Key Words: Low Risk, Unarmed, Tropical Palm, Ornamental, Slow-growing, Bird-dispersed

Family: ***Arecaceae***

Taxon: ***Gaussia attenuata***

Synonym: *Aeria attenuata O. F. Cook (basionym)*

Common Name: llume palm
Puerto Rican gaussia palm
palma de sierra

Questionaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** L
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **WRA Score 0**

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**	**n**
302	**Garden/amenity/disturbance weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
303	**Agricultural/forestry/horticultural weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
304	**Environmental weed**	**n=0, y = 2*multiplier (see Appendix 2)**	**n**
305	**Congeneric weed**	**n=0, y = 1*multiplier (see Appendix 2)**	**n**
401	**Produces spines, thorns or burrs**	**y=1, n=0**	**n**
402	**Allelopathic**	**y=1, n=0**	
403	**Parasitic**	**y=1, n=0**	**n**
404	**Unpalatable to grazing animals**	**y=1, n=-1**	
405	**Toxic to animals**	**y=1, n=0**	**n**
406	**Host for recognized pests and pathogens**	**y=1, n=0**	
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**	
410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y=1, n=0**	**n**

411	**Climbing or smothering growth habit**	**y=1, n=0**	**n**
412	**Forms dense thickets**	**y=1, n=0**	**n**
501	**Aquatic**	**y=5, n=0**	**n**
502	**Grass**	**y=1, n=0**	**n**
503	**Nitrogen fixing woody plant**	**y=1, n=0**	**n**
504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**y=1, n=0**	**n**
601	**Evidence of substantial reproductive failure in native habitat**	**y=1, n=0**	**y**
602	**Produces viable seed**	**y=1, n=-1**	**y**
603	**Hybridizes naturally**	**y=1, n=-1**	
604	**Self-compatible or apomictic**	**y=1, n=-1**	
605	**Requires specialist pollinators**	**y=-1, n=0**	**n**
606	**Reproduction by vegetative fragmentation**	**y=1, n=-1**	**n**
607	**Minimum generative time (years)**	**1 year = 1, 2 or 3 years = 0, 4+ years = -1**	**>3**
701	**Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)**	**y=1, n=-1**	**n**
702	**Propagules dispersed intentionally by people**	**y=1, n=-1**	**y**
703	**Propagules likely to disperse as a produce contaminant**	**y=1, n=-1**	**n**
704	**Propagules adapted to wind dispersal**	**y=1, n=-1**	**n**
705	**Propagules water dispersed**	**y=1, n=-1**	
706	**Propagules bird dispersed**	**y=1, n=-1**	**y**
707	**Propagules dispersed by other animals (externally)**	**y=1, n=-1**	
708	**Propagules survive passage through the gut**	**y=1, n=-1**	**y**
801	**Prolific seed production (>1000/m2)**	**y=1, n=-1**	
802	**Evidence that a persistent propagule bank is formed (>1 yr)**	**y=1, n=-1**	
803	**Well controlled by herbicides**	**y=-1, n=1**	
804	**Tolerates, or benefits from, mutilation, cultivation, or fire**	**y=1, n=-1**	
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	**y=-1, n=1**	

Designation: L **WRA Score** **0**

Supporting Data:

