

Key Words: Evaluate, Ornamental Palm, Edible Fruit, Rhizomatous, Mammal-dispersed

Family: *Arecaceae*

Taxon: *Allagoptera arenaria*

Synonym: *Cocos arenaria* Gomes (*basionym*)

Common Name: seashore palm
coco da praia

Questionnaire :	current 20090513	Assessor:	Chuck Chimera	Designation:	EVALUATE
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)		n
401	Produces spines, thorns or burrs		y=1, n=0		n
402	Allelopathic		y=1, n=0		n
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		
409	Is a shade tolerant plant at some stage of its life cycle		y=1, n=0		n
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	y
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	y
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
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	
707	Propagules dispersed by other animals (externally)	y=1, n=-1	y
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m2)	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	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: EVALUATE

WRA Score 2

Supporting Data:

101	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Is the species highly domesticated? No evidence]
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Species suited to tropical or subtropical climate(s) 2-High] "Distribution and Ecology. Heliophilous, dominant in restinga and low coastal dunes of eastern Brazil, in Bahia, Rio de Janeiro, and Espirito Santo"
202	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Quality of climate match data 2-High]
203	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Broad climate suitability (environmental versatility)? No] "Heliophilous, dominant in restinga and low coastal dunes of eastern Brazil, in Bahia, Rio de Janeiro, and Espirito Santo (Fig. 9). It occurs on white sandy soils from sea level to 100 m." [Natural distribution suggests limited climate suitability]
204	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Distribution and Ecology. Heliophilous, dominant in restinga and low coastal dunes of eastern Brazil, in Bahia, Rio de Janeiro, and Espirito Santo"
205	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Does the species have a history of repeated introductions outside its natural range?] "Allagoptera arenaria and A. leucocalyx are widely cultivated as ornamental plants and can be found in such botanic gardens as those at Kew, Amsterdam, Hyeres, Hawaii, and Rio de Janeiro (Hooker, 1855; Kerchove, 1878; Smit, 1980; Baker, 1980; Fernandes, 1984)."
205	2007. Randall, R.P.. The introduced flora of Australia and 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	2008. Environmental Horticulture Program. Cultivated Plants of Palm Beach County. Palm Beach Community College, Palm Beach, FL http://floridagrasses.org/Manual%20MergedPDF.pdf	Does the species have a history of repeated introductions outside its natural range? Florida] "A tough species adapted to seaside living, they require sun and well drained soil (JON, RI2), and flourish by the sea, even on beach conditions."
205	2012. Floridata. Allagoptera arenaria. http://www.floridata.com/ref/a/alla_are.cfm [Accessed 31 Dec 2012]	[Does the species have a history of repeated introductions outside its natural range?] "Seashore palm is widely cultivated as an ornamental throughout South America."
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 in Australia]
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]
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	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	2012. Randall, R.P.. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	[Congeneric weed? No evidence]

