

Taxon: <i>Pigafetta filaris</i>	Family: Arecaceae
Common Name(s): pigafetta palm wanga palm	Synonym(s): Sagus filaris Giseke (basionym)

Assessor: No Assessor	Status: Assessor Approved	End Date: 3 Aug 2014
WRA Score: 1.0	Designation: EVALUATE	Rating: Evaluate

Keywords: Dioecious Palm, Spiny, Light Demanding, Bird-dispersed, Fast Growing

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	y
301	Naturalized beyond native range		
302	Garden/amenity/disturbance weed		
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		
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
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
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		
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	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	>3
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
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	y
802	Evidence that a persistent propagule bank is formed (>1 yr)		
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
	Johnson, D.V. 1998. Non-Wood Forest Products 10: Tropical Palms. FAO, Rome	[No evidence] "The wanga palm (<i>Pigafetta filaris</i>) is a somewhat unusual palm in that it is a pioneer species which colonizes disturbed habitats where it is native in Indonesia and Papua New Guinea. Although its chief economic value is a source of stem wood for construction, <i>P. filaris</i> is also esteemed as an elegant ornamental palm. Davis and Kuswara (1987) studied the biology of this palm in Indonesia."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2014. 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
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	"Native: ASIA-TROPICAL Malesia: Indonesia - Irian Jaya, Moluccas; Papua New Guinea"
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed]	
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Dransfield, J. 1998. <i>Pigafetta</i> . <i>Principes</i> , 42(1): 34-40	"...we visited forest in the north-east Kepala Burung area of Irian Jaya. <i>Pigafetta</i> is abundant here, growing at elevations from sea level up to about 300 m..."

Qsn #	Question	Answer
	Dave's Garden. 2014. PlantFiles: Wanga Palm, White Wanga Palm - <i>Pigafetta filaris</i> . http://davesgarden.com/guides/pf/go/62721/ . [Accessed 3 Aug 2014]	"Hardiness: USDA Zone 11: above 4.5 °C (40 °F)"
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	"It is a palm that favours altitudes between 300 and 1,000 m."
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"This fast growing tree appreciates an open, sunny site with regular water and prefers subtropical to tropical climates."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	"Native: ASIA-TROPICAL Malesia: Indonesia - Irian Jaya, Moluccas; Papua New Guinea"

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	PACSOA, 2013. <i>Pigafetta</i> cultivation. http://www.pacsoa.org.au/wiki/Pigafetta_cultivation . [Accessed 3 Aug 2014]	"...this species has been introduced into cultivation in various countries, including Australia, a number of times, however it seems that most if not all attempts to grow this palm to maturity outside its native area have not been highly successful. There are a few notable exceptions, in Indonesia for example the species has been successfully cultivated at Bogor, however conditions at Bogor are probably not very different to those under which <i>Pigafetta</i> grows naturally."

301	Naturalized beyond native range	
	Source(s)	Notes
	Meyer, J. Y., Lavergne, C., & Hodel, D. R. 2008. 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(2): 71-83	"In 1990, Hodel, alarmed by John Dransfield's observation that the Wanga palm, <i>Pigafetta elata</i> (as <i>P. filaris</i>) was a colonizer of disturbed areas in its native range of Sulawesi, cut down the staminate tree he had planted to eliminate seed production and any possibilities of its escaping from cultivation and becoming naturalized in Tahiti (Hodel 1993)."

Qsn #	Question	Answer
	Hodel, D.R. 1993. The Growth of Some Palms in Tahiti. <i>Principes</i> 37(3): 124-138	[In the process of naturalizing, until male tree was cut down] "Figures 17 (1985) , 18 (1986) , and 19 (1990) document the tremendous, nearly frightening, growth of <i>Pigafetta filaris</i> . We planted three <i>Pigafelta</i> in 1981, and by 1988 the two pistillate ones had flowered and were dropping abortive, nonfertile fruits. By 1990, the third specimen had flowered and it was staminate, resulting in the ground beneath the trees being carpeted by seedlings of <i>Pigafetta</i> . In fact, they were coming up like hair on a dog's back and I was mowing them down as if they were grass. Alarmed by its propensity for reproduction and John Dransfield's observation that <i>Pigafetta</i> was a colonizer of disturbed areas, we cut down the staminate tree in 1990 to eliminate any possibilities of it escaping from cultivation and becoming naturalized in Tahiti. As much as I admire <i>Pigafetta</i> , it would truly be a disaster if large groves of it one day covered Tahiti's beautiful hillsides. The only other specimen of <i>Pigafetta</i> in Tahiti is at the Jardin Botanique about two kilometers distant, and it too is a pistillate plant."

