

Taxon: *Ptychosperma macarthurii* (H. Wendl. ex H. J. Veitch) *H. Wendl. ex Hook. f.*

Family: Arecaceae

Common Name(s): cluster palm
hurricane palm
Macarthur feather palm
Macarthur palm

Synonym(s): *Kentia macarthurii* H. Wendl. ex H. J. Veitch

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 30 Dec 2019

WRA Score: 4.0

Designation: H(HPWRA)

Rating: High Risk

Keywords: Clustering Palm, Naturalized, Shade-Tolerant, Irritant Fruit, Bird-Dispersed

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	y = 1*multiplier (see Appendix 2), n= question 205	y
302	Garden/amenity/disturbance weed		
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed		
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens	y=1, n=0	y
407	Causes allergies or is otherwise toxic to humans		

Qsn #	Question	Answer Option	Answer
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		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
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/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence of domestication] "Ornamental, invasive palms, weedy, frequently observed growing spontaneously in natural vegetation, tropical, elegant, beautiful ringed trunks, urban areas, courtyard, roadsides, landscaping, botanical gardens, roundabouts and gardens, specimen, foundation plantings, often planted in groups, outside containers, patios and verandhas, tub plant, indoor decoration"

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2019). 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
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	"In New Guinea and Australia, in Queensland and Northern Territory, in the first state from Torres Strait and Cape York Peninsula to southern Mcllwraith Range, and in the latter around Darwin."
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 27 Dec 2019]	"Native Asia-Tropical PAPUASIA: Indonesia, [Papua Barat] Papua New Guinea MALESIA: Indonesia [Maluku] Australasia AUSTRALIA: Australia [Queensland (n.)]"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 27 Dec 2019]	

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

Qsn #	Question	Answer
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	"Primarily in lowland and hillslope rainforests, but also in monsoon forest, littoral closed forest and brackish mangroves, 0–400 m asl"
	PACSOA. (2013). Palms: <i>Ptychosperma macarthurii</i> . http://www.pacsoa.org.au/wiki/Ptychosperma_macarthurii . [Accessed 30 Dec 2019]	"This highly attractive palm has a fairly limited distribution, from the southern MacIllwraith Ranges in north-eastern Cape York Peninsula to Cape York and various Torres Strait Islands, north to the region around the Fly River delta in almost lowlands east of the Great Divide, however the present author has observed a rather small colony of it along the lower Wenlock River in north-western Cape York Peninsular."
	Gilman, E.F. & Watson, D.G. (2006). <i>Ptychosperma macarthurii</i> : Macarthur Palm. ENH-693. Revised. University of Florida, IFAS, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 30 Dec 2019]	"USDA hardiness zones: 10B through 11"

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 30 Dec 2019]	"Native Asia-Tropical PAPUASIA: Indonesia, [Papua Barat] Papua New Guinea MALESIA: Indonesia [Maluku] Australasia AUSTRALIA: Australia [Queensland (n.)]"
	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	"The MacArthur palm (<i>Ptychosperma macarthurii</i>) and the date palm (<i>Phoenix dactylifera</i>) are widely naturalized in Fiji (Smith 1979, Watling 2005), the first species along drainages, fence lines and vacant lots in urban areas and the second forming large populations of about 1000 adult trees in the Nadi area and surrounding cane fields (Fuller 1997). The MacArthur palm is also naturalized in Panama (Svenning 2002), Singapore (Hsuan Keng et al. 1998) and the islands of Guadeloupe and Martinique in the Lesser Antilles (Delnatte 2003,) and is considered invasive in Barbados (Kairo et al. 2003)."

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"Macarthur palm is native to south-central New Guinea and the Cape York Peninsula, Australia. It is by far the common-est <i>Ptychosperma</i> species grown in Hawai'i today, though in 1917 there were just two specimens growing in Honolulu."

Qsn #	Question	Answer
	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	"The MacArthur palm (<i>Ptychosperma macarthurii</i>) and the date palm (<i>Phoenix dactylifera</i>) are widely naturalized in Fiji (Smith 1979, Watling 2005)," ... "The MacArthur palm is also naturalized in Panama (Svenning 2002), Singapore (Hsuan Keng et al. 1998) and the islands of Guadeloupe and Martinique in the Lesser Antilles (Delnatte 2003,) and is considered invasive in Barbados (Kairo et al. 2003)." ... "the MacArthur palm (<i>P. macarthurii</i>), native to Queensland and New Guinea and also locally naturalized on the island of Kauai in the Hawaiian Islands (D. Lorence, pers. comm. 2007)"

