of Rattan. INBAR Working Paper No. 5. FORTIP/INBAR/IDRC, http://www.inbar.int/publication/txt/INBAR_Working_Paper_No05.htm	[Hybridizes naturally? No] "Hybridization of species within the same section of the genus may produce hybrids with desirable traits. No hybrids have been found in nature but it may be possible to hybridize the closer related species to breed for drought tolerance, cold hardiness, to produce multiple clumping hybrids by crossing single-stemmed C. manan with possibly C. subinermis, and for the ability to grow well in poor soils or in peat swamps."
604	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Self-compatible or apomictic? No] "Clustering, slender high-climbing dioecious rattan climbing up to 100 m or more, the clump tending to be close and dense ... Male and female inflorescences to 2 m in length, lacking a terminal flagellum, the male branching to 3 orders, the female to 2 orders. "

605	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Requires specialist pollinators? No] "male flower greenish-yellow, c. 5 mm x 3 mm; female flower, larger than the male, each borne in a pair together with a sterile male flower." [Flowers not specialized]
606	2001. Clark, C.J./Poulsen, J.R.. The Role of Arboreal Seed Dispersal Groups on the Seed Rain of a Lowland Tropical Forest. Biotropica. 33(4): 606–620.	[Reproduction by vegetative fragmentation? Possibly] "Although <i>C. caesius</i> can be propagated by using sucker shoots, cultivation is best effected using seed."
606	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Reproduction by vegetative fragmentation? Possibly] "- Ability to sucker"
607	1982. Manokaran, N.. Survival and growth of Rotan sega (<i>Calamus caesius</i>) seedlings at 5 1/3 years after planting. The Malaysian Forester. 45(2): 193-202.	[Minimum generative time (years)? >4] "The growth of Rotan sega (<i>Calamus caesius</i>) at two different habitats (poorly- and well drained) and under two different planting designs (line- and group-planted) and two different canopy conditions (canopy overhead left intact and canopy overhead manipulated to allow more light to reach seedlings) was evaluated at 5 1/3 years from planting."
607	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Minimum generative time (years)? Probably 4+] "Annual flowering may commence at an age of 4-5 years."
701	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] "Mature fruit 1-seeded, ovoid, c. 15 mm x 10 mm, covered in neat reflexed greenish-white scales, drying yellowish. Seed c. 12 mm x 7 mm,, with an outer fleshy seed-coat (sarcotesta)..." [No evidence, and no means of external attachment]
702	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] " <i>C. caesius</i> is the best quality small diameter cane. The cane is of excellent quality and appearance, and is used primarily for chair cane, matting (both woven and "lampit") and weaving baskets. In the right conditions, it will grow rapidly in plantation."
703	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Propagules likely to disperse as a produce contaminant? No] "Mature fruit 1-seeded, ovoid, c. 15 mm x 10 mm, covered in neat reflexed greenish-white scales, drying yellowish. Seed c. 12 mm x 7 mm,, with an outer fleshy seed-coat (sarcotesta)..." [No evidence that fairly large fruit are inadvertently dispersed]
704	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Propagules adapted to wind dispersal? No] "Mature fruit ovoid approximately 15 x 10 mm, with a beak to 2 mm, and covered in 15-21 vertical rows of greenish white scales, drying straw-coloured. Seed ovoid approximately 12 x 7 mm; endosperm deeply ruminant."
705	2001. Clark, C.J./Poulsen, J.R.. The Role of Arboreal Seed Dispersal Groups on the Seed Rain of a Lowland Tropical Forest. Biotropica. 33(4): 606–620.	[Propagules water dispersed? Possibly] " <i>C. caesius</i> is usually found in the lowlands on alluvial flats, seasonally flooded river banks, and margins of freshwater or peat-swamps forest, but not in permanent swamps."
706	1981. Snow, D.W.. Tropical Frugivorous Birds and Their Food Plants: A World Survey. Biotropica. 13(1): 1-14.	[Propagules bird dispersed? Yes] "TABLE 1. Plant genera recorded in the diets of frugivorous birds in the tropics (including subtropical South Africa and Australasia, and excluding oceanic islands and Madagascar)." [<i>Calamus</i> species listed as bird-dispersed]
706	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Propagules bird dispersed? Yes] "Mature fruit 1-seeded, ovoid, c. 15 mm x 10 mm, covered in neat reflexed greenish-white scales, drying yellowish. Seed c. 12 mm x 7 mm,, with an outer fleshy seed-coat (sarcotesta)..." [Presumably yes, fleshy-fruited]
706	2001. Clark, C.J./Poulsen, J.R.. The Role of Arboreal Seed Dispersal Groups on the Seed Rain of a Lowland Tropical Forest. Biotropica. 33(4): 606–620.	[Propagules bird dispersed? Yes] "Appendix 2 ... <i>Calamus deerratus</i> ...bird-dispersed" [Related <i>Calamus</i> species dispersed by birds]
706	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Propagules bird dispersed? Yes] "Animal; Diaspore is eaten intentionally; Assumption based upon diaspore morphology; (Corlett, 1996); Diaspore=fruit. Fruit is fleshy."
707	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Propagules dispersed by other animals (externally)? No. Unlikely. Fruits/seeds lack means of external attachment] "Mature fruit 1-seeded, ovoid, c. 15 mm x 10 mm, covered in neat reflexed greenish-white scales, drying yellowish. Seed c. 12 mm x 7 mm,, with an outer fleshy seed-coat (sarcotesta)..."
708	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Propagules survive passage through the gut? Yes] "Mature fruit 1-seeded, ovoid, c. 15 mm x 10 mm, covered in neat reflexed greenish-white scales, drying yellowish. Seed c. 12 mm x 7 mm,, with an outer fleshy seed-coat (sarcotesta)..." [Presumably yes, fleshy-fruited]

801	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Prolific seed production (>1000/m2)? Unknown] "Aerial stems may grow at rates exceeding 4-5 m per year. Annual flowering may commence at an age of 4-5 years. Up to 4 inflorescences may be produced on one flowering stem, with each inflorescence bearing 1000-1500 fruits." [Seed production in larger stems may produce high fruit & seed densities]
802	2005. CAB International. Forestry Compendium. CAB International, Wallingford, UK	[Evidence that a persistent propagule bank is formed (>1 yr)? No] "Seed is recalcitrant and needs to be sown soon after collection. As with other rattan species, it is necessary to remove the pericarp and sarcotesta before the seed is sown."
803	2011. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information available on herbicide efficacy or control of this species
804	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Selective harvesting of mature canes can be carried out in the eighth year after planting. Harvesting is carried out by cutting the rattan cane at about 30 cm from the base, pulling the cane down out of the canopy as much as possible, removing the leaf-sheaths by twisting the cane around a tree trunk or hitting it with a knife."
804	2003. Riffle, R.L./Craft, P.. An encyclopedia of cultivated palms. Timber Press, Portland, OR.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "The palm is attractive up close, but, because of its long stems, is difficult to place so that it can be seen in the landscape. It can be pruned back to initiate more stems and a better appearance."]Tolerates pruning]
805	1994. Dransfield, J./Monokaran, N. (eds.). PROSEA : Plant Resources of South-East Asia 6, Rattans. Prosea Foundation, Bogor, Indonesia	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown] "Leaf blight caused by <i>Colletotrichum gloeosporioides</i> is more serious and may kill the seedlings in a few weeks. It can be controlled with fungicide applied at 10-day intervals"
805	2011. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]