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Tropical Species Database. 2014. <i>Pigafetta filaris</i> . http://tropical.theferns.info/viewtropical.php?id=Pigafetta+filaris . [Accessed 3 Aug 2014]	[A disturbance adapted, pioneer species] "A fast-growing tree that rapidly invades forest clearings, cleared ground etc. It can be used as a pioneer species, especially for re-establishing native woodland[K]."
	Meyer, J. Y., Lavergne, C., & Hodel, D. R. 2008. Time bomb in gardens: invasive ornamental palms in tropical islands, with emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). <i>Palms</i> , 52(2): 71-83	[Disturbance adapted] "In 1990, Hodel, alarmed by John Dransfield's observation that the Wanga palm, <i>Pigafetta elata</i> (as <i>P. filaris</i>) was a colonizer of disturbed areas in its native range of Sulawesi, cut down the staminate tree he had planted to eliminate seed production and any possibilities of its escaping from cultivation and becoming naturalized in Tahiti (Hodel 1993)."
	Johnson, D.V. 1998. Non-Wood Forest Products 10: Tropical Palms. FAO, Rome	[Pioneer tree] "The wanga palm (<i>Pigafetta filaris</i>) is a somewhat unusual palm in that it is a pioneer species which colonizes disturbed habitats where it is native in Indonesia and Papua New Guinea."

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	Congeneric weed	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	Dave's Garden. 2014. PlantFiles: Wanga Palm, White Wanga Palm - <i>Pigafetta filaris</i> . http://davesgarden.com/guides/pf/go/62721/ . [Accessed 3 Aug 2014]	"Danger: Plant has spines or sharp edges; use extreme caution when handling"
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	" <i>Pigafetta filaris</i> , a majestic palm of Sulawesi and the Moluccas, is distinctive in having lines of shiny golden-brown spines along the bases of its leaves, and a dark-green trunk and light grey rings where the leaves have fallen off."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

403	Parasitic	n
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"It has a very tall, green, broad, solitary trunk and a large crown of pinnate leaves with whitish stalks." [Arecaceae]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	[Palatability unknown, but spines may deter browsing] " <i>Pigafetta filaris</i> , a majestic palm of Sulawesi and the Moluccas, is distinctive in having lines of shiny golden-brown spines along the bases of its leaves..."

405	Toxic to animals	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

Qsn #	Question	Answer
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Johnson, D.V. 1998. Non-Wood Forest Products 10: Tropical Palms. FAO, Rome	[No evidence] "Although its chief economic value is a source of stem wood for construction, <i>P. filaris</i> is also esteemed as an elegant ornamental palm."
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

Qsn #	Question	Answer
408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	[No evidence, and unlikely given wet forest habitat] "Indigenous to New Guinea and the Moluccas, in Indonesia this distinctive palm is found in wet forests."

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Riffle, R.L. & Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"Given the fast growth rate of equatorial rain forest, they must grow quickly to outpace the other competing trees. They therefore require full sun even as seedlings and copious and regular moisture."
	Puccio, P. 2014. <i>Pigafetta filaris</i> . http://www.photomazza.com/?Pigafetta-filaris . [Accessed 3 Aug 2014]	"It reproduces by seed which germinates in 1-2 months at the temperature of 24-28 °C; the sowing must be done at the maximum luminosity, also in full sun, in the shade, the young plants do not develop and finally will die."
	Dave's Garden. 2014. PlantFiles: Wanga Palm, White Wanga Palm - <i>Pigafetta filaris</i> . http://davesgarden.com/guides/pf/go/62721/ . [Accessed 3 Aug 2014]	"Sun Exposure: Full Sun"
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	[Seedlings not tolerant of shade & adults grow in full sun] "It appears to be unusual among the palms of Southeast Asia in being adapted to growth in secondary habitats, in that it is fast-growing, tolerant sunlight, and produces enormous numbers of small fruit (p. 363)." ... "Seedlings can sometimes be found growing together in clumps on the forest floor, as though they have been deposited in animal faeces, but these plants rarely progress beyond the one-leaf stage, it appears that the seedlings are not tolerant of shade."