301	Naturalized beyond native range	y
	Source(s)	Notes
	Flora of North America Editorial Committee. 2000, <i>Flora of North America: North of Mexico</i> , Volume 22. Oxford University Press, Oxford, UK	"Moist organic soil over limestone in mesic hammocks and disturbed wooded areas; 0--10 m; introduced; Fla.; n Australia; Pacific Islands; native, to s New Guinea, and n Australia."
	Keng, H., Chin, S.C. & Tan, H.T.W. (1998). <i>The Concise Flora of Singapore: Monocotyledons</i> , Volume 2. Singapore University Press, Singapore	"Native of New Guinea; commonly cultivated in gardens. Seeds dispersed by birds; naturalized."
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	"References: United States of America-CE- 617, Panama-CENI-625, Caribbean-N-707, Global-NI-714, United States of America- N-101, Africa-W-990, United States of America-N-1114, United States of America-Q-1197, South Africa-U-1247, Caribbean-NI-1201, Singapore-N-1290, La Reunion-W-1321, Global-N-1338, Global- W-1376, Global-I-1404, Cuba-N-1505, French Polynesia-N-1514, Global-CD- 1611, Eastern Caribbean-N-1742, Singapore-N-1839, South Africa-N-1991, Cuba-NI-2055, United States of America- N-2092, Cuba-W-1977, Honduras-W-1977, Marshall Islands-W-1977, Micronesia (Federated States of)-W-1977, Nicaragua- W-1977, Panama-W-1977, Papua New Guinea-W-1977, Saint Lucia-W-1977, Singapore-W-1977, South Africa-W-1977, Global--1324."

Qsn #	Question	Answer
	Svenning, J. C. (2002). Non-native ornamental palms invade a secondary tropical forest in Panama. <i>Palms</i> 46(2): 81-86	"Status of the non-native species: Of these eight species, at least four appear completely naturalized, all having many reproductive adults in the forest and lots of regeneration: <i>Roystonea regia</i> occurs in high abundance as both seedlings (Fig. 1) and juveniles throughout and appears to be more or less taking over a wet, central part of the forest. It is also quite frequent as large subadults and adults all over the forest, and is by far the most abundant palm reaching the upper canopy. <i>Ptychosperma macarthurii</i> (Fig. 2) and <i>Areca triandra</i> (Fig. 3) are abundant as seedlings, juveniles, and adults in the western half of the forest and sometimes completely dominate the understory. While <i>Aiphanes aculeata</i> is less abundant, it is nevertheless common both as immature and adult individuals in most of the forest." ... "The distribution of most of the exotic palms suggests that they are currently dispersal limited within the Gamboa forest: With exception of <i>Roystonea regia</i> and <i>Aiphanes aculeata</i> , the other species are all highly concentrated in parts closest to the main garden source areas. Thus, given time at least the well-naturalized <i>Areca triandra</i> and <i>Ptychosperma macarthurii</i> must be expected to spread and become abundant in all of the forest." ... "Euterpe oleracea and <i>Ptychosperma macarthurii</i> are also well naturalized in the adjacent forest, the first dominating large tracts of swamp forest."
	Daehler, C. C. & Baker, R. F. 2006. New Records of Naturalized and Naturalizing Plants Around Lyon Arboretum, Mānoa Valley, O'ahu. Bishop Museum Occasional Papers 87: 3-18	[Oahu. Lyon Arboretum] "Native to New Guinea and northern Queensland, these palms are clustered, with the ends of the leaflets ragged (appearing torn off). The fruits are small, red, and irritating to the skin (containing calcium oxalate), with seeds 5-lobed in cross section. First planted in the Arboretum in 1924 and first noted as volunteering in the Lyon Arboretum 1938 annual report. Mature, naturalized plants can be found widely scattered across the Arboretum, with seedlings occurring at high densities beneath mature plants. The seeds are presumed to be bird-dispersed. Material examined: O'AHU: Lyon Arboretum (cultivated material), 17 Jul 1968, F.B. Essig 680719 (HLA)."
	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	[Pacific Islands and possibly Kauai] "The MacArthur palm (<i>Ptychosperma macarthurii</i>) and the date palm (<i>Phoenix dactylifera</i>) are widely naturalized in Fiji (Smith 1979, Watling 2005), the first species along drainages, fence lines and vacant lots in urban areas and the second forming large populations of about 1000 adult trees in the Nadi area and surrounding cane fields (Fuller 1997). The MacArthur palm is also naturalized in Panama (Svenning 2002), Singapore (Hsuan Keng et al. 1998) and the islands of Guadeloupe and Martinique in the Lesser Antilles (Delnatte 2003,) and is considered invasive in Barbados (Kairo et al. 2003)." ... "the MacArthur palm (<i>P. macarthurii</i>), native to Queensland and New Guinea and also locally naturalized on the island of Kauai in the Hawaiian Islands (D. Lorence, pers. comm. 2007)"

302	Garden/amenity/disturbance weed	
	Source(s)	Notes
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Ornamental, invasive palms, weedy, frequently observed growing spontaneously in natural vegetation"

Qsn #	Question	Answer
	Daehler, C. C. & Baker, R. F. 2006. New Records of Naturalized and Naturalizing Plants Around Lyon Arboretum, Mānoa Valley, Oʻahu. Bishop Museum Occasional Papers 87: 3-18	[No negative impacts documented at time of publication] "First planted in the Arboretum in 1924 and first noted as volunteering in the Lyon Arboretum 1938 annual report. Mature, naturalized plants can be found widely scattered across the Arboretum, with seedlings occurring at high densities beneath mature plants. The seeds are presumed to be bird-dispersed."
	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	[Occurs in disturbed habitats] "The MacArthur palm (<i>Ptychosperma macarthurii</i>) and the date palm (<i>Phoenix dactylifera</i>) are widely naturalized in Fiji (Smith 1979, Watling 2005), the first species along drainages, fence lines and vacant lots in urban areas and the second forming large populations of about 1000 adult trees in the Nadi area and surrounding cane fields"

