

**Family:** *Arecaceae*

**Taxon:** *Chamaedorea metallica*

**Synonym:** NA

**Common Name:** metallic palm  
miniature fishtail palm

**Questionnaire :** current 20090513      **Assessor:** Chuck Chimera      **Designation:** L  
**Status:** Assessor Approved      **Data Entry Person:** Chuck Chimera      **WRA Score** -2

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	y
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)	y
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	
406	Host for recognized pests and pathogens	y=1, n=0	
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	
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	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	
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	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	y=1, n=-1	n
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 <sup>2</sup> )	y=1, n=-1	n
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 -2

## Supporting Data:

101	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Is the species highly domesticated? No evidence]
101	2007. Cuenca, A./Asmussen-Lange, C.B.. Phylogeny of the Palm Tribe Chamaedoreeae (Arecaceae) Based on Plastid Dna Sequences. Systematic Botany. 32(2): 250-263.	[Is the species highly domesticated? No evidence] "Within the tribe Chamaedoreeae, only Chamaedorea has a large number of species. It is the most species rich palm genus in America, with 77 (Henderson et al. 1995) to 103 (Govaerts and Dransfield 2005) species. The distribution of Chamaedorea ranges from Mexico through northwestern South America to Bolivia (Hodel 1992, 1999; Henderson et al. 1995). Several species of Chamaedorea have been extensively cultivated as ornamental plants, and the taxonomic treatment of the genus has been influenced by the work of horticulturists."
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Species suited to tropical or subtropical climate(s) 2-High] "Native: NORTHERN AMERICA - Mexico"
202	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Quality of climate match data 2-High]
203	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Broad climate suitability (environmental versatility)? No evidence] "Range and habitat. Atlantic slope in Mexico (Oaxaca, Veracruz); lowland rain forest, often on limestone soils, to 600 m elevation." [Tropical species with limited elevation range]
203	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Broad climate suitability (environmental versatility)? No] "This palm is not hardy to cold, being adaptable only to zones 10b and 11 and marginal in 10a."
204	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Range and habitat. Atlantic slope in Mexico (Oaxaca, Veracruz); lowland rain forest, often on limestone soils, to 600 m elevation."
205	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga <a href="http://cookislands.bishopmuseum.org">http://cookislands.bishopmuseum.org</a>	[Does the species have a history of repeated introductions outside its natural range?? Cook Islands] "COOK ISLANDS STATUS: Introduced - Recent, Not naturalised; Land, lowlands"
205	2007. Randall, R.P.. The introduced flora of Australia & its weed status. CRC for Australian Weed Management, Glen Osmond, Australia	[Does the species have a history of repeated introductions outside its natural range? Australia]
205	2012. Dave's Gardern. PlantFiles: Miniature Fishtail Palm, Metallic Palm - Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://davesgarden.com/guides/pf/go/54939/">http://davesgarden.com/guides/pf/go/54939/</a>	[Does the species have a history of repeated introductions outside its natural range?? Continental US. Although possibly indoors] "Berkeley, California Encino, California Oceanside, California San Anselmo, California San Antonio Heights, California Tarzana, California Thousand Oaks, California Big Pine Key, Florida Bradenton, Florida Cape Coral, Florida Grant, Florida Gulf Stream, Florida"
301	2007. McCormack, G.. Cook Islands Biodiversity Database, Version 2007.2.. Cook Islands Natural Heritage Trust, Rarotonga <a href="http://cookislands.bishopmuseum.org">http://cookislands.bishopmuseum.org</a>	[Naturalized beyond native range? Not in Cook Islands] "COOK ISLANDS STATUS: Introduced - Recent, Not naturalised; Land, lowlands"
