

Key Words: Low Risk, Ornamental Palm, Tropical, Unarmed, Fleshy-fruited

Family: *Arecaceae*

Taxon: *Iguanura bicornis*

Synonym: NA

Common Name: horned seed palm
iguanura

Questionnaire : current 20090513 **Assessor:** Chuck Chimera **Designation:** L
Status: Assessor Approved **Data Entry Person:** Chuck Chimera **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	y
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	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	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	n
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	
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	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	
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	y=-1, n=1	

Designation: L

WRA Score -1

Supporting Data:

101	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Is the species highly domesticated? No evidence]
102	2012. WRA Specialist. Personal Communication.	NA
103	2012. WRA Specialist. Personal Communication.	NA
201	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Species suited to tropical or subtropical climate(s) 2- High] "Native to Thailand and Malaysia..."
202	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Quality of climate match data 2-High]
203	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Broad climate suitability (environmental versatility)? No] "All are tender to cold and adaptable only to zones 10b and 11; they need warmth year-round, even at night, and thus are not suitable for frostless Mediterranean climates."
203	2012. PACSOA. Palms: <i>Iguanura bicornis</i> [Accessed 10 Oct 2012]. PACSOA (Palm and Cycad Society of Australia), http://www.pacsoa.org.au/palms/Iguanura/bicornis.html	[Broad climate suitability (environmental versatility)? No] "Warm, sheltered and moist. Tropics or warm sub-tropics. "
204	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Native to Thailand and Malaysia..."
204	2012. PACSOA. Palms: <i>Iguanura bicornis</i> [Accessed 10 Oct 2012]. PACSOA (Palm and Cycad Society of Australia), http://www.pacsoa.org.au/palms/Iguanura/bicornis.html	[Native or naturalized in regions with tropical or subtropical climates? Yes] "Endemic to the mountainous rainforests of peninsular Malaysia at about 800m elevation."
205	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Does the species have a history of repeated introductions outside its natural range? No evidence]
205	2012. Dave's Gardern. PlantFiles: <i>Iguanura bicornis</i> [Accessed 10 Oct 2012]. http://davesgarden.com/guides/pf/go/68226/	[Does the species have a history of repeated introductions outside its natural range? No evidence] "Nice looking palm but rare 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]
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	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Produces spines, thorns or burrs? No] "All are tender to cold and adaptable only to zones 10b and 11; they need warmth year-round, even at night, and thus are not suitable for frostless Mediterranean climates."
402	2012. WRA Specialist. Personal Communication.	[Allelopathic? Unknown]
403	2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	[Parasitic? No] Arecaceae