303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	
	Source(s)	Notes
	Daehler, C. C. & Baker, R. F. 2006. New Records of Naturalized and Naturalizing Plants Around Lyon Arboretum, Mānoa Valley, Oʻahu. Bishop Museum Occasional Papers 87: 3-18	"Mature, naturalized plants can be found widely scattered across the Arboretum, with seedlings occurring at high densities beneath mature plants." [Suggests potential to become a nuisance and perhaps compete with, or exclude, other desirable vegetation]
	Svenning, J. C. (2002). Non-native ornamental palms invade a secondary tropical forest in Panama. <i>Palms</i> 46(2): 81-86	" <i>Ptychosperma macarthurii</i> (Fig. 2) and <i>Areca triandra</i> (Fig. 3) are abundant as seedlings, juveniles, and adults in the western half of the forest and sometimes completely dominate the understory." [Suggests ability to compete with and potentially exclude other desirable vegetation]
	Krauss, U. (2013). Invasive Alien Species Management in St. Lucia and Caribbean Partner Countries. Pp 196-206 in <i>Biodiversité insulaire</i> . DEAL Martinique, Schoelcher	"Table 1. Invasive Alien Species present in Saint Lucia and their status in 2010" ... " <i>Ptychosperma macarthurii</i> Present in disturbed forest: Union, Morne Fortune; potential threat to semi-evergreen seasonal forest"

305	Congeneric weed	
	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	[Naturalized, but with no impacts specified] "At least nine other palm species are locally naturalized in the JBHS. These include the Indo-Malaysian betel nut (<i>Areca catechu</i>); the solitaire palm (<i>Ptychosperma elegans</i>), native to Queensland, Australia, which is also known to be naturalized in the Caribbean Islands (Delnatte 2003, Kairo et al. 2003)" ... "The Senegal date palm (<i>Phoenix reclinata</i>), the queen palm (<i>Syagrus romanzoffiana</i>), the solitaire palm (<i>Ptychosperma elegans</i>) and the bamboo palm (<i>Chamaedorea seifrizii</i>) are reported to be naturalized in Florida"

Qsn #	Question	Answer
	Morton, J.F. 1976. Pestiferous spread of many ornamental and fruit species in South Florida. Proceedings of the Florida State Horticultural Society 89: 348-353	[<i>P. elegans</i> regarded among "lesser public nuisances"] "By way of grading this alien vegetation, I have marked the most serious threats with 3 asterisks; others which are lesser public nuisances, with 2 asterisks- those which are important private nuisances with 1 asterisk."... " <i>Ptychosperma elegans</i> Blume. SOLITAIRE PALM. Australia. Seedlings are springing up in abundance in hedges and shady dooryards."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	[No evidence] "Stems slender to robust, leaning to erect, unarmed; leafscars prominent to obscure; internodes short to long." ... "Stems clustered, 2–8 dominant, to 10 m tall, 3–7 cm dbh, slightly expanded at the base, occasionally leaning to prostrate with crown erect; leafscars raised, 15 mm wide, grey; internodes to 16 cm long, at first green, ageing to grey. Leaves 4–10, to 3 m long, arched, 15–40 pinnae each side of rachis; crownshaft 30–60 cm long, deciduously whitewoolly and often with coarse dark scales in patches in the upper part; ligule to 4 cm long; petiole 13–58 cm long, finely brown-lepidote with tiny punctiform to lacerate-peltate scales; rachis about 100–200 cm long, lepidote like petiole or more coarsely so above. Pinnae regular to subopposite, or grouped; basal pinnae crowded and reduced; midleaf pinnae 20–56 cm long, 2–5.7 cm wide, apex obliquely praemorse or shallowly praemorse-notched; apical pinnae basally joined, with 1–4 ribs; ramenta basifixed, narrow, dark, twisted, to about 8 mm long, or sometimes lacking."

402	Allelopathic	n
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown. No evidence found

403	Parasitic	n
	Source(s)	Notes
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Very variable, small to medium, multiple-trunked feather-leaved palm, clump-forming or occasionally solitary, weak and slender, occasionally leaning to prostrate with crown erect," [Arecaceae. No evidence]

404	Unpalatable to grazing animals	n
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown

405	Toxic to animals	n
	Source(s)	Notes

Qsn #	Question	Answer
	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	"Moreover, several palm species with small fruits (<i>Ptychosperma macarthurii</i> in Fiji [Watling 2005], <i>Licuala grandis</i> and <i>Dypsis madagascariensis</i> in Tahiti, <i>Washingtonia robusta</i> in La Réunion) are actively dispersed by alien frugivorous birds, especially mynas (<i>Acridotheres tristis</i> in many tropical islands, and <i>A. fuscus</i> in Fiji) the bulbuls (<i>Pycnonotus cafer</i> and <i>P. jocosus</i>), over long distances."
	Quattrocchi, U. (2017). <i>CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Plants associated with dermatitis." [Human impacts. No evidence of toxicity to animals]
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"The flesh of the fruit is an irritant." [Refers to human handling of fruit]