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. <a href="http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/supplement.htm">http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/supplement.htm</a>	[Naturalized beyond native range? No evidence from Hawaiian Islands]
302	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.	[Garden/amenity/disturbance weed? 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 evidence]
303	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.	[Agricultural/forestry/horticultural 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	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.	[Environmental 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	2001. Langeland, K.A./Stocker, R.K.. Control of Non-native Plants in Natural Areas of Florida. Institute of Food & Agricultural Sciences, University of Florida, Gainesville, FL <a href="http://mrec.ifas.ufl.edu/ldspmg/Ldsp%20Turf%20Mgmt/PDFfiles/WG20900.pdf">http://mrec.ifas.ufl.edu/ldspmg/Ldsp%20Turf%20Mgmt/PDFfiles/WG20900.pdf</a>	[Congeneric weed? Yes. <i>Chamaedorea seifrizii</i> is a weed of minor significance with the potential to become an environmental weed] "Treatment: Cut palm below growing point and treat with 50% Garlon 3A or 10% Garlon 4. Alternatively, Garlon 4 can be applied to the apical bud.? ... "Treatment: Treat as fishtail palm, above. Comments: Pinnate-leaved, narrow-trunked, clustering species; invades hammocks."
305	2011. Florida Exotic Pest Plant Council. Florida EPPC's 2011 Invasive Plant Species List. <a href="http://www.fleppc.org/list/11list.html">http://www.fleppc.org/list/11list.html</a>	[Congeneric weed? Yes. <i>Chamaedorea seifrizii</i> - An invader of minor significance at this time] "Invasive exotics that have increased in abundance or frequency but have not yet altered Florida plant communities to the extent shown by Category I species. These species may become ranked Category I, if ecological damage is demonstrated." [ <i>Chamaedorea seifrizii</i> included in this list]
305	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? Yes] Four <i>Chamaedorea</i> species listed as naturalized and/or weeds
401	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Produces spines, thorns or burrs? No] "Field characters. Stems solitary, 0.3-3 m tall and 0.5-1.5 cm diameter, erect. Leaves 4-16, simple or pinnate, with a metallic-blue sheen; simple leaves with blades wedge shaped-obovate, 20-30 cm long and 12-15 cm wide, pinnate leaves with 3-8 sigmoid leaflets per side, to 7 cm long and 2.5-6.5 cm wide."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Parasitic? No] Arecaceae
404	2006. Berry, E.J.. Population ecology of the harvested understory palm <i>Chamaedorea radicalis</i> : pollination biology, female fecundity, and source-sink population dynamics. PhD Dissertation. Miami University, Oxford, OH	[Unpalatable to grazing animals? Unknown for <i>Chamaedorea metallica</i> . Related species <i>C. radicalis</i> palatable to livestock] "These large palms were more abundant on rock outcrops than the forest floor, suggesting that rock outcrops are better microsites for <i>C. radicalis</i> . However, field experiments revealed that differences between the substrates were not from natural variation in microsite conditions, but rather due to differences in browsing by free-range livestock, which negatively affects palm survival, growth, and fecundity."
405	2000. Lewis, C.E./Zona, S.. A survey of cyanogenesis in palms (Arecaceae). <i>Biochemical Systematics and Ecology</i> . 28: 219-228.	[Toxic to animals? Unknown] "Table 1 Results of cyanogenesis survey in leaf tissue of 167 palm accessions. Accession numbers refer to plants in cultivation at Fairchild Tropical Garden or the Montgomery Botanical Center" [No evidence for <i>C. metallica</i> ]
405	2012. Floridata. <i>Chamaedorea metallica</i> [Accessed 27 Aug 2012]. <a href="http://www.floridata.com/ref/c/cham_met.cfm">http://www.floridata.com/ref/c/cham_met.cfm</a>	[Toxic to animals? Unknown for animals] "The fruits are NOT edible and the sap and juices may irritate sensitive skin."
406	2012. Learn 2 Grow. <i>Chamaedorea metallica</i> [Accessed 27 Aug 2012]. <a href="http://www.learn2grow.com/plants/chamaedorea-metallica/">http://www.learn2grow.com/plants/chamaedorea-metallica/</a>	[Host for recognized pests and pathogens] "Wash and inspect the leaves for signs of mites and mealybugs, both serious pests." [These pests reported from plants in cultivation, often as houseplants]