401	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Produces spines, thorns or burrs? No] "Plant 1.5-2 m tall, stem to 1.5 m long, 10 cm diam., subterranean, rhizomatose. Leaves 6-10; sheath not tubular, fibrous; petiole 45-60 cm long, ca. 1 cm diam., covered with woolly indumentum mostly on basal portion; rachis 50-55 cm long, smooth and glabrous or with scarce white glands or with woolly hairs; pinnae 35-53 per side, broad and long lanceolate, with acute tips, regularly inserted in groups of (1-)2-3(-4), 2-3 cm apart, inserted to rachis and spreading at different angles, glabrous at base or with ramenta to 3 mm long, the transverse veinlets evident adaxially, lemon-green and lustrous waxy adaxially, brown-glaucous and waxy abaxially, obtuse apex asymmetrically split for 0.3-0.5 cm, with midrib prominent adaxially and depressed abaxially; basal pinnae 25-35 x 0.8-1.1 cm; middle pinnae 20-45 x 1.1-2 cm; apical pinnae 6-24 x 0.1-0.6 cm."
402	2000. Menezes, L.F.T./Araujo, D.S.D.. <i>Variação da biomassa aérea de Allagoptera arenaria</i> (Gomes) O. Kuntze (Arecaceae) em uma comunidade arbustiva de Palmae na restinga de Marambaia, RJ. <i>Revista Brasileira de Biologia</i> . 60(1): 147-157.	[Allelopathic? No evidence] "A. arenaria growth is closely related to the topography of the beach area. Dense populations of this palm enrich the soil by increasing organic matter under the plants through dead leaf material. This promotes the accumulation of nutrients and the creation of microclimates that favor the establishment of other species."
402	2003. Cirne, P./Zaluar, H.L.T./Scarano, F.R.. Plant diversity, interspecific associations and postfire resprouting on a sandy spit in a Brazilian coastal plain. <i>Ecotropica</i> . 9: 33-38.	[Allelopathic? No evidence. Other plants are able to establish in understory] "Despite the higher species richness and diversity beneath the canopy of <i>Allagoptera arenaria</i> compared to the two legumes, many individuals of the palm were found alone. Thus, its occurrence does not necessarily precede the occurrence of other plants at this early successional phase on the spit. This is in contrast with Zaluar & Scarano (2000), who found that in other restingas <i>Allagoptera arenaria</i> allows plant establishment underneath or around its canopy by providing a milder microclimate than the surrounding bare sand (see also Menezes & Araujo 2000)."
403	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Parasitic? No] Arecaceae
404	2000. Haynes, J./McLaughlin, J.. <i>Edible Palms and Their Uses - Fact Sheet MDCE-00-50-1</i> . University of Florida IFAS Ext., Homestead, FL http://miami-dade.ifas.ufl.edu/old/programs/urbanhort/publications/PDF/EdiblePalms.pdf	[Unpalatable to grazing animals? Palatability of foliage unknown] " <i>Allagoptera arenaria</i> (syn. <i>Diplothemium maritimum</i>) - Seashore palm, cacandó is local name - (clustering - East coast of Brazil). Sweet, though fibrous fruit."
405	2008. Wagstaff, D.J.. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	1988. Hiruki, C.. <i>Tree Mycoplasma and Mycoplasma Diseases</i> . University of Alberta Press, Edmonton, Alberta	[Host for recognized pests and pathogens? Potentially] "The following 10 palm species are known to be susceptible to LY, but their numbers are too few to determine their relative susceptibility..." [Includes <i>Allagoptera arenaria</i>]
407	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Causes allergies or is otherwise toxic to humans? No evidence. Multiple uses by people] "The root of <i>A. arenaria</i> , with a reddish yellow color, is edible and has a sweet flavor (Wied-Neuwied, 1820-1821). The flexibility and resistance of the immature leaves of <i>A. arenaria</i> make them useful as fiber for rope (Bondar, 1939) and material for making baskets (Duarte, 1981; Pinheiro & Balick, 1987). According to Duarte (1981), immature leaves of this species are a potential source of raw material for paper manufacturing. Because of the presence of beneficial insects in its foliage, this species has also been used in biological control of pests of <i>Cocos nucifera</i> . The mesocarp of <i>A. arenaria</i> is used in making beverages, and the leaves used in making baskets and other domestic utensils (Pinheiro & Balick, 1987)."
407	2000. Lewis, C.E./Zona, S.. A survey of cyanogenesis in palms (Arecaceae). <i>Biochemical Systematics and Ecology</i> . 28: 219-228.	[Causes allergies or is otherwise toxic to humans? Cyanogenesis not confirmed] "Furthermore, we were unable to confirm the observations of cyanogenesis in the leaves of <i>Areca catechu</i> (Kalaw and Sacay, 1925) and the leaves of <i>Allagoptera arenaria</i> (Kaplan et al., 1983)."
407	2008. Wagstaff, D.J.. <i>International poisonous plants checklist: an evidence-based reference</i> . CRC Press, Boca Raton, FL	[Causes allergies or is otherwise toxic to humans? No evidence]
408	2003. Cirne, P./Zaluar, H.L.T./Scarano, F.R.. Plant diversity, interspecific associations and postfire resprouting on a sandy spit in a Brazilian coastal plain. <i>Ecotropica</i> . 9: 33-38.	[Creates a fire hazard in natural ecosystems? Unknown] " <i>Allagoptera arenaria</i> is also dominant in the vegetation of the palm scrub. In the last ten years, the spit vegetation was twice burnt (January 1995 and July 2000). These fires were man-made and spread to other parts of the marsh and adjacent forest." [Dense stands of <i>A. arenaria</i> may carry fire in areas that would be otherwise devoid of vegetation]
409	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Is a shade tolerant plant at some stage of its life cycle?] "Heliophilous" [Sun loving]