406	Host for recognized pests and pathogens	y
	Source(s)	Notes
	Quattrocchi, U. (2017). <i>CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Host of <i>latania</i> scale <i>Hemiberlesia lataniae</i> (Hemiptera, Coccoidea, Diaspididae) and of palm mealybug <i>Palmicultor palmarum</i> (Homoptera, Pseudococcidae). In South Florida, susceptible to <i>Phytophthora</i> sp. Host of the red palm mite (coconut red mite, frond crimson mite, leaflet false spider mite, red date palm mite, or scarlet mite), <i>Raoiella indica</i> (Acari, Trombidiformes, Tenuipalpidae), a serious pest." ... "Host palm of Coconut cadang-cadang viroid. In AsiaPacific regions <i>Ptychosperma elegans</i> and <i>Ptychosperma macarthurii</i> are host palm trees of <i>Brontispa longissima</i> (Coleoptera, Chrysomelidae, Hispinae) (coconut hispine beetle, coconut leaf beetle, coconut leaf hispid, palm leaf beetle, twocoloured coconut leaf beetle); prolonged attacks on young palms can lead to their death; two parasitoids of coconut leaf beetle viz., <i>Tetrastichus brontispae</i> and <i>Asecodes hispinarum</i> (Hymenoptera, Eulophidae), have been successfully used in several countries to control the beetle. Host of the whiteflies <i>Aleurodicus cocois</i> (coconut whitefly) and <i>Tetraleurodes</i> sp., (Hemiptera, Aleyrodidae). This palm is lethal yellowingresistant. Sooty mold sometimes coats the trunk. The silky cane weevil <i>Metamasius hemipterus sericeus</i> (Coleoptera, Curculionioidea, Dryophthoridae) is a pest of sugarcane, palms, banana and pineapple in Central and South America, the Caribbean and Africa; a significant pest of ornamental palm species, including <i>Hyophorbe verschaffeltii</i> , <i>Phoenix canariensis</i> , <i>Ptychosperma macarthurii</i> , <i>Ravenea rivularis</i> , <i>Roystonea regia</i> and <i>Washingtonia robusta</i> , apparently attack otherwise healthy palms."

407	Causes allergies or is otherwise toxic to humans	
	Source(s)	Notes
	PACSOA. (2013). <i>Palms: Ptychosperma macarthurii</i> . http://www.pacsoa.org.au/wiki/Ptychosperma_macarthurii . [Accessed 30 Dec 2019]	"In the Lockhart River region the Palm is called 'Achar' by the Aboriginal people and was formerly a food, the tender "cabbage" being eaten."
	Quattrocchi, U. (2017). <i>CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"Plants associated with dermatitis." [Potential irritant]

Qsn #	Question	Answer
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"The flesh of the fruit is an irritant." [Possibly if fruit are handled]

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	"Primarily in lowland and hillslope rainforests, but also in monsoon forest, littoral closed forest and brackish mangroves, 0–400 m asl" [No evidence. A plant of humid wet forests]

409	Is a shade tolerant plant at some stage of its life cycle	y
	Source(s)	Notes
	Dehgan, B. (1998) Landscape Plants for Subtropical Climates. University Press of Florida, Gainesville, FL	"Culture: partial shade best, but tolerates full sun and dense shade."
	Gilman, E.F. & Watson, D.G. (2006). <i>Ptychosperma macarthurii</i> : Macarthur Palm. ENH-693. Revised. University of Florida, IFAS, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 30 Dec 2019]	"Light requirement: full sun, partial sun or partial shade, shade tolerant"
	PACSOA. (2013). Palms: <i>Ptychosperma macarthurii</i> . http://www.pacsoa.org.au/wiki/Ptychosperma_macarthurii . [Accessed 30 Dec 2019]	" <i>P. macarthurii</i> is a small palm of moist rainforests and broad-leaved riverain gallery forests and favours light to moderate shade, a rich, moist loamy or sandy soil and a high humidity. In places where a large tree has fallen, letting in more light than is usual, this plant responds with great vigor." ... "In heavy shade the plants can mature (flower) when only 2m tall and with stems only 1-3c.m. in diameter while those experiencing stronger light are larger. Stems can attain heights of up to 15m. but are commonly 5-8m. The adaptability of this species under varying light conditions is such that a specimen can be made to suit any site under cultivation."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places. Bishop Museum Press, Honolulu, HI	"It requires full to filtered sun, rich, well-drained soil, plenty of water, and some wind protection."
	PACSOA. (2013). Palms: <i>Ptychosperma macarthurii</i> . http://www.pacsoa.org.au/wiki/Ptychosperma_macarthurii . [Accessed 30 Dec 2019]	" <i>P. macarthurii</i> is a small palm of moist rainforests and broad-leaved riverain gallery forests and favours light to moderate shade, a rich, moist loamy or sandy soil and a high humidity." ... "This species is also tolerant of a wide range of soil conditions."
	Gilman, E.F. & Watson, D.G. (2006). <i>Ptychosperma macarthurii</i> : Macarthur Palm. ENH-693. Revised. University of Florida, IFAS, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 30 Dec 2019]	"Soil tolerances: clay; sand; loam; slightly alkaline; acidic; well-drained" ... "Macarthur Palm prefers partial shade but will tolerate full sun or dense shade on any well-drained soil. Abundant moisture will allow it to look its best because it will keep more leaves."