407	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Causes allergies or is otherwise toxic to humans? Potentially] "Chamaedorea" ... "Almost all species, like those of Caryota, have fruits, which contain calcium oxalate crystals that are irritating to the skin."
407	2012. Dave's Gardern. PlantFiles: Miniature Fishtail Palm, Metallic Palm - Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://davesgarden.com/guides/pf/go/54939/">http://davesgarden.com/guides/pf/go/54939/</a>	[Causes allergies or is otherwise toxic to humans? Seeds contain irritants] "Seed Collecting: Wear gloves to protect hands when handling seeds"
407	2012. Floridata. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.floridata.com/ref/c/cham_met.cfm">http://www.floridata.com/ref/c/cham_met.cfm</a>	[Causes allergies or is otherwise toxic to humans? Potentially] "The fruits are NOT edible and the sap and juices may irritate sensitive skin."
408	2012. Floridata. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.floridata.com/ref/c/cham_met.cfm">http://www.floridata.com/ref/c/cham_met.cfm</a>	[Creates a fire hazard in natural ecosystems? No evidence] "Metallic palm occurs naturally in thick wet forests along the Atlantic slope and lowland rainforests of Mexico. Metallic palm often grows in limestone soils up to 2000 ft (610 m) above sea level." [Unlikely given rainforest habitat]
409	2000. Appell, S.D.. Landscaping Indoors: Bringing the Garden Inside. Brooklyn Botanic Garden, Brooklyn, NY	[Is a shade tolerant plant at some stage of its life cycle? Yes] "Excellent indoor palm; tolerates very low light."
409	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Is a shade tolerant plant at some stage of its life cycle? Yes] "It thrives in shade and is not adapted to full sun."
410	2012. Dave's Gardern. PlantFiles: Miniature Fishtail Palm, Metallic Palm - Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://davesgarden.com/guides/pf/go/54939/">http://davesgarden.com/guides/pf/go/54939/</a>	[Tolerates a wide range of soil conditions? Yes. Tolerates acidic soils] "Soil pH requirements: 5.6 to 6.0 (acidic) 6.1 to 6.5 (mildly acidic) 6.6 to 7.5 (neutral)"
410	2012. Floridata. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.floridata.com/ref/c/cham_met.cfm">http://www.floridata.com/ref/c/cham_met.cfm</a>	[Tolerates a wide range of soil conditions? Yes. Tolerates alkaline soils] "Metallic palm thrives in moist, humus rich soil and is tolerant of alkaline limestone soils. Naturally undemanding for nutrients, metallic palm responds very well to regular applications of palm fertilizer."
411	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Climbing or smothering growth habit? No] "Field characters. Stems solitary, 0.3-3 m tall and 0.5-1.5 cm diameter, erect. Leaves 4-16, simple or pinnate, with a metallic-blue sheen; simple leaves with blades wedge shaped obovate, 20-30 cm long and 12-15 cm wide, pinnate leaves with 3-8 sigmoid leaflets per side, to 7 cm long and 2.5-6.5 cm wide."
412	1994. Vovides, A.P./Garcia Bielma, M.A.. A Study of the in situ Situation of Four Species of Threatened Understory Palms of the Genus Chamaedorea in the Wild in the State of Veracruz, Mexico. Prificipes. 38(2): 109-113.	[Forms dense thickets? No evidence] "Locally very abundant in rain-forest on calcareous mountains. In the 10 x 10m quadrats there were typically 4 to 5 adult plants with approximately 20 seedling and Juvenile plants showing healthy regeneration." ... "We estimate over 300,000 individuals including seedlings in these hills which may merit. considering this species as vulnerable and not Immediately endangered (sensu IUCN categories)."
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] "Range and habitat. Atlantic slope in Mexico (Oaxaca, Veracruz); lowland rain forest, often on limestone soils, to 600 m elevation."
501	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Aquatic? No] "Range and habitat. Atlantic slope in Mexico (Oaxaca, Veracruz); lowland rain forest, often on limestone soils, to 600 m elevation."
502	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Grass? No] Arecaceae
503	2012. USDA ARS National Genetic Resources Program. Germplasm Resources Information Network - (GRIN). <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl">http://www.ars-grin.gov/cgi-bin/npgs/html/index.pl</a>	[Nitrogen fixing woody plant? No] Arecaceae
504	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Field characters. Stems solitary, 0.3-3 m tall and 0.5-1.5 cm diameter, erect. Leaves 4-16, simple or pinnate, with a metallic-blue sheen; simple leaves with blades wedge shaped obovate, 20-30 cm long and 12-15 cm wide, pinnate leaves with 3-8 sigmoid leaflets per side, to 7 cm long and 2.5-6.5 cm wide."
601	1994. Vovides, A.P./Garcia Bielma, M.A.. A Study of the in situ Situation of Four Species of Threatened Understory Palms of the Genus Chamaedorea in the Wild in the State of Veracruz, Mexico. Prificipes. 38(2): 109-113.	[Evidence of substantial reproductive failure in native habitat? No] "Locally very abundant in rain-forest on calcareous mountains. In the 10 x 10m quadrats there were typically 4 to 5 adult plants with approximately 20 seedling and Juvenile plants showing healthy regeneration." ... "We estimate over 300,000 individuals including seedlings in these hills which may merit. considering this species as vulnerable and not Immediately endangered (sensu IUCN categories)."

