

Family: *Areaceae*

Taxon: *Manicaria saccifera Gaertn.*

Synonym: NA

Common Name: Troolie palm
Royal palm
Palma real

Questionnaire :	current 20090513	Assessor:	Patti Clifford	Designation: L
Status:	Assessor Approved	Data Entry Person:	Patti Clifford	WRA Score -1
101	Is the species highly domesticated?		y=-3, n=0	n
102	Has the species become naturalized where grown?		y=1, n=-1	
103	Does the species have weedy races?		y=1, n=-1	
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data		(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)		y=1, n=0	n
204	Native or naturalized in regions with tropical or subtropical climates		y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?		y=-2, ?=-1, n=0	n
301	Naturalized beyond native range		y = 1*multiplier (see Appendix 2), n= question 205	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	

411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	
604	Self-compatible or apomictic	y=1, n=-1	
605	Requires specialist pollinators	y=-1, n=0	
606	Reproduction by vegetative fragmentation	y=1, n=-1	
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	
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	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
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	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: L

WRA Score -1

Supporting Data:

101	2012. WRA Specialist. Personal Communication.	[Is the species highly domesticated? No] No evidence of domestication that reduces invasive traits.
102	2012. WRA Specialist. Personal Communication.	[Has the species become naturalized where grown? NA]
103	2012. WRA Specialist. Personal Communication.	[Does the species have weedy races? NA]
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"? 2 - high] Native distributional range: Trinidad and Tobago - Trinidad; Belize; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; French Guiana; Guyana; Suriname; Venezuela - Amazonas, Delta Amacuro, Monagas, Sucre; Brazil - Amazonas, Para; Columbia - Amazonas, Choco, Valle, Vaupes, Vichada; Ecuador - Esmeraldas; Peru - Loreto.
202	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Quality of climate match data? 2 - high] Native distributional range: Trinidad and Tobago - Trinidad; Belize; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; French Guiana; Guyana; Suriname; Venezuela - Amazonas, Delta Amacuro, Monagas, Sucre; Brazil - Amazonas, Para; Columbia - Amazonas, Choco, Valle, Vaupes, Vichada; Ecuador - Esmeraldas; Peru - Loreto.
203	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Broad climate suitability (environmental versatility)? No] Altitude: sea level to 100 m.
203	2012. Dave's Garden. PlantFiles: Troolie palm - <i>Manicaria saccifera</i> . http://davesgarden.com/guides/pt/go/157475/	[Broad climate suitability (environmental versatility)? No] Hardiness: USDA Zone 11: above 4.5 °C (40 °F)
203	2012. www.pacsoa.org. Palms - <i>Manicaria saccifera</i> . Palm and Cycad Societies of Australia, http://www.pacsoa.org.au/palms/Manicaria/saccifera.html	[Broad climate suitability (environmental versatility)? No] <i>Manicaria</i> is very cold sensitive.
204	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Native or naturalized in regions with tropical or subtropical climates? Yes] Native distributional range: Trinidad and Tobago - Trinidad; Belize; Costa Rica; Guatemala; Honduras; Nicaragua; Panama; French Guiana; Guyana; Suriname; Venezuela - Amazonas, Delta Amacuro, Monagas, Sucre; Brazil - Amazonas, Para; Columbia - Amazonas, Choco, Valle, Vaupes, Vichada; Ecuador - Esmeraldas; Peru - Loreto.
205	2012. WRA Specialist. Personal Communication.	[Does the species have a history of repeated introductions outside its natural range? No] 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] No evidence.
302	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Garden/amenity/disturbance weed? No] No evidence.
303	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Agricultural/forestry/horticultural weed? No] No evidence.
304	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Environmental weed? No] No evidence
305	2012. www.theplantlist.org. The plant list - a working list of all plant species. Royal Botanic Gardens Kew, Missouri Botanical Garden, http://www.theplantlist.org/	[Congeneric weed? No] There is only one species in this genus.
401	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Produces spines, thorns or burrs? No] "Tree with 1 to several trunks, 2-8 m tall, trunk 15-30 cm diameter, covered by old leaves. Leaves alternate, stalk 1-2 m long, blade pinnate, 3-4 m long, 1-2 m wide, elliptic in outline, appearing paddle-shaped, tip blunt to split."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]