411	Climbing or smothering growth habit	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Very variable, small to medium, multiple-trunked feather-leaved palm, clump-forming or occasionally solitary, weak and slender, occasionally leaning to prostrate with crown erect,"

412	Forms dense thickets	
	Source(s)	Notes
	Daehler, C. C. & Baker, R. F. 2006. New Records of Naturalized and Naturalizing Plants Around Lyon Arboretum, Mānoa Valley, Oahu. Bishop Museum Occasional Papers 87: 3-18	"Mature, naturalized plants can be found widely scattered across the Arboretum, with seedlings occurring at high densities beneath mature plants."
	Svenning, J. C. (2002). Non-native ornamental palms invade a secondary tropical forest in Panama. <i>Palms</i> 46(2): 81-86	" <i>Ptychosperma macarthurii</i> (Fig. 2) and <i>Areca triandra</i> (Fig. 3) are abundant as seedlings, juveniles, and adults in the western half of the forest and sometimes completely dominate the understory." [Ability to dominate understory suggests potential to form dense stands if seedlings and understory plants reach maturity]

501	Aquatic	n
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	[Terrestrial, but in close proximity to aquatic habitats] "Primarily in lowland and hillslope rainforests, but also in monsoon forest, littoral closed forest and brackish mangroves, 0–400 m asl"

502	Grass	n
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2019). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. https://npgsweb.ars-grin.gov/ . [Accessed 27 Dec 2019]	Family: Arecaceae (alt.Palmae) Subfamily: Arecoideae Tribe: Areceae Subtribe: Ptychospermatinae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	Family: Arecaceae (alt.Palmae) Subfamily: Arecoideae Tribe: Areceae Subtribe: Ptychospermatinae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Very variable, small to medium, multiple-trunked feather-leaved palm, clump-forming or occasionally solitary, weak and slender, occasionally leaning to prostrate with crown erect,"

Qsn #	Question	Answer
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	"Conservation status – No present threats (Queensland), Endangered (Northern Territory) (NRETAS 2009)."
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Ornamental, invasive palms, weedy, frequently observed growing spontaneously in natural vegetation"

602	Produces viable seed	y
	Source(s)	Notes
	Gilman, E.F. & Watson, D.G. (2006). <i>Ptychosperma macarthurii</i> : Macarthur Palm. ENH-693. Revised. University of Florida, IFAS, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 30 Dec 2019]	"Propagation is by seed."
	Nagao, M. A., Kanegawa, K., & Sakai, W. S. (1980). Accelerating palm seed germination with gibberellic acid, scarification, and bottom heat. <i>HortScience</i> , 15(2), 200-201	"Scarification or soaking in water or 1000 p.p.m. GA accelerated seed germination of <i>Archontophoenix alexandrae</i> . <i>Ptychosperma macarthurii</i> germination was also accelerated after scarification or soaking in 1000 p.p.m. GA. However, in both species greatest acceleration was obtained when the scarification and GA treatments were combined. Germination time of <i>P. macarthurii</i> was reduced by 6 weeks in beds heated to 27 deg C."
	Yeo, H. H., Chong, K. Y., Yee, A. T., Giam, X., Corlett, R. T., & Tan, H. T. (2014). Leaf litter depth as an important factor inhibiting seedling establishment of an exotic palm in tropical secondary forest patches. <i>Biological Invasions</i> , 16 (2), 381-392	"The bright-red, single-seeded fruits of the palm (ca. 12–16 mm) have been observed to be fed on by frugivorous birds such as the red-eyed bulbul (<i>Pycnonotus brunneus</i>), cream-vented bulbul (<i>Pycnonotus simplex</i>), yellow-vented bulbul (<i>Pycnonotus goaivier</i>), and the red-crowned barbet (<i>Megalaima rafflesii</i>) (Lok et al. 2010), as well as, from our own observations, by the Asian glossy starling (<i>Aplonis panayensis</i>) and an urban exotic pest bird, the Javan myna (<i>Acridotheres javanicus</i>)."

603	Hybridizes naturally	
	Source(s)	Notes
	Dowe, J. L. (2007). <i>Ptychosperma macarthurii</i> : discovery, horticulture and taxonomy. <i>Palms</i> , 51(2), 85-96	[Possibly, but needs further study] "Palms identified as <i>Ptychosperma macarthurii</i> are among the most commonly cultivated in tropical areas of the world. Some reports purport that most plants in cultivation under this name are indeed hybrids between the wild progenitors of <i>P. macarthurii</i> and other <i>Ptychosperma</i> species (Essig 1977, 1978, Hay 1984, Shapcott 1998). However this situation has not been investigated to any satisfactory degree, and it may well be that the phenotypic variation seen in cultivated plants may be the response to cultural conditions, or possibly an expression of the degree of variation that occurs naturally in wild populations (Tucker 1984)."