409	2012. Floridata. <i>Allagoptera arenaria</i> . http://www.floridata.com/ref/a/alla_are.cfm [Accessed 31 Dec 2012]	[Is a shade tolerant plant at some stage of its life cycle?] "Light: The seashore palm requires moderate to full sunlight."
409	2012. Learn 2 Grow. <i>Allagoptera arenaria</i> . http://www.learn2grow.com/plants/allagoptera-arenaria/ [Accessed 31 Dec 2012]	[Is a shade tolerant plant at some stage of its life cycle?] "Sun Exposure: Full Sun, Partial Sun"
409	2012. Palmpedia. <i>Allagoptera arenaria</i> . http://www.palmpedia.net/wiki/Allagoptera_arenaria [Accessed 31 Dec 2012]	[Is a shade tolerant plant at some stage of its life cycle? Contradicts other references] "It survives full sun to fairly dense shade."
410	2012. Learn 2 Grow. <i>Allagoptera arenaria</i> . http://www.learn2grow.com/plants/allagoptera-arenaria/ [Accessed 31 Dec 2012]	[Tolerates a wide range of soil conditions ? Yes] "Growing Conditions: Soil pH: Acidic, Neutral, Alkaline. Soil Drainage: Well Drained. Soil type: Loam, Sand"
410	2012. Palmpedia. <i>Allagoptera arenaria</i> . http://www.palmpedia.net/wiki/Allagoptera_arenaria [Accessed 31 Dec 2012]	[Tolerates a wide range of soil conditions / Yes] "Although this palm normally grows in sandy soil, it seems able to adapt to many types of soils, even heavy clay."
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] "Stems horizontal, short, and subterranean (rarely upright and visible), sometimes forming dense colonies." ... "...on sandy soils near the sea, often forming large stands, 0-10 m elevation."
412	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Forms dense thickets? Yes] " <i>Allagoptera arenaria</i> forms dense populations on the coastal dunes in eastern Brazil. These areas are locally known as "restingas.""
412	1997. Henderson, A./Galeano, G./Bernal, R.. Field Guide to the Palms of the Americas. Princeton University Press, Princeton, NJ	[Forms dense thickets? Yes] "Stems horizontal, short, and subterranean (rarely upright and visible), sometimes forming dense colonies." ... "...on sandy soils near the sea, often forming large stands, 0-10 m elevation."
412	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of <i>Cerradomys subflavus</i> (Rodentia, Cricetidae) as seed predator and disperser of the palm <i>Allagoptera arenaria</i> . <i>Mastozoologia Neotropical</i> . 17(1): 61-68.	[Forms dense thickets? Dominant, but does not impede establishment of other plants] "This palm is one of the dominant herbs in sand dunes in southeastern Brazil (Henderson et al., 1995; Pimentel, 2002), acting as a nurse species and facilitating the formation of the restinga (shrubby vegetation) (Zaluar and Scarano, 2000)."
501	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Aquatic? No] "Distribution and Ecology. Heliophilous, dominant in restinga and low coastal dunes of eastern Brazil, in Bahia, Rio de Janeiro, and Espirito Santo (Fig. 9). It occurs on white sandy soils from sea level to 100 m."
502	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Grass? No] Arecaceae
503	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Nitrogen fixing woody plant? No] Arecaceae
504	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? Not a geophyte, but with rhizomatous stems] "The stem of <i>Allagoptera</i> is subterranean or semisubterranean. Both <i>Allagoptera arenaria</i> and <i>A. campestris</i> were considered by Mohl (1824, cited in Kaul, 1960) to have an "abbreviated stem like a bulb." <i>Allagoptera arenaria</i> , <i>A. leucocalyx</i> , and <i>A. campestris</i> have a subterranean creeping and rhizomatous stem to 10 cm below the soil surface, and the stem reaches a depth of 1.5 m in <i>A. arenaria</i> (Fig. 2B)."
504	2003. Cirne, P./Zaluar, H.L.T./Scarano, F.R.. Plant diversity, interspecific associations and postfire resprouting on a sandy spit in a Brazilian coastal plain. <i>Ecotropica</i> . 9: 33-38.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? Not a geophyte as defined by the WRA. See Gordon et al. 2010] "The species colonizing the exposed sand of the spit originated partly in the neighboring dry forest and partly in the palm scrub on the seashore. The vegetation of the spit was oligarchic, since only three species accounted for more than 75% of the value coverage of the area. These dominant species were the geophyte palm <i>Allagoptera arenaria</i> , and the legume shrubs <i>Andira legalis</i> and <i>Swartzia apetala</i> ."
504	2010. Gordon, D.R./Mitterdorfer, B./Pheloung, P.C. et al.. Guidance for addressing the Australian Weed Risk Assessment questions. <i>Plant Protection Quarterly</i> . 25(2): 56-74.	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "This question relates to perennial plants with tubers, corms or bulbs. This question is specifically to deal with plants that have specialized organs and should not include plants merely with rhizomes/ stolons"
601	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Evidence of substantial reproductive failure in native habitat? No] "Flowering and fruiting phases occur simultaneously throughout the whole year in <i>A. arenaria</i> , although in northeastern Brazil both reproductive states are concentrated mainly during the last and first months of each year."
602	2008. Janick, J./Paull, R.E.. <i>The Encyclopedia of Fruit & Nuts</i> . Cabi Publishing, Wallingford, UK	[Produces viable seed? Yes] "Propagation is by seed, which germinates erratically over 3-6 months."
603	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Hybridizes naturally? Unknown for <i>A. arenaria</i>] "There may be hybrids between <i>Allagoptera campestris</i> and <i>A. leucocalyx</i> . There are two sources of evidence supporting this idea."