404	2002. Neill, S.O.. The Functional Role of Anthocyanins in Leaves. PhD Dissertation. University of Auckland, Auckland, NZ	[Unpalatable to grazing animals? Unknown for <i>I. bicornis</i>] "Stone (1979) noted that anthocyanins in young developing leaves of <i>Iguanura geonomaeformis</i> and <i>Pinganga</i> species appear brown due to the masking effect of chlorophyll. This was suggested to be of importance in camouflaging young, palatable leaves by conferring the appearance of dead or dying leaves, potentially reducing herbivore predation."
405	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Toxic to animals? No evidence]
405	2008. Wagstaff, D.J.. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	[Toxic to animals? No evidence]
406	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Host for recognized pests and pathogens? Unknown] No information on pests or diseases given
407	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Causes allergies or is otherwise toxic to humans? No evidence]
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]
408	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Creates a fire hazard in natural ecosystems? No evidence] "...this small palm grows in the rainforest understorey." ... "It requires a protected, shaded site with ample water and prefers tropical climates." [Unlikely given rainforest habitat]
409	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Is a shade tolerant plant at some stage of its life cycle? Presumably Yes] "...this small palm grows in the rainforest understorey." ... "It requires a protected, shaded site with ample water and prefers tropical climates."
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] "They are water lovers, need a slightly acidic, humus-laden soil, and cannot take the full sun of hot climates."
410	2012. Dave's Gardern. PlantFiles: <i>Iguanura</i> - <i>Iguanura bicornis</i> [Accessed 10 Oct 2012]. http://davesgarden.com/guides/pf/go/68226/	[Tolerates a wide range of soil conditions? Unknown] "Soil pH requirements: Unknown - Tell us"
411	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Climbing or smothering growth habit? No] "Stems clustered to 3 m tall, rarely more, and 2.2 cm diameter."
412	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Forms dense thickets? No evidence] "Stems clustered, to 3m tall, rarely more, and 2.2 cm diameter." ... "...lowland or montane rainforest to 1500 m elevation."
501	2003. Riffle, R.L./Craft, P.. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[Aquatic? No] Terrestrial palm
502	2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	[Grass? No] Arecaceae
503	2012. Tropicos.org. Tropicos [Online Database]. Missouri Botanical Garden, http://www.tropicos.org/	[Nitrogen fixing woody plant? No] Arecaceae
504	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)? No] "Stems clustered to 3 m tall, rarely more, and 2.2 cm diameter."
601	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Evidence of substantial reproductive failure in native habitat? No evidence]
602	2010. rarepalmseeds.com. <i>Iguanura bicornis</i> [Accessed 10 Oct 2012]. http://www.rarepalmseeds.com/pix/IguBic.shtml	[Produces viable seed? Yes]
603	2012. WRA Specialist. Personal Communication.	[Hybridizes naturally? Unknown]
604	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Self-compatible or apomictic? Unknown] "Flowers are unisexual and are borne in threes of a central female and two later males." [Monoecious. Potential for self-compatibility exists]
605	1986. Henderson, A.. A Review of Pollination Studies in the Palmae. Botanical Review. 52: 221-259.	[Requires specialist pollinators? No, based on pollination of related species] "Kiew (1972) described <i>Iguanura geonomaeformis</i> Mart. in Malaya as being protandrous, and the flowering period of an inflorescence lasting for one to three months. Staminate flowers attracted ants which fed on liquid, flies, bees, and wasps which gathered pollen, and weevils which ate stamens. The female flowers attracted fewer insects, including ants which drank floral liquid."
606	2012. WRA Specialist. Personal Communication.	[Reproduction by vegetative fragmentation? Unknown]

607	2012. WRA Specialist. Personal Communication.	[Minimum generative time (years)? Unknown]
701	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)? No evidence] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish." [Fruits relatively large and lack means of external attachment]
702	2004. Dransfield, J./Barfod, A. S./Pongsattayapipat, R.. A preliminary checklist to Thai Palms. Thai Forest Bulletin (Botany). 32: 32-72.	[Propagules dispersed intentionally by people? Yes] "Use.— Ornamental"
702	2010. rarepalmseeds.com. Iguanura bicornis [Accessed 10 Oct 2012]. http://www.rarepalmseeds.com/pix/IguBic.shtml	[Propagules dispersed intentionally by people? Yes] Ornamental
703	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules likely to disperse as a produce contaminant? No evidence] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish." [Fruits relatively large and unlikely to contaminate produce]
704	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules adapted to wind dispersal? No] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish."
705	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules water dispersed? No evidence, although possible that fruit may be buoyant] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish."
706	1981. Snow, D.W.. Tropical Frugivorous Birds and Their Food Plants: A World Survey. Biotropica. 13(1): 1-14.	[Propagules bird dispersed? Yes] "Table 1. Plant genera recorded in the diets of frugivorous birds in the tropics" [Includes Iguanura genus]
706	2001. Ellison, D./Ellison, A.. Cultivated palms of the world. UNSW Press, Sydney.	[Propagules bird dispersed? Presumably Yes] "The ripe red fruit is oblong."
707	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules dispersed by other animals (externally)? No] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish." [No means of external attachment]
708	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Propagules survive passage through the gut? Presumably Yes] "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish."
801	2009. Henderson, A.. Palms of Southern Asia. Princeton University Press, Princeton, NJ	[Prolific seed production (>1000/m2)? No] "Stems clustered to 3 m tall..." "...fruits oblong-ovoid, with 2 lobes at the apices, to 2 cm long and 1.8 cm diameter, reddish." [Unlikely. Small-statured palm with relatively large fruit]
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] 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]

Summary of Risk Traits

High Risk / Undesirable Traits

- Thrives in tropical climates
- Shade tolerant
- Fleshy-fruited plant may be dispersed by birds or other animals
- Rare in cultivation. Ecology of species poorly understood.

Low Risk / Desirable Traits

- No reports of naturalization or invasiveness found for this or any other species in the genus
- Unarmed (no spines, thorns or burrs)
- Non-toxic
- Landscaping and ornamental value
- Relatively large fruits and seeds unlikely to be inadvertently dispersed