604	Self-compatible or apomictic	
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Qsn #	Question	Answer
	Source(s)	Notes
	Cruden, R. W. (1988). Temporal dioecism: systematic breadth, associated traits, and temporal patterns. <i>Botanical Gazette</i> , 149(1), 1-15	"Temporal dioecism, the temporal alternation of pistillate and staminate functions within a plant, is a relatively common mating system among flowering plants" ... "Table 1. Reproductive Traits of Temporally Dioecious Species" [<i>Ptychosperma macarthurii</i> included in table. Self-compatibility unknown, but temporal alternation of pistillate and staminate functions may minimize opportunity for selfing]
	Dowe, J.L. 2010. <i>Australian Palms: Biogeography, Ecology and Systematics</i> . CSIRO Publishing, Collingwood, Australia	[Genus is monoecious] "Solitary or clustering, small to moderate, pleonanthic, monoecious palms."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Henderson, A. 1986. A review of pollination studies in the Palmae. <i>The Botanical Review</i> , 52(3): 221-259	" <i>Ptychosperma macarthurii</i> (Wendi.) Nichols is monoecious, protandrous, and has unisexual flowers in triads. Essig (1973) reported on its pollination in the Lae Botanic Garden, New Guinea. After the prophyll and peduncular bract had fallen, flower buds were still immature, and continued to develop for three months. Staminate flowers opened first. Opening was random over the inflorescence, with only one member of a triad pair opening at any one time. Nectar was secreted by the pistillode. Flowers lasted from dawn to midmorning and then fell to the ground. Staminate anthesis lasted for two weeks, and three or four days after completion pistillate anthesis began. Nectar was secreted by pistillate flowers. Visitors to the inflorescence were halictid and apid bees, and syrphid, calliphorid, and drosophilid flies. Essig concluded that <i>Nomia</i> bees were the most likely pollinators."
	Kiew, R., & Muid, M. (1989). Bees and palms in Peninsular Malaysia. <i>Principes</i> 33(2): 74-77	"The following palms are known to be foraged on by <i>Apis cerana</i> : coconut, sago (<i>Metroxylon sagu</i>), Manila palm (<i>Veitchia merrillii</i>), MacArthur palm (<i>Ptychosperma macarthurii</i>), betel nut (<i>Areca catechu</i>), royal palm (<i>Roystonea regia</i>), sugar palm (<i>Arenga pinnata</i>), princess palm (<i>Dictyosperma album</i>), <i>Arenga westerhoutii</i> , oil palm (<i>Elaeis guineensis</i>). <i>Apis dorsata</i> and <i>Trigona</i> species also forage on a wide range of palms."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Gilman, E.F. & Watson, D.G. (2006). <i>Ptychosperma macarthurii</i> : Macarthur Palm. ENH-693. Revised. University of Florida, IFAS, Gainesville, FL. http://edis.ifas.ufl.edu . [Accessed 30 Dec 2019]	"Propagation is by seed."
	Dowe, J.L. 2010. <i>Australian Palms: Biogeography, Ecology and Systematics</i> . CSIRO Publishing, Collingwood, Australia	"Stems clustered, 2–8 dominant, to 10 m tall, 3–7 cm dbh, slightly expanded at the base, occasionally leaning to prostrate with crown erect" [Clustered, but no evidence that trees spread vegetatively]

607	Minimum generative time (years)	2
	Source(s)	Notes

Qsn #	Question	Answer
	PACSOA. (2013). Palms: <i>Ptychosperma macarthurii</i> . http://www.pacsoa.org.au/wiki/Ptychosperma_macarthurii . [Accessed 30 Dec 2019]	[2-3 years to maturity] "The juveniles grow moderately at first but after forming their 8th - 10th leaf increase in vigor and should attain maturity in 2-3 years."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	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	"actively dispersed by alien frugivorous birds"
	Dowe, J.L. 2010. <i>Australian Palms: Biogeography, Ecology and Systematics</i> . CSIRO Publishing, Collingwood, Australia	"Fruit irregular-ovoid, 12–18 mm long, 8–12 mm diam.; stigmatic remains c. 1.5 mm high; epicarp 0.1–0.2 mm thick, bright red at maturity; mesocarp succulent and watery, 3–4 mm thick, tawny fibres thin; endocarp 0.2–0.4 mm thick; perianth c. 6 mm high, not persistent on fruit. Seed ovoid, 9–12 mm long, 5–7 mm diam.; endosperm homogeneous." [No evidence. No means of attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	"It is by far the commonest <i>Ptychosperma</i> species grown in Hawai'i today"
	Dowe, J. L. (2007). <i>Ptychosperma macarthurii</i> : discovery, horticulture and taxonomy. <i>Palms</i> , 51(2), 85-96	" <i>Ptychosperma macarthurii</i> is one of the world's most popular ornamental palms, proving adaptable to a broad range of climatic and cultural conditions. Contrary to this apparent adaptability, the species is relatively uncommon in its native habitats in southern New Guinea and northern Australia, and otherwise occupies a narrow ecological niche."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Dowe, J.L. 2010. <i>Australian Palms: Biogeography, Ecology and Systematics</i> . CSIRO Publishing, Collingwood, Australia	"Seed ovoid, 9–12 mm long, 5–7 mm diam.; endosperm homogeneous." [No evidence. Unlikely. Seeds relatively large and lose viability relatively quickly]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Quattrocchi, U. (2017). <i>CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"densely packed bright red ovoid-elongate fruits forming showy hanging arching bunches, clasping calyx, seed deeply 5-grooved" ... "the bright-red single-seeded fruits of the palm observed to be fed on by frugivorous birds"