101	2008. Roncal, J./Zona, S./Lewis, C.E.. Molecular Phylogenetic Studies of Caribbean Palms (Arecaceae) and Their Relationships to Biogeography and Conservation. Botanical Review. 74: 78-102.	[Is the species highly domesticated?? No evidence] "Of the 113 genera in this subfamily, only 13 occur in the West Indies. Gaussia has three species [G. attenuata (O.F. Cook) Becc., G. princeps H. Wendl., G. spirituana Moya and Leiva] distributed in Cuba, Hispaniola, and Puerto Rico, on well-drained limestone hills or mogotes (Quero & Read, 1986; Moya et al., 1991)."
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Species suited to tropical or subtropical climate(s) 2-High] "Distribution. Endemic: Puerto Rico"
202	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Quality of climate match data 2-High]
203	2012. Dave's Gardern. PlantFiles: Llume Palm - Gaussia attenuata. http://davesgarden.com/guides/pf/go/67365/. [Accessed 17 Oct 2012]	[Broad climate suitability (environmental versatility)? No] "Hardiness: USDA Zone 10a: to -1.1 °C (30 °F) USDA Zone 10b: to 1.7 °C (35 °F) USDA Zone 11: above 4.5 °C (40 °F)" … " Hopeless in zone 9b where I tried it several times, but some have had success in warmer zone 10as in southern California."
203	2012. Horticopia Inc.. Gaussia attenuata - llume Palm. http://www.horticopia.com/hortpix/html/gauatt000.htm. [Accessed 17 Oct 2012]	[Broad climate suitability (environmental versatility)? No] "Hardiness Range: 9A - 10B"
203	2012. Palmpedia. Gaussia attenuata. http://www.palmpedia.net/wiki/Gaussia_attenuata [Accessed 17 Oct 2012]	[Broad climate suitability (environmental versatility)? No evidence] "Very slow, and intolerant of cold."
204	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Distribution. Endemic: Puerto Rico"
205	2012. Palmpedia. Gaussia attenuata. http://www.palmpedia.net/wiki/Gaussia_attenuata [Accessed 17 Oct 2012]	[Does the species have a history of repeated introductions outside its natural range? Questionable. Cultivated in Hawaii and Florida, but unclear how common in cultivation]
301	2007. Randall, R.P.. The introduced flora of Australia and its weed status. CRC for Australian Weed Management, Glen Osmond, Australia	[Naturalized beyond native range? No evidence from Australia]
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? No evidence]
301	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Naturalized beyond native range? No evidence]
301	2012. Wagner, W.L./Herbst, D.R./Khan, N./Flynn, T.. Hawaiian Vascular Plant Updates: A Supplement to the Manual of the Flowering Plants of Hawai`i & Hawai`i's Ferns & Fern Allies. http://botany.si.edu/pacificislandbiodiversity/hawaianflora/supplement.htm	[Naturalized beyond native range? No evidence]
302	2007. Randall, R.P.. The introduced flora of Australia and its weed status. CRC for Australian Weed Management, Glen Osmond, Australia	[Garden/amenity/disturbance weed? No evidence]
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No evidence]
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No evidence]

305	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.	[Congeneric weed? No evidence]
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No evidence]
401	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Produces spines, thorns or burrs? No] "Unarmed palms medium height…"
401	2005. Acevedo-Rodríguez, P./Strong, M.T.. Monocots and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium. 52: 1-415.	[Produces spines, thorns or burrs? No] "Palm 8-12 (30) m tall; trunk basally enlarged to 25 cm in diam., tapering upwardly to a minimum diam. of (5-) 7-10 cm just below the leaves. Leaves mostly 5-7, erect or spreading; petiole sheath green, 20-30 cm long; leaves (including petiole and sheath) 1-1.8 m long, with angular rachis; leaf-segments numerous, the longest ones 20-30 cm long, 3 cm broad, the more distal ones much shorter, all acute to acuminate at apex. Inflorescences much shorter than the leaves; panicle branches numerous and densely arranged, simple or forked, up to 25 cm long. Flowers sessile, orange-yellow, the staminate ones ca. 3 mm long, the pistillate ca. 2 mm long. Fruits obovoid, orange-red, 8-10 mm in diam."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Parasitic? No. Arecaceae] "A tall palm sometimes more than 20 m high, erect, sometimes slightly leaning."
404	2012. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	2007. Harrison, N.A./Elliott, M.L.. Lethal Yellowing (LY) of Palm. PP-222. University of Florida IFAS Ext., Gainesville, FL http://edis.ifas.ufl.edu	[Host for recognized pests and pathogens?] "Lethal yellowing (LY) is a palm disease prevalent in Florida landscapes in the southern one-third of the state." … "Table 1. Palm species susceptible to Lethal Yellowing (LY) disease." [List of 36 palm species includes Gaussia attenuata]
406	2009. Downer, A.J./Uchida, J.Y./Hodel, D.R./Elliott, M.L.. Lethal Palm Diseases Common in the United States. HortTechnology. 19(4): 710-716.	[Host for recognized pests and pathogens? Potentially host of lethal yellowing, but not yet recorded in the Hawaiian Islands]
407	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No evidence of toxicity]
408	1964. Little, Jr. E.L./Wadsworth , F.H.. Common trees of Puerto Rico and the Virgin Islands. Agriculture Handbook No. 249. USDA Forest Service, Washington, D.C	[Creates a fire hazard in natural ecosystems? No evidence]
408	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Creates a fire hazard in natural ecosystems? No evidence] "…in areas of strongly seasonal rainfall."
408	2005. Acevedo-Rodríguez, P./Strong, M.T.. Monocots and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium. 52: 1-415.	[Creates a fire hazard in natural ecosystems? No evidence] "Confined to rocky limestone hills and outcrops at low to lower middle elevations (5-250 m). Recorded from Arecibo, Dorado, Isabela, Juana Díaz, Manatí, Quebradillas, San Germán, Toa Baja, Vega Alta, and Vega Baja."
409	2012. Farichild Tropical Botanic Garden. Distribution Plants 2003 - Palms and Cycads. http://www.fairchildgarden.org/livingcollections/plantsaleinformationpages/2003membersdayplantsale/ [Accessed 17 Oct 2012]	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Grow it in partial shade."
409	2012. Horticopia Inc.. Gaussia attenuata - llume Palm. http://www.horticopia.com/hortpix/html/gauatt000.htm. [Accessed 17 Oct 2012]	[Is a shade tolerant plant at some stage of its life cycle? Possibly] "Partial shade or partial sun to full sun"