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Puccio, P. 2014. <i>Pigafetta filaris</i> . http://www.photomazza.com/?Pigafetta-filaris . [Accessed 3 Aug 2014]	"It is not demanding about the soil, it may grow up also on the poor ones, provided there is abundant availability of water all over the year, but, of course, takes advantage in presence of soils rich of organic substance and with regular fertilizations."
	Riffle, R.L. & Craft, P. 2003. <i>An Encyclopedia of Cultivated Palms</i> . Timber Press, Portland, OR.	"The palms survive in poor soil if supplied with enough water but only come into their own in a rich medium with humus; an organic mulch and a palm fertilizer with micronutrients help much, the latter especially important in the warmer parts of the year."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. <i>Cultivated Palms of the World</i> . UNSW Press, Sydney, Australia	"It has a very tall, green, broad, solitary trunk and a large crown of pinnate leaves with whitish stalks." [Arecaceae]

412	Forms dense thickets	
	Source(s)	Notes
	Hodel, D.R. 1993. <i>The Growth of Some Palms in Tahiti</i> . <i>Principes</i> 37(3): 124-138	[Unknown. Seedlings were demonstrating the potential to form thickets, which prompted Hodel to remove the staminate tree & the seedlings] "We planted three <i>Pigafetta</i> in 1981, and by 1988 the two pistillate ones had flowered and were dropping abortive, nonfertile fruits. By 1990, the third specimen had flowered and it was staminate, resulting in the ground beneath the trees being carpeted by seedlings of <i>Pigafetta</i> . In fact, they were coming up like hair on a dog's back and I was mowing them down as if they were grass. Alarmed by its propensity for reproduction and John Dransfield's observation that <i>Pigafetta</i> was a colonizer of disturbed areas, we cut down the staminate tree in 1990 to eliminate any possibilities of it escaping from cultivation and becoming naturalized in Tahiti."

501	Aquatic	n
	Source(s)	Notes
	Puccio, P. 2014. <i>Pigafetta filaris</i> . http://www.photomazza.com/?Pigafetta-filaris . [Accessed 3 Aug 2014]	[Terrestrial palm] "The plant is native to Indonesia (Maluku archipelago and Irian Jaya), where it grows up to 300 m of altitude on lavas, banks of water streams and margins of the forests, in open areas and in full sun; it acts as pioneer plant colonizing degraded areas."

Qsn #	Question	Answer
502	Grass	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	Arecaceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	Arecaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Leus, K. 1994. Foraging behaviour, food selection and diet digestion of <i>Babyrousa babyrussa</i> (Suidae, Mammalia). PhD Dissertation. The University of Edinburgh, Edinburgh, Scotland	"Massive tree palms and typical pioneer plants."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Leus, K. 1994. Foraging behaviour, food selection and diet digestion of <i>Babyrousa babyrussa</i> (Suidae, Mammalia). PhD Dissertation. The University of Edinburgh, Edinburgh, Scotland	" <i>Pigafetta filaris</i> or "wanga" is a Malesian rain forest palm which favours altitudes between 300 and 1000 meters and is very abundant in North Sulawesi."

602	Produces viable seed	y
	Source(s)	Notes
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	"It appears to be unusual among the palms of Southeast Asia in being adapted to growth in secondary habitats, in that it is fast-growing, tolerant sunlight, and produces enormous numbers of small fruit (p. 363)."
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"The small fruits are yellowish and fresh seed germinates rapidly in 4 weeks although some seed may take up to 6 months."

603	Hybridizes naturally	
	Source(s)	Notes

Qsn #	Question	Answer
	Riffle, R.L. & Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Unknown] "Pigafetta is a genus of two tall, solitary-trunked, pinnate-leaved, spiny, dioecious palms in Sulawesi, the Moluccas, and Irian Jaya ... " ... "The two species are similar to each other in general appearance, and only in 1998 did Dransfeld recognize the genus to contain two separate taxa, distinguished, among other characters, by their geographical distribution."