705	Propagules water dispersed	

Qsn #	Question	Answer
	Source(s)	Notes
	Dowe, J.L. 2010. Australian Palms: Biogeography, Ecology and Systematics. CSIRO Publishing, Collingwood, Australia	"Primarily in lowland and hillslope rainforests, but also in monsoon forest, littoral closed forest and brackish mangroves, 0–400 m asl" [Water may facilitate seed dispersal when growing in proximity to mangrove forests and similar habitats]
	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	[Occurs in drainages, suggesting water may play a role in seed dispersal] "The MacArthur palm (<i>Ptychosperma macarthurii</i>) and the date palm (<i>Phoenix dactylifera</i>) are widely naturalized in Fiji (Smith 1979, Watling 2005), the first species along drainages, fence lines and vacant lots in urban areas and the second forming large populations of about 1000 adult trees in the Nadi area and surrounding cane fields"

706	Propagules bird dispersed	y
	Source(s)	Notes
	Svenning, J. C. (2002). Non-native ornamental palms invade a secondary tropical forest in Panama. <i>Palms</i> 46(2): 81-86	"Close to a direct observation of bird-mediated dispersal from Gamboa into the forest, I once observed a Blue-crowned Motmot (<i>Momotus momota</i>) flying out from the forest and sitting for several minutes eating (swallowing, and not regurgitating) <i>Ptychosperma macarthurii</i> fruits and then flying back into the forest."
	Elsamol, K. B., Sreekumar, V. B., Thasini, V. M., & Nimisha, E. S. (2019). Avian frugivory and seed dispersal of an exotic palm <i>Ptychosperma macarthurii</i> (<i>H. Wendl. ex H. J. Veitch</i>) <i>H. Wendl. ex Hook. f.</i> <i>Tropical Ecology</i> , 60(1), 159-162	"Frugivory and seed dispersal of <i>Ptychosperma macarthurii</i> were studied at Palmetum of KFRI Peechi campus. The whole day was divided into four time intervals morning (07.00–10.00), midday (10.00–01.00), afternoon (01.00–04.00), evening (04.00–07.00) for data collection. It was recorded that 13 bird species belonging to 11 families have been found to feed the ripened fruits of this exotic palm. The frugivores are <i>Ocyrceros griseus</i> , <i>Psilopogon viridis</i> , <i>Dendrocitta vagabunda</i> , <i>Eudynamys scolopaceus</i> , <i>Copsychus saularis</i> , <i>Spilopelia chinensis</i> , <i>Oriolus xanthomonas</i> , <i>Turdus simillimus</i> , <i>Myophonus horsfieldii</i> , <i>Pycnonotus cafer</i> , <i>Acridotheres javanicus</i> , <i>Acridotheres tristis</i> and <i>Pycnonotus jacusus</i> . In the present study, birds preferred maximum feeding visit during morning and midday hours and minimum during evening and afternoon hours. Among 13 avian frugivores observed, Myna (2 species) and Rufous treepie made their fruit feeding visits in group and with other species and remaining species visited as single as well as with other species. It had been observed that, among avian frugivores, <i>D. vagabunda</i> consumed maximum number of fruits (average 6, n = 2) to be followed by <i>A. javanicus</i> (average 5, n = 2) <i>O. griseus</i> (average 9, n = 4) and appeared to be the major dispersers of <i>P. macarthurii</i> seeds."