403	2010. Nickrent, D.. The parasitic plant connection. Department of Plant Biology, Southern Illinois University, Carbondale http://www.parasiticplants.siu.edu/index.html	[Parasitic? No] Not a parasitic plant family.
404	2012. WRA Specialist. Personal Communication.	[Unpalatable to grazing animals? Unknown]
405	2012. National Center for Biotechnology Information. PubMed. http://www.ncbi.nlm.nih.gov/sites/entrez	[Toxic to animals? No] No evidence.
405	2012. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Toxic to animals? No] No evidence.
406	2012. WRA Specialist. Personal Communication.	[Host for recognized pests and pathogens? Unknown]
407	2010. Snarr, K.A.. The applied anthropological perspective on the current state of natural resource management: the case of the <i>Manicaria saccifera</i> in the Tortuguero region, Costa Rica. http://coterc.org ,	[Causes allergies or is otherwise toxic to humans? No] <i>Manicaria saccifera</i> was used as roof thatching by Pre-Columbian settlements. It is currently considered the best material for roof thatching in the Tortuguero region of Costa Rica.
407	2012. National Center for Biotechnology Information. PubMed. http://www.ncbi.nlm.nih.gov/sites/entrez	[Causes allergies or is otherwise toxic to humans? No] No evidence.
407	2012. Specialized Information Services, U.S. National Library of Medicine. TOXNET toxicology data network [online database]. National Institutes of Health, http://toxnet.nlm.nih.gov/	[Causes allergies or is otherwise toxic to humans? No] No evidence.
408	2012. WRA Specialist. Personal Communication.	[Creates a fire hazard in natural ecosystems? No] No evidence.
409	2012. Dave's Garden. PlantFiles: Trolley palm - <i>Manicaria saccifera</i> . http://davesgarden.com/guides/pf/go/157475/	[Is a shade tolerant plant at some stage of its life cycle?] Sun exposure: Sun to partial shade; light shade.
410	2012. WRA Specialist. Personal Communication.	[Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)? Unknown]
411	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Climbing or smothering growth habit? No] Tree with 1 to several trunks; 2-8 m tall.
412	2012. WRA Specialist. Personal Communication.	[Forms dense thickets? Unknown]
501	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Aquatic? No] Terrestrial; tree.
502	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Grass? No] Palm.
503	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Nitrogen fixing woody plant? No] Arecaceae.
504	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] Palm.
601	2012. WRA Specialist. Personal Communication.	[Evidence of substantial reproductive failure in native habitat? No] No evidence.
602	1999. Marcus, J./Banks, K.. A practical guide to germinating palm seeds. Palms. April: http://www.palms.org/principes/1999/palmseeds.htm	[Produces viable seed? Yes] "After cleaning the seeds, hydrate them by soaking them in water for 24 hours, especially if you did not soak them to help remove the pulp. Within 24 hours most fresh, viable seeds will sink. There are exceptions such as <i>Manicaria saccifera</i> and <i>Metroxylon vitiense</i> , whose viable seed will float even after cleaning and soaking. "
602	2010. Snarr, K.A.. The applied anthropological perspective on the current state of natural resource management: the case of the <i>Manicaria saccifera</i> in the Tortuguero region, Costa Rica. http://coterc.org ,	[Produces viable seed? Yes] Seed dispersal by mammals is not effective. Seeds that are partially consumed or damaged by animals are not likely to germinate.