604	Self-compatible or apomictic	n
	Source(s)	Notes
	Tropical Species Database. 2014. <i>Pigafetta filaris</i> . http://tropical.theferns.info/viewtropical.php?id=Pigafetta+filaris . [Accessed 3 Aug 2014]	"A dioecious species, both male and female forms need to be grown if fruit and seed are required."
	eMonocot. 2014. <i>Pigafetta</i> (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	"Massive, solitary, armed, pleonanthic, dioecious, tree palms."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Zomlefer, W.B. 1994. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	"Although early monographers assumed that many palms were anemophilous, the flowers actually are predominantly entomophilous. Common insect vectors include beetles, Hymenoptera, and flies; bats and hummingbirds also have been noted (Henderson 1986)."
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[No evidence from morphology] "Inflorescences interfoliar at anthesis, branching to 2 orders; prophyll tightly sheathing; peduncular bracts ca. 8, tubular; flower-bearing part of rachilla exerted on bare basal stalk. Staminate flowers symmetrical; calyx 3-lobed; corolla exceeding calyx, 3-lobed; stamens 6, borne at mouth of corolla tube, filaments connate laterally in a low ring, anthers elongate, latrorse; pollen inaperturate, with finely reticulate, tectate exine; pistillode minute. Pistillate flowers globose."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Tropical Species Database. 2014. <i>Pigafetta filaris</i> . http://tropical.theferns.info/viewtropical.php?id=Pigafetta+filaris . [Accessed 3 Aug 2014]	[No evidence] "Wanga palm is a very fast and tall growing single-stemmed, evergreen palm tree that can reach a height of 50 metres. " ... "Propagation: Seed - pre-soak for 24 hours in warm water and sow in containers. The seed must be fresh - germination is usually rapid, sometimes taking less than a month[297]."

607	Minimum generative time (years)	>3
	Source(s)	Notes

Qsn #	Question	Answer
	PACSOA, 2013. Pigafetta cultivation. http://www.pacsoa.org.au/wiki/Pigafetta_cultivation . [Accessed 3 Aug 2014]	"If one is not concerned with details of appearances and manages to grow this palm well, they will be rewarded with its rapid growth. Just how fast does it grow? Some estimates suggest that it is capable of growing to something like 20m in under ten years, perhaps only eight years. This might sound fantastic, but once the growth of this species is seen on a daily basis, such figures are not so hard to believe. One of my plants is pushing out leaves at the rate of 10-15cm each day, the plant is presently less than 2m high and the stem base is seen to grow visibly wider each week. "
	Hodel, D.R. 1993. The Growth of Some Palms in Tahiti. <i>Principes</i> 37(3): 124-138	"Table 1. Palms in Papeari, August, 1990. 1 : years in ground, 2 : years in ground to flowering..." [Pigafetta filaris - years in ground to flowering = 6]
	eMonocot. 2014. Pigafetta (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	[Fast-growing. Time to maturity unspecified] "Pigafetta filaris also seems to be a pioneer species, but rather less is known of its behaviour in the wild. Both species have very small seeds for the size of the palm; that of <i>P. elata</i> shows staggered germination. These are the tallest recorded palm species in the Asian tropics, individuals sometimes reaching 50 m in height; both are also very fast growing (see Dransfield 1976b)."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	eMonocot. 2014. Pigafetta (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	[Small fruit, but lack means of external attachment] "Fruit relatively very small, ovoid, single-seeded; epicarp covered in neat vertical rows of reflexed scales, mesocarp thin, endocarp thin, not differentiated. Seed basally attached, laterally somewhat flattened, covered in thick sweet sarcotesta,"

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Wong, M. 2006. Palms for Hawaii Landscapes. Landscape L-19. College of Tropical Agriculture and Human Resources, Honolulu, HI	[Pigafetta filaris (pigafetta palm) promoted as an ornamental & landscaping tree] "The following palm species can be used to portray a strong "tropical" theme:" ... "The use of Pigafetta filaris along with ferns provides a strong "prehistoric" look."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	No evidence. Small fruit size, for a palm, could result in inadvertent dispersal, if grown near or with other plants. Unlikely given dioecism of trees, and size of seeds (ca. 12 mm) which would still make contamination detectable

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes

Qsn #	Question	Answer
	eMonocot. 2014. <i>Pigafetta</i> (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	"Fruit relatively very small, ovoid, single-seeded; epicarp covered in neat vertical rows of reflexed scales, mesocarp thin, endocarp thin, not differentiated. Seed basally attached, laterally somewhat flattened, covered in thick sweet sarcotesta,"

705	Propagules water dispersed	
	Source(s)	Notes
	Puccio, P. 2014. <i>Pigafetta filaris</i> . http://www.photomazza.com/?Pigafetta-filaris . [Accessed 3 Aug 2014]	[Distribution along streams suggests possible dispersal by water] "The plant is native to Indonesia (Maluku archipelago and Irian Jaya), where it grows up to 300 m of altitude on lavas, banks of water streams and margins of the forests, in open areas and in full sun; it acts as pioneer plant colonizing degraded areas."