Qsn #	Question	Answer
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"In Singapore, the bright-red single-seeded fruits of the palm observed to be fed on by frugivorous birds such as the red-eyed bulbul (<i>Pycnonotus brunneus</i>), cream-vented bulbul (<i>Pycnonotus simplex</i>), yellow-vented bulbul (<i>Pycnonotus goavier</i> or <i>Pycnonotus goavier</i>), and the red-crowned barbet (<i>Megalaima rafflesii</i>), the Asian glossy starling (<i>Aplonis panayensis</i>) and an urban exotic pest bird, the Javan myna (<i>Acridotheres javanicus</i>). Several palm species with small fruits (<i>Ptychosperma macarthurii</i> in Fiji, <i>Licuala grandis</i> and <i>Dypsis madagascariensis</i> in Tahiti, <i>Washingtonia robusta</i> in La Réunion) are actively dispersed by alien frugivorous birds, especially mynas (<i>Acridotheres tristis</i> in many tropical islands, and <i>Acridotheres fuscus</i> in Fiji), the endemic fruit dove <i>Ptilinopus purpuratus</i> (which is a generalist frugivorous wild pigeon found in mid-elevation rain forests in the Society Islands), the bulbuls (red-vented bulbul <i>Pycnonotus cafer</i> and <i>Pycnonotus jocosus</i>), over long distances."
	Yeo, H. H., Chong, K. Y., Yee, A. T., Giam, X., Corlett, R. T., & Tan, H. T. (2014). Leaf litter depth as an important factor inhibiting seedling establishment of an exotic palm in tropical secondary forest patches. <i>Biological Invasions</i> , 16 (2), 381-392	"The bright-red, single-seeded fruits of the palm (ca. 12–16 mm) have been observed to be fed on by frugivorous birds such as the red-eyed bulbul (<i>Pycnonotus brunneus</i>), cream-vented bulbul (<i>Pycnonotus simplex</i>), yellow-vented bulbul (<i>Pycnonotus goavier</i>), and the red-crowned barbet (<i>Megalaima rafflesii</i>) (Lok et al. 2010), as well as, from our own observations, by the Asian glossy starling (<i>Aplonis panayensis</i>) and an urban exotic pest bird, the Javan myna (<i>Acridotheres javanicus</i>)."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Dowe, J. L. (2007). <i>Ptychosperma macarthurii</i> : discovery, horticulture and taxonomy. <i>Palms</i> , 51(2), 85-96	"Fruit irregular-ovoid, 12–18 mm long, 8–12 mm diam.; stigmatic remains c. 1.5 mm high; epicarp 0.1–0.2 mm thick, bright red at maturity; mesocarp succulent and watery, 3–4 mm thick, tawny fibres thin; endocarp 0.2–0.4 mm thick; perianth c. 6 mm high, not persistent on fruit. Seed ovoid, 9–12 mm long, 5–7 mm diam.; endosperm homogeneous." [No means of attachment. Seeds may possibly be dispersed externally by rodents, mongoose or other animals consuming the pulp, or caching the seeds]

708	Propagules survive passage through the gut	y
	Source(s)	Notes
	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	[Presumably yes. Bird-dispersed] "Moreover, several palm species with small fruits (<i>Ptychosperma macarthurii</i> in Fiji [Watling 2005], <i>Licuala grandis</i> and <i>Dypsis madagascariensis</i> in Tahiti, <i>Washingtonia robusta</i> in La Réunion) are actively dispersed by alien frugivorous birds, especially mynas (<i>Acridotheres tristis</i> in many tropical islands, and <i>A. fuscus</i> in Fiji) the bulbuls (<i>Pycnonotus cafer</i> and <i>P. jocosus</i>), over long distances."

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes

Qsn #	Question	Answer
	Daehler, C. C. & Baker, R. F. 2006. New Records of Naturalized and Naturalizing Plants Around Lyon Arboretum, Mānoa Valley, O'ahu. Bishop Museum Occasional Papers 87: 3-18	"Mature, naturalized plants can be found widely scattered across the Arboretum, with seedlings occurring at high densities beneath mature plants." [Seedlings reach high densities, but unlikely to be in excess of 1000 m-2]

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Graziano, T. T. (1982) Viability of palm seeds. 1. <i>Euterpe edulis</i> and <i>Ptychosperma macarthurii</i> . [FT: Viabilidade de sementes de palmeiras: 1. <i>Euterpe edulis</i> Mart. e <i>Ptychosperma macarthurii</i> (<i>H. Wendl.</i>) <i>Nich.</i>] <i>Científica</i> , 10(2): 273-276	"Seeds of both species collected in Brazil had a short life (not viable 21 days after harvest). Post-harvest seeds gradually lost both germinative capacity and energy. "

803	Well controlled by herbicides	
	Source(s)	Notes
	Donselman, H., & Broschat, T. K. (1986). Phytotoxicity of several pre-and postemergent herbicides on container grown palms. <i>Proceedings of the Florida State Horticultural Society</i> 99: 273-274	"All palms appeared tolerant to 11-21 ml/litre glyphosate and although stunting and deformation of new leaves occurred in some plants, nearly all outgrew the symptoms in a few weeks."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	WRA Specialist. (2019). Personal Communication	Unknown

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	[No mention of natural enemies affecting this commonly cultivated palm] "It is by far the commonest <i>Ptychosperma</i> species grown in Hawai'i today"

Summary of Risk Traits:

High Risk / Undesirable Traits

- Thrives in tropical climates
- Naturalized on Oahu, and possibly Kauai (Hawaiian Islands) and elsewhere
- Regarded as weedy and potentially invasive in a number of tropical locations (although impacts have not been described)
- Host of palm pests and pathogens
- Fruit and irritant and may cause dermatitis
- Shade tolerant
- Tolerates many soil types
- Reproduces by seeds
- Reaches maturity in 2-3 years
- Seeds dispersed by birds, possibly by water, and intentionally by people
- Prolific seedling production in some areas where naturalized

Low Risk Traits

- Despite naturalization, negative impacts have yet to be documented
- Unarmed (no spines, thorns, or burrs)
- Not reported to spread vegetatively

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?> Yes. Tolerates shade, but does best in full sun

(B) Bird or clearly wind-dispersed?> Dispersed by birds

(C) Life cycle <4 years? Yes. Reaches maturity in 2-3 years

Outcome = Reject (High Risk)