601	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Evidence of substantial reproductive failure in native habitat? Possibly Yes] "Chamaedorea metallica has a small natural range in the rain forest of southern Mexico and is near extinction because of over collecting for the nursery trade."
602	2012. Floridata. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.floridata.com/ref/c/cham_met.cfm">http://www.floridata.com/ref/c/cham_met.cfm</a>	[Produces viable seed? Yes] "Metallic palm can be propagated by seeds. Seeds are easiest to germinate if planted within 4-6 weeks after the fruit is ripe."
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2004. Palm Society, Northern California. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.palmsnc.org/pages/palm_detail.php?id=99">http://www.palmsnc.org/pages/palm_detail.php?id=99</a>	[Self-compatible or apomictic? No] "This palm is a dioecious plant which requires both male and female to produce viable seed which should be planted within 6 weeks of maturity for best results and germination can still be erratic."
604	2008. PATSP. Dork (Chamaedorea metallica) [Accessed 27 Aug 2012]. <a href="http://plantsarethe strangestpeople.blogspot.com/2008/07/dork-chamaedorea-metallica.html">http://plantsarethe strangestpeople.blogspot.com/2008/07/dork-chamaedorea-metallica.html</a>	[Self-compatible or apomictic? Apparently No] "As far as I could determine, C. metallica is not self-fertile, and (as with some other species we've covered) individual plants are either male or female."
605	2008. Askgaard, A./Stauffer, F.W./Hodel, D.R./Barfod, A.S.. Floral structure in the neotropical palm genus Chamaedorea (Arecoidae, Arecaceae). Anales del Jardín Botánico de Madrid. 65(2): 197-210.	[Requires specialist pollinators? No evidence] "Because of the scattered pollination ecological studies within the genus it is difficult to establish a connection between floral protection and pollinating mechanism. It should be noticed however that within group 1, which is characterized by a high degree of floral protection, both entomophily (1 species), anemophily (3 species) and insect induced wind pollination (1 species) prevail. Thus based on a rather incomplete sampling of the species diversity within Chamaedorea it can be concluded that the link between floral anatomical features and pollination mechanism remains unclear."
606	2012. Dave's Gardern. PlantFiles: Miniature Fishtail Palm, Metallic Palm - Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://davesgarden.com/guides/pf/go/54939/">http://davesgarden.com/guides/pf/go/54939/</a>	[Reproduction by vegetative fragmentation? No evidence] "Propagation Methods: Scarify seed before sowing"
607	2004. Palm Society, Northern California. Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://www.palmsnc.org/pages/palm_detail.php?id=99">http://www.palmsnc.org/pages/palm_detail.php?id=99</a>	[Minimum generative time (years)? >4] "Growth rate: slow"
607	2012. Dave's Gardern. PlantFiles: Miniature Fishtail Palm, Metallic Palm - Chamaedorea metallica [Accessed 27 Aug 2012]. <a href="http://davesgarden.com/guides/pf/go/54939/">http://davesgarden.com/guides/pf/go/54939/</a>	[Minimum generative time (years)? 4+] "I have some C. elegans ripening right now on my little parlor palm--which is 7 years old and still under three feet tall--and whoever has seed available to them just needs to bepatient, as about half of my seedlings took over a year to germinate."
701	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." [No evidence, and fruits/seeds lack means of external attachment]
702	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules dispersed intentionally by people? Yes] "Commonly planted as an ornamental and admired for the distinctive metallic-blue sheen of its leaves."
703	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules likely to disperse as a produce contaminant? No evidence] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent."
704	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules adapted to wind dispersal? No] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent."
705	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules water dispersed? No evidence from fruit morphology or natural distribution] ""fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." " ... "Range and habitat. Atlantic slope in Mexico (Oaxaca, Veracruz); lowland rain forest, often on limestone soils, to 600 m elevation." ...
706	1966. Moore Jr., H.E.. Chamaedorea metallica - A New Species from Cultivation. Principes. 10: 44-50.	[Propagules bird dispersed? Presumably Yes] "Fruit dull black at maturity, globose ellipsoid when fresh, ca. 12 mm. long, 9. mm. in diam., drying 10-11 mm. long, 7-8 mm. in diam.; mesocarp thin, fleshy, green with slender elongate or branched flat fibers appressed against the thin endocarp; seed 10 mm. long, 7 mm. in diam., brown, with 2 arcuately ascending raphe- branches; embryo lateral, slightly below the middle; endosperm homogeneous."