604	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Self-compatible or apomictic? Yes] "...it was experimentally tested that this species is self-compatible, but in natural conditions crosspollination is predominant."
605	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Requires specialist pollinators? No] "In Allagoptera arenaria, the pollination syndrome is mixed by anemophilous and entomophilous vectors, and three major orders are involved: Coleoptera, Hymenoptera, Lepidoptera (Leite, 1990)."
606	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Reproduction by vegetative fragmentation? Yes] "The stem of Allagoptera is subterranean or semisubterranean. Both Allagoptera arenaria and A. campestris were considered by Mohl (1824, cited in Kaul, 1960) to have an "abbreviated stem like a bulb." Allagoptera arenaria, A. leucocalyx, and A. campestris have a subterranean creeping and rhizomatous stem to 10 cm below the soil surface, and the stem reaches a depth of 1.5 m in A. arenaria (Fig. 2B)." ... "Plant 1.5-2 m tall, stem to 1.5 m long, 10 cm diam., subterranean, rhizomatose"
606	2010. Gordon, D.R./Mitterdorfer, B./Pheloung, P.C. et al.. Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly. 25(2): 56-74.	[Reproduction by vegetative fragmentation? Yes. A. arenaria is rhizomatous] "The plant must be capable of increasing its numbers by vegetative means. This may include reproduction by: rhizomes, stolons, suckers or stem/root fragments."
607	1998. Riffle, R.L.. The Tropical Look - An Encyclopedia of Dramatic Landscape Plants. Timber Press, Portland, OR	[Minimum generative time (years)?] "The palm grows slowly..."
607	2012. Kennedy, J.. Growing Allagoptera arenaria Caxandó: A Bit of Brazil in Veró. Palm Beach Palm & Cycad Society, http://www.palmbeachpalmcycadsociety.com/palms/documents/AllagopteraArenaria.pdf [Accessed 31 Dec 2012]	[Minimum generative time (years)? Presumably >4 years] "Since Seashore Palm is so slow-growing, it is quite expensive to buy, particularly in any larger size, that is, with three or four small, growing points" not yet "trunks". " [Plants over 4 years of age had not flowered]
701	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of Cerradomys Subflavus (Rodentia, Cricetidae) as seed predator and disperser of the palm Allagoptera arenaria. Mastozoología Neotropical. 17(1): 61-68.	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence] "Infructescences contain five to 129 one seeded fruits (Grenha, 2006), 12 to 20 mm long and 10 to 13 mm in diameter with a sweet fibrous mesocarp..." [Fruits and seeds relatively large and lack means of external attachment]
702	2008. Janick, J./Paull, R.E.. The Encyclopedia of Fruit & Nuts. Cabi Publishing, Wallingford, UK	[Propagules dispersed intentionally by people? Yes] "Allagoptera arenaria is extremely salt tolerant, and makes a fine ornamental in tropical and subtropical coastal areas."
703	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of Cerradomys Subflavus (Rodentia, Cricetidae) as seed predator and disperser of the palm Allagoptera arenaria. Mastozoología Neotropical. 17(1): 61-68.	[Propagules likely to disperse as a produce contaminant? No] "Infructescences contain five to 129 one seeded fruits (Grenha, 2006), 12 to 20 mm long and 10 to 13 mm in diameter with a sweet fibrous mesocarp..." [No evidence, and relatively large fruits and seeds unlikely to become an inadvertent produce contaminant]
704	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Propagules adapted to wind dispersal? No] "Fruit ovoid to turbinate, with orange to yellowish floccose hairs or tomentose from base of stigmas to middle, 1.2-2 cm long, 1-1.3 cm diam., perpendicular to rachilla, the stigmatic remnants erect with stigmas to 3 mm long, the persistent perianth longer than /2 of fruit; seed 1-2;"
705	1996. Moraes R., M.. Allagoptera (Palmae). Flora Neotropica. 73: 1-34.	[Propagules water dispersed? No evidence] "There is some evidence relating the dispersal mechanism of Allagoptera with mammals. " [No evidence, despite being found in coastal strand]
706	2007. Alves-Costa, C.P./Eterovick, P.C.. Seed dispersal services by coatis (Nasua nasua, Procyonidae) and their redundancy with other frugivores in southeastern Brazil. Acta Oecologica. 3 2: 77 -92.	[Propagules bird dispersed? Possibly No, although fleshy-fruited] "Appendix 2. Fruit colour, fruit size and seed size of plant species whose fruits are consumed by some bird or mammal species common in forest fragments in southeastern Brazil." [Allagoptera arenaria not documented to be consumed by any of the 26 bird species in this study]