410	1964. Little, Jr. E.L./Wadsworth , F.H.. Common trees of Puerto Rico and the Virgin Islands. Agriculture Handbook No. 249. USDA Forest Service, Washington, D.C	[Tolerates a wide range of soil conditions?] "This species is common on the rocky summits and cliffs of the moist limestone region and in the hills between San German and Lajas. As these palms are taller than other trees of the jagged hilltops, clusters of palm leaves often rise above the forest canopy, conspicuous against the sky."
410	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Tolerates a wide range of soil conditions? No] "It needs full sun and a free-draining alkaline soil."
410	2012. PACSOA. Palms: Gaussia attenuata [Accessed 16 Oct 2012]. PACSOA (Palm and Cycad Society of Australia), http://www.pacsoa.org.au/palms/Gaussia/attenuata.html	[Tolerates a wide range of soil conditions?] " Likes regular dressings of lime."
411	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Climbing or smothering growth habit? No] "A tall palm sometimes more than 20 m high, erect, sometimes slightly leaning."
412	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Forms dense thickets? No evidence within native range]
412	2005. Acevedo-Rodríguez, P./Strong, M.T.. Monocots and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium. 52: 1-415.	[Forms dense thickets? No evidence within native range]
501	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Aquatic? No] Terrestrial palm
502	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Grass? No] Arecaceae
503	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Nitrogen fixing woody plant? No] Arecaceae
504	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "A tall palm sometimes more than 20 m high, erect, sometimes slightly leaning. The surface of the lower trunk is smooth with very faint annular impressions. Near the ground the diameter is 15-20 cm and increases upward to ca. 25 cm at ca. 3 m above the base. Above this swelling the trunk tapers very gradually and in tall specimens is less than 7 cm in diameter at the top. The trunk is supported on a mass of coarse roots with spine-like projecting rootlets 3 cm wide arranged in whorls. Leaves mostly 5-7, 1.2-2 m long. The sheathing leaf base is 20-30 cm long. The petiole is rather short, to 40 cm long, round beneath, grooved above, rig- id, and the rachis is prominently angled above. Segments of a rather firm texture and standing in two rows on each side of the rachis, lacking prominent pulvinae, middle segments 30-50 cm long and 2.5-4 cm wide very close together, especially the proximal and overlapping "each other in a succubous manner" (Cook 1901:548), with prominent parallel veins."
601	1999. Acevedo-Rodriguez, P./Axelrod, F.S.. Annotated Checklist for the Tracheophytes of Rı´o Abajo Forest Reserve, Puerto Rico. Caribbean Journal of Science. 35(3-4): 265-285.	[Evidence of substantial reproductive failure in native habitat? Possibly Yes] "Gaussia attenuata (O.E. Cook) Becc; endemic, extremely rare, two individuals, one at Camp Radley, the other at Camp Crozier."
601	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Evidence of substantial reproductive failure in native habitat? Yes] "…a rare species endemic in western Puerto Rico, where it grows on steep hillside of the monsoonal limestone plains and is in danger of extinction because of its few numbers."
602	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Produces viable seed? Yes] "Seed brownish, flattened oval to rounded 11 mm long, 9 mm wide, with a prominent basal hilum with a few shallow impressed raphe branches, usually with a small central cavity, embryo lateral."
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2005. Acevedo-Rodríguez, P./Strong, M.T.. Monocots and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium. 52: 1-415.	[Self-compatible or apomictic? Unknown] "Solitary, unarmed, monoecious palms,…"