706	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules bird dispersed? Presumably Yes] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." [Fleshy-fruited]
707	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules dispersed by other animals (externally)? No evidence] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." [Adapted for internal dispersal]
708	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Propagules survive passage through the gut? Presumably Yes] "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." [Fleshy-fruited]
801	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Prolific seed production (>1000/m <sup>2</sup> )? No] "Field characters. Stems solitary, 0.3-3 m tall and 0.5-1.5 cm diameter, erect. Leaves 4 16, simple or pinnate, with a metallic-blue sheen; simple leaves with blades wedge shaped obovate, 20-30 cm long and 12-15 cm wide, pinnate leaves with 3-8 sigmoid leaflets per side, to 7 cm long and 2.5-6.5 cm wide." ... "fruits globose-ellipsoid, black, 1-1.2 cm long and 8-9 mm diameter, with thin petals, these mostly non-persistent." [unlikely, given small size of trees, despite small fruit and seed size]
802	2003. Orozco-Segovia, A./Batis, A.I./Rojas-Arechiga, M./Mendoza, A.. Seed Biology of Palms: A Review. Palms. 47(2): 79-94.	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown. Seeds of related species may persist for up to 290 days] "Ecological longevity. Longevity of palm seeds may differ considerably between field and controlled storage conditions." ... "In spite of expecting rapid germination from recalcitrant seeds, it has been reported that seeds of <i>Chamaedorea alternans</i> survived in the natural soil seed bank for 290 days (Moreno Casasola 1976). Seeds of this species may require a long time to germinate under controlled conditions (Rodríguez et al. 2000), unlike other recalcitrant or short-lived seeds, which germinate quite quickly (Jordan 1970, Manokaran 1979, Hong et al. 1997). Thus, a relatively long viability in the moist soil of the forest might be favorable for those seeds requiring after-ripening. However, very little information is available on this subject."
803	2001. Langeland, K.A./Stocker, R.K.. Control of Non-native Plants in Natural Areas of Florida. Institute of Food & Agricultural Sciences, University of Florida, Gainesville, FL <a href="http://mrec.ifas.ufl.edu/ldspmgmt/Ldsp%20Turf%20Mgmt/PDFfiles/WG20900.pdf">http://mrec.ifas.ufl.edu/ldspmgmt/Ldsp%20Turf%20Mgmt/PDFfiles/WG20900.pdf</a>	[Well controlled by herbicides? Possibly Yes. Related species <i>Chamaedorea seifrizii</i> effectively controlled with herbicides] "Treatment: Cut palm below growing point and treat with 50% Garlon 3A or 10% Garlon 4. Alternatively, Garlon 4 can be applied to the apical bud.? ... "Treatment: Treat as fishtail palm, above. Comments: Pinnate-leaved, narrow-trunked, clustering species; invades hammocks."
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]

## **Summary of Risk Traits**

### **High Risk / Undesirable Traits**

- Thrives in tropical climates
- Other *Chamaedorea* species have become weedy or invasive
- Shade tolerant
- Tolerates many soil conditions (and potentially able to exploit many different habitat types)
- Dispersed by people and potentially birds or other animals

### **Low Risk / Desirable Traits**

- No evidence of naturalization or invasiveness found
- Unarmed (no spines or thorns)
- Landscaping and ornamental value
- Long-time to reproductive maturity
- Relatively large fruits & seeds unlikely to be dispersed accidentally