603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
603	2012. www.theplantlist.org . The plant list - a working list of all plant species. Royal Botanic Gardens Kew, Missouri Botanical Garden, http://www.theplantlist.org/	[Hybridizes naturally?] There is only one species in the <i>Manicaria</i> genus.
604	2012. WRA Specialist. Personal Communication.	[Self-compatible or apomictic? Unknown]
605	2012. WRA Specialist. Personal Communication.	[Requires specialist pollinators? Unknown]
606	2012. WRA Specialist. Personal Communication.	[Reproduction by vegetative fragmentation? Unknown]
607	2012. WRA Specialist. Personal Communication.	[Minimum generative time (years)? Unknown]
701	2012. WRA Specialist. Personal Communication.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No] No evidence of accidental dispersal.
702	2012. Ebay. Live rare <i>Manicaria saccifera</i> "Troolies Palm" tree plant. http://www.ebay.com/itm/Live-Rare-Manicaria-saccifera-Troolie-Palm-Tree-Plant-/220709666937	[Propagules dispersed intentionally by people? Yes] Three <i>Manicaria saccifera</i> were sold through Ebay in November 2011 from Palmswholesale. No other online availability or reference of use in landscape.
703	2012. WRA Specialist. Personal Communication.	[Propagules likely to disperse as a produce contaminant? No] No evidence.
704	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Propagules adapted to wind dispersal? No] Fruit brown, covered with short warty spines, 1-3 seeds rounded to 2-3 lobed, 4-5 cm long, 4-7 cm wide.
705	2010. Snarr, K.A.. The applied anthropological perspective on the current state of natural resource management: the case of the <i>Manicaria saccifera</i> in the Tortuguero region, Costa Rica. http://coterc.org ,	[Propagules water dispersed? Yes] <i>Manicaria saccifera</i> is an obligate swamp species which forms in swamps that are frequently flooded by rain or ocean tides.
705	2012. www.pacsoa.org . Palms - <i>Manicaria saccifera</i> . Palm and Cycad Societies of Australia, http://www.pacsoa.org.au/palms/Manicaria/saccifera.html	[Propagules water dispersed? Yes] The seed is quite large and it floats.
705	2012. www.seabean.com . A sea-bean guide - <i>Manicaria saccifera</i> . http://www.seabean.com/guide/Manicaria_saccifera/	[Propagules water dispersed? Yes] <i>Manicaria saccifera</i> is one of the most commonly beached "sea-beans" in Florida.
706	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Propagules bird dispersed? No] Fruit brown, covered with short warty spines, 1-3 seeds rounded to 2-3 lobed, 4-5 cm long, 4-7 cm wide.
707	2008. Gargiullo, M.B./Magnuson, B.L./Kimball, L.D.. A field guide to plants of Costa Rica. Oxford University Press US, New York, NY	[Propagules dispersed by other animals (externally)? No] Fruit brown, covered with short warty spines, 1-3 seeds rounded to 2-3 lobed, 4-5 cm long, 4-7 cm wide. [no means of external attachment.]
708	2010. Snarr, K.A.. The applied anthropological perspective on the current state of natural resource management: the case of the <i>Manicaria saccifera</i> in the Tortuguero region, Costa Rica. http://coterc.org ,	[Propagules survive passage through the gut? No] Seed dispersal by mammals is not effective. Seeds that are partially consumed or damaged by animals are not likely to germinate.
801	2012. WRA Specialist. Personal Communication.	[Prolific seed production (>1000/m ²)? Unknown]
802	2012. WRA Specialist. Personal Communication.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown]
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown]
804	1988. Voecks, R.A./da Vinha, S.G.. Fire management of the Piassava fiber palm (<i>Attalea funifera</i>) in Eastern Brazil. JSTOR,	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] <i>Manicaria saccifera</i> is managed using fire in a slash and burn manner in the rainforests of the New World tropics. It is able to withstand fire.

805	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl	[Effective natural enemies present locally (e.g. introduced biocontrol agents)? Unknown]
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Summary of Risk Traits

Low Risk:

- Not naturalized
- Not a weed elsewhere in natural, disturbed or commercial environments
- Unarmed
- Non- toxic to animals or humans
- Non-allergenic
- Not a fire-hazard (native habitat swampy or riparian)
- Limited dispersal mechanism (large fruit/seed size)

High Risk:

- Native to tropical areas
- Viable seed
- Water dispersal
- Tolerates fire in slash/burn situations