605	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Requires specialist pollinators? No. Not based on floral morphology] "Inflorescence to 1 m long, ramified, at first interfoliar arising inside sheath of older leaves later infrafoliar. Flowers arranged 3 5(6) in a group, male flowers slightly larger than female; petals ca. 35 mm long and 1.5 mm wide, stamens 2 mm long, anthers 1 mm long, pistillode pyramidal, female flower with spreading petals ca. 25 mm long, ovary triangular ca. 2 mm long, with 3 stigmas."
606	2005. Acevedo-Rodríguez, P./Strong, M.T.. Monocots and Gymnosperms of Puerto Rico and the Virgin Islands. Contributions from the United States National Herbarium. 52: 1-415.	[Reproduction by vegetative fragmentation? No] "Solitary, unarmed, monoecious palms,…" [No evidence of clonal or vegetative reproduction]
607	2012. PACSOA. Palms: Gaussia attenuata [Accessed 16 Oct 2012]. PACSOA (Palm and Cycad Society of Australia), http://www.pacsoa.org.au/palms/Gaussia/attenuata.html	[Minimum generative time (years)? Probably 4+] "Very slow, and intolerant of cold."
701	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? Unlikely. Seeds relatively large and lack means of external attachment] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant. Seed brownish, flattened oval to rounded 11 mm long, 9 mm wide, with a prominent basal hilum with a few shallow impressed raphe branches, usually with a small central cavity, embryo lateral"
702	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Propagules dispersed intentionally by people? Yes. Ornamental and landscaping uses]
702	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Propagules dispersed intentionally by people? Yes. Ornamental and landscaping uses]
703	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules likely to disperse as a produce contaminant? No evidence. Unlikely as seeds are relatively large] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant. Seed brownish, flattened oval to rounded 11 mm long, 9 mm wide, with a prominent basal hilum with a few shallow impressed raphe branches, usually with a small central cavity, embryo lateral"
704	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules adapted to wind dispersal? No] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant."
705	2012. WRA Specialist. Personal Communication.	[Propagules water dispersed? Unknown. Probably no, but buoyancy of fruits and seeds is not known]
706	1979. Wiley, J.W.. The White-Crowned Pigeon in Puerto Rico: Status, Distribution, and Movements. The Journal of Wildlife Management. 43(2): 402-413.	[Propagules bird dispersed? Yes] "The white crowned pigeon is widely distributed throughout the Caribbean." … "The Dorado Beach Hotel population appeared sedentary (Table 5), perhaps because of the continuous availability of food (i.e., royal palm; palma de lluvia, Gaussia attenuata;…"
706	1979. Wiley, J.W./Wiley, B.N.. The Biology of the White-Crowned Pigeon. Wildlife Monographs. 64: 3-54.	[Propagules bird dispersed? Yes] "Table 10.-Plant Species Observed Being Fed Upon By White-Crowned Pigeons in Puerto Rico and Mona Island, 1974 and 1975" [Includes Gaussia attenuata]
706	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules bird dispersed? Presumably Yes. Fleshy-fruited] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant."
707	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules dispersed by other animals (externally)? Unknown. [Possible that scatter hoarding seed predators, such as introduced rodents, or omnivores such as mongoose may carry fruits away and disperse seeds without ingesting them] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant."

708	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Propagules survive passage through the gut? Presumably Yes] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14-16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant."
801	1986. Quero, H.J./Read, R.W.. A Revision of the Palm Genus Gaussia. Systematic Botany. 11(1): 145-154.	[Prolific seed production (>1000/m2)? Unknown. Probably not, as fruits are relatively large and one to few-seeded] "Fruits single but occasionally triple seeded, yellowish when immature, deep orange to red at maturity and of an unsymmetrical oval to pear shape, 14 16 mm long, 12 mm wide, with a vertical groove at the base. Pericarp fleshy 1.6 mm thick adherent to the seed, epicarp smooth, with a basal stigmatic remnant."
802	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "The ripened fruit is orange to red and should germinate in 3 to 4 months." [Persistence of soil seed bank unkown]
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2012. WRA Specialist. Personal Communication.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Unknown]
805	2012. WRA Specialist. Personal Communication.	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown for Hawaii and the Pacific]

Summary of Risk Traits

High Risk / Undesirable Traits

- Thrives in tropical climates
- Possible host of lethal yellowing disease of palms.
- Fleshy-fruits adapted for bird and mammal dispersal

Low Risk / Desirable Traits

- No reports of naturalization or invasiveness elsewhere in the world
- Will only grow in warm, tropical climates
- Unarmed (no spines, thorns or burrs)
- Non-toxic
- Landscaping and ornamental value
- Slow growing and slow to reach maturity (4+ years)
- Single-trunked & not known to spread vegetatively