706	Propagules bird dispersed	y
	Source(s)	Notes
	eMonocot. 2014. <i>Pigafetta</i> (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	[Presumably Yes. Small, fleshy-fruits] "Fruit relatively very small, ovoid, single-seeded; epicarp covered in neat vertical rows of reflexed scales, mesocarp thin, endocarp thin, not differentiated. Seed basally attached, laterally somewhat flattened, covered in thick sweet sarcotesta, endosperm homogeneous with very shallow depressions and laterally with a shallow pit; embryo lateral, opposite the pit."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	eMonocot. 2014. <i>Pigafetta</i> (Blume) Becc. http://e-monocot.org/taxon/urn:kew.org:wcs:taxon:156062 . [Accessed 3 Aug 2014]	[No means of external attachment. Fleshy-fruited & presumably adapted for internal dispersal] "Fruit relatively very small, ovoid, single-seeded; epicarp covered in neat vertical rows of reflexed scales, mesocarp thin, endocarp thin, not differentiated. Seed basally attached, laterally somewhat flattened, covered in thick sweet sarcotesta,"

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	Leus, K. 1994. Foraging behaviour, food selection and diet digestion of <i>Babyrousa babyrousa</i> (Suidae, Mammalia). PhD Dissertation. The University of Edinburgh, Edinburgh, Scotland	"In open forest seedlings can sometimes be found in small clusters suggesting dispersal by birds, squirrels, monkeys or other animals, but they appear not to progress beyond the one leaf stage. It appears that the seedlings are not tolerant of shade which is typical for pioneer plants (Dransfield, 1976; Whitten, 1987)."
	Tropical Species Database. 2014. <i>Pigafetta filaris</i> . http://tropical.theferns.info/viewtropical.php?id=Pigafetta+filaris . [Accessed 3 Aug 2014]	[Presumably Yes. Small, fleshy-fruited, and adapted for frugivory] "Fruit - occasionally eaten[297]. The ovoid fruit is about 12mm in diameter[200]."

801	Prolific seed production (>1000/m2)	y

Qsn #	Question	Answer
	Source(s)	Notes
	Whitten, T., Henderson, G., & Mustafa, M. 2013. Ecology of Sulawesi. Tuttle Publishing, North Clarendon, VT	"It appears to be unusual among the palms of Southeast Asia in being adapted to growth in secondary habitats, in that it is fast-growing, tolerant sunlight, and produces enormous numbers of small fruit (p. 363)."
	Hodel, D.R. 1993. The Growth of Some Palms in Tahiti. Principes 37(3): 124-138	"We planted three Pigafelta in 1981, and by 1988 the two pistillate ones had flowered and were dropping abortive, nonfertile fruits. By 1990, the third specimen had flowered and it was staminate, resulting in the ground beneath the trees being carpeted by seedlings of Pigafetta. In fact, they were coming up like hair on a dog's back and I was mowing them down as if they were grass."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	Tropical Species Database. 2014. <i>Pigafetta filaris</i> . http://tropical.theferns.info/viewtropical.php?id=Pigafetta+filaris . [Accessed 3 Aug 2014]	"Propagation. Seed - pre-soak for 24 hours in warm water and sow in containers. The seed must be fresh - germination is usually rapid, sometimes taking less than a month[297]."
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/ . [Accessed 3 Aug 2014]	"Storage Behaviour: No data available for species or genus. Of 107 known taxa of family ARECACEAE, 28.97% Orthodox(p/?), 27.10% Recalcitrant(?), 11.21% Intermediate(?), 32.71% Uncertain"
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"The small fruits are yellowish and fresh seed germinates rapidly in 4 weeks although some seed may take up to 6 months."

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Began naturalizing on Tahiti, until control was initiated
- Fast-growing & disturbance adapted
- Spines along the bases of its leaves
- Tolerates many soil types
- Numerous, small seeds (for a palm) dispersed by birds & intentionally by people
- Limited ecological information makes accurate risk prediction difficult

Low Risk Traits

- Not currently documented to be naturalized outside its native range
- Non-toxic
- Shade-intolerant
- Ornamental
- Dioecious
- Not reported to spread vegetatively

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Unknown if able to form dense stands. A light demanding tree, & shade intolerant

(B) Bird-dispersed?> Yes. Dispersed by birds

(C) Life cycle < 4 years? No. 6 years to maturity (but fast growth rate for palm)

Outcome = Evaluate