706	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of <i>Cerradomys Subflavus</i> (Rodentia, Cricetidae) as seed predator and disperser of the palm <i>Allagoptera arenaria</i> . <i>Mastozoología Neotropical</i> . 17(1): 61-68.	[Propagules bird dispersed? Potentially, although most reports document mammal dispersal. Game birds may fill that role] "This palm is probably an important food resource for the community of frugivores in this habitat because of its extended fruiting period and the production of a large amount of fruit (Grenha, 2006). The consumption of <i>A. arenaria</i> fruits by vertebrates was described in laboratory conditions by the rodents <i>Trinomys eliae</i> and <i>Akodon</i> sp. and the marsupials <i>Metachirus nudicaudatus</i> , <i>Philander frenata</i> and <i>Didelphis aurita</i> (Leite, 1990). In nature, Gatti et al. (2006) reported that fruits of this palm were the most important item in the diet of the crab eating fox, <i>Cerdocyon thous</i> , and the raccoon, <i>Procyon cancrivorus</i> , occurring in more than 80% of the scats. Seed predation by invertebrates was reported by Grenha et al. (2008), who found that 30% of seeds were damaged by the bruchid beetle <i>Pachymerus nucleorum</i> . <i>A. arenaria</i> fruits have the potential to be dispersed by small rodents like many palms in Cerrado (Almeida and Galetti, 2007), but its predation and dispersal by these animals are poorly known in the field. In this work we describe the predation and dispersal of <i>Allagoptera arenaria</i> seeds by small rodents and describe for the first time the use of this palm by <i>Cerradomys subflavus</i> (Wagner, 1842)." ... "The subterranean stem facilitates the access of small terrestrial rodents to fruits while still on the palm. Besides that, most infructescences reach the ground when mature due to fruit weight. The removal of fruits directly from the parent tree is rare in non-volant small mammals, excepting some arboreal species like squirrels (Maia et al., 1987; Galetti et al., 1992; Bordignon et al., 1996), as most animals consume fruits after they fall to the ground (Forget, 1991; Schupp, 1992; Vieira et al., 2003)."
707	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Propagules dispersed by other animals (externally)? Yes] "Dispersal of <i>Allagoptera</i> is a special case of indirect zoochory." ... "Similarly, in <i>A. arenaria</i> , dispersion by beetles starts when the ripe fruits are still on the spicate inflorescence. Afterwards, fruits are corroded until they fall to the ground. A scarabeid beetle, <i>Ateuchus squalidus</i> , buries the fruits at short distances from the plants, protecting the seeds against attacks of a bruchid, <i>Pachymerus</i> sp. (Leite, 1990). The presence of beetles is constant throughout all of fruit development (Sylvestre et al., 1989)."
707	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of <i>Cerradomys Subflavus</i> (Rodentia, Cricetidae) as seed predator and disperser of the palm <i>Allagoptera arenaria</i> . <i>Mastozoología Neotropical</i> . 17(1): 61-68.	[Propagules dispersed by other animals (externally)? Yes. Rodent seed predators may also bury intact seeds] " <i>Cerradomys subflavus</i> was the only species caught and this fact together with its abundance in the study area and tooth marks left in the endocarps indicates that this rodent is the main seed predator of this palm. Considering this, <i>C. subflavus</i> should play a key role in <i>A. arenaria</i> population dynamics through the reduction of the total number of seeds that may be recruited. However, seed burial in sites favorable for germination suggests that this rodent can act also as seed disperser of this palm."
