

**Taxon:** Clinostigma ponapense (Becc.) H. E. Moore & Fosberg

**Family:** Arecaceae

**Common Name(s):** Kotop  
Ponape palm

**Synonym(s):** Bentinckiopsis ponapensis Becc.

**Assessor:** Assessor

**Status:** Assessor Approved

**End Date:** 15 Apr 2020

**WRA Score:** -1.0

**Designation:** L

**Rating:** Low Risk

**Keywords:** Tropical, Emergent Palm, Ornamental, Unarmed, Fleshy-fruited

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
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		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
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		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
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		
604	Self-compatible or apomictic		
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		
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/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

**Supporting Data:**

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Riffle, R.L.& Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	[No evidence] "These species are still rare in cultivation..."

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. (2020). Personal Communication	NA

201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	Native Pacific NORTHWESTERN PACIFIC: Micronesia [Pohnpei]"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Riffle, R.L.& Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"It does not tolerate drought or freezing temperatures and is hardy in zones 10b or 11/"
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"It requires moist and sheltered conditions in subtropical to tropical locations."

204	Native or naturalized in regions with tropical or subtropical climates	y
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	"Native Pacific NORTHWESTERN PACIFIC: Micronesia [Pohnpei]"

205	Does the species have a history of repeated introductions outside its natural range?	n
	<b>Source(s)</b>	<b>Notes</b>
	Riffle, R.L. & Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"Clinostigma is a genus of 13 pinnate-leaved, monoecious palms in the South Pacific Islands." ... "These species are still rare in cultivation, especially in the Western Hemisphere, but are among the most beautiful things the natural world has to offer, and all are more than worthy of cultivation in tropical climates."

301	Naturalized beyond native range	n
	<b>Source(s)</b>	<b>Notes</b>
	Imada, C. (2019). Hawaiian Naturalized Vascular Plants Checklist (February 2019 update). Bishop Museum Technical Report 69. Bishop Museum, Honolulu, HI	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

302	Garden/amenity/disturbance weed	n
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

303	Agricultural/forestry/horticultural weed	n
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

304	Environmental weed	n
	<b>Source(s)</b>	<b>Notes</b>
	Meyer, J. Y., Lavergne, C., & Hodel, D. R. 2008. Time bombs in gardens: invasive ornamental palms in tropical islands, with emphasis on French Polynesia (Pacific Ocean) and the Mascarenes (Indian Ocean). <i>Palms</i> , 52(2): 71-83	No evidence
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

305	Congeneric weed	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

401	Produces spines, thorns or burrs	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	"Trunk type: Solitary. Hight: An emergent palm, To 20 meters, (67'). One of the few <i>Clinostigma</i> 's with evenly spaced rings. Trunk is whitish in appearance, with a light green crownshaft. Spread: 4.6 meters, (15'). Leaf detail: Pinnately compound, fine leaflets, and drooping leaflets. this species develops stilt roots when mature."
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[No evidence] "Tall single-trunked trees beautifully ringed with brownish leaf base scars, waxy, spreading mass of stilt roots supporting the trunk, cylindrical sheath, crownshaft slightly bulging at the base, sparse hemispherical crown of spreading pinnate leaves somewhat arching at their tips, short petiole deeply concave above, arching and spreading linear-lanceolate pinnae regularly disposed, large twice branched inflorescences below the well-developed crownshaft"

402	Allelopathic	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown

403	Parasitic	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	Family: Arecaceae (alt.Palmae) Subfamily: Arecoideae Tribe: Areceae

404	Unpalatable to grazing animals	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown

Qsn #	Question	Answer
405	<b>Toxic to animals</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	<b>Host for recognized pests and pathogens</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown

407	<b>Causes allergies or is otherwise toxic to humans</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	[No evidence. Multiple uses] "It is extensively used by Pohnpeians who use the large bracts to carry things and for kids as a sled to ride downhill! The leaves are used to make shelters in the forest. The growing tip of the stem is harvested for the heart of palm that is eaten."
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	No evidence
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	<b>Creates a fire hazard in natural ecosystems</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	[No evidence, and unlikely given wet habitat] "This attractive palm is native to the island of Ponape in the Caroline Islands and grows in very humid and misty forests/"

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	Palmtalk. (2010). <i>Clinostigma ponapense</i> . <a href="http://www.palmtalk.org/forum/index.php?/topic/24601-clinostigma-ponapense/">http://www.palmtalk.org/forum/index.php?/topic/24601-clinostigma-ponapense/</a> . [Accessed 15 Apr 2020]	"I actually put temporary shade on them, but only with 30% shade, so the sun can still penetrate, but the shade protects it from the wind. It works so far and I haven't lost any. had to do it to my some other palms too, like <i>Rhopalablaste</i> . Besides, the shade will take the edge of the heat from the sun too and prevent burning while young. It is not pretty, but better for the long run. I hope this helps."
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	"Requirements: Filtered light when young, full sun when mature..."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	"Requirements: Filtered light when young, full sun when mature, consistently moist soil, well drained position. Warm, sheltered, and moist."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	"all single-trunked trees beautifully ringed with brownish leaf base scars"
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	"Trunk type: Solitary. Hight: An emergent palm, To 20 meters, (67'). One of the few <i>Clinostigma</i> 's with evenly spaced rings. Trunk is whitish in appearance, with a light green crownshaft. Spread: 4.6 meters, (15'). Leaf detail: Pinnately compound, fine leaflets, and drooping leaflets. this species developes stilt roots when mature."

412	Forms dense thickets	
	Source(s)	Notes
	Wortel, O.L. 2010. <i>Federated States of Micronesia Fourth National Report</i> . United Nations Global Environment Facility, UN Development Programme, UN Environment Programme	[Possibly Yes] "Palms are a component of forests throughout the FSM, and occur in dense stands on Pohnpei and Chuuk especially in areas where the primary forest has been disturbed. On Chuuk, the common species is the endemic <i>Clinostigma carolinensis</i> , while on Pohnpei the endemic <i>Clinostigma ponapensis</i> is common and there are two species of <i>Ptychosperma</i> : <i>P. hosinoi</i> and <i>P. ledermanniana</i> " ... "Endemic palms, particularly in the mountains of Pohnpei where the palm forests are pure native <i>Clinostigma</i> (TNC 2003), attain heights of 25-30 m (80 – 100 ft), and also extend into upland forest with a <i>Maesa carolinensis</i> association at the lower altitudes (450 to 600 m). The endemic palm, <i>Clinostigma ponapensis</i> , forms the upper layer of the <i>Maesa carolinensis</i> association."

501	Aquatic	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	[Terrestrial palm] "This species, forms <i>Clinostigma</i> palm forests on Pohnpei, where it is one of the most common species between 450 and 600 m. "
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Terrestrial] "in mountainous rain and cloud