708	1996. Moraes R., M.. <i>Allagoptera</i> (Palmae). <i>Flora Neotropica</i> . 73: 1-34.	[Propagules survive passage through the gut? Presumably Yes] "There is some evidence relating the dispersal mechanism of <i>Allagoptera</i> with mammals. For example, <i>A. arenaria</i> may be dispersed by nocturnal mammals for instance, rodents and marsupials of the restinga vegetation such as <i>Proechimys iheringi</i> , <i>Akodon</i> sp., <i>Metachirus nudicaudatus</i> , <i>Philander opossum</i> , and <i>Didelphis aurita</i> (Leite, 1990)." [Pigs and rodents may serve a similar role in tropical Pacific islands]
708	2006. Gatti, A./Bianchi, R./Rosa, C.R.X./Mendes, S.L.. Diet of two sympatric carnivores, <i>Cerdocyon thous</i> and <i>Procyon cancrivorus</i> , in a restinga area of Espírito Santo State, Brazil. <i>Journal of Tropical Ecology</i> . 22: 227-230.	[Propagules survive passage through the gut? Yes] "Fruits were the item most often found in scats of both <i>C. thous</i> and <i>P. cancrivorus</i> , the most frequent being the fruit of the palm <i>Allagoptera arenaria</i> , which occurred in 88.6% of <i>C. thous</i> scats and in 80% of <i>P. cancrivorus</i> scats." ... "The high consumption of <i>A. arenaria</i> fruit by the crab-eating fox and the raccoon may be related to this item's constant availability in the area."
801	2010. Grenha, V./Macedo, M.V./Pires, A.S./Monteiro, R.F.. The role of <i>Cerradomys Subflavus</i> (Rodentia, Cricetidae) as seed predator and disperser of the palm <i>Allagoptera arenaria</i> . <i>Mastozoología Neotropical</i> . 17(1): 61-68.	[Prolific seed production (>1000/m ²)? No] "Infructescences contain five to 129 one seeded fruits (Grenha, 2006), 12 to 20 mm long and 10 to 13 mm in diameter with a sweet fibrous mesocarp (Henderson et al., 1995; Fig. 1b). At the study area <i>A. arenaria</i> fruits were found all year around, with fruiting peak from September to December (Grenha, 2006)."
802	2008. Royal Botanic Gardens Kew. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/	[Evidence that a persistent propagule bank is formed (>1 yr)? Unknown] "Leon (1961) classified this genus in the intermediate-lived seed class."
803	2012. WRA Specialist. Personal Communication.	[Well controlled by herbicides? Unknown] No information on herbicide efficacy or chemical control of this species
804	2003. Cirne, P./Zaluar, H.L.T./Scarano, F.R.. Plant diversity, interspecific associations and postfire resprouting on a sandy spit in a Brazilian coastal plain. <i>Ecotropa</i> . 9: 33-38.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "TABLE 2. Proportion of individuals that resprouted (A = aerial; U = underground; A+U = aerial + underground), died after the fire of July 2000, or occurred in patches unaffected by this fire (NF)." [95.6% of <i>Allagoptera arenaria</i> resprouted from underground stems following fire]

804	2004. Menezes, L.F.T./Araujo, D.S.D.. The structure and diversity of three areas of shrubby restinga vegetation were analyzed 3, 12 and 84 months after fire in the Marambaia Restinga, Rio de Janeiro State, Brazil. Acta Botanica Brasilica. 18(4): 771-780.	[Tolerates, or benefits from, mutilation, cultivation, or fire? Yes] "Crescimento e rebrota das espécies - Todos os indivíduos de A. arenaria (N = 194) amostrados no sítio 0,25-PF apresentaram resistência ao fogo." [Translation from Portuguese: "Growth and regrowth of species - All individuals of A. arenaria (N = 194) sampled in place 0.25-PF had fire resistance. "]
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
- Tolerates many soil conditions (and potentially able to exploit many different habitat types)
- Forms dense thickets in native range
- Self-compatible
- Viable seeds dispersed by frugivorous mammals
- Can spread by creeping rhizomes
- Tolerates and resprouts after fires

Low Risk / Desirable Traits

- No reports of naturalization or invasiveness
- Unarmed (no spines)
- Edible fruit
- Non-toxic
- Landscaping and ornamental value
- Slow growing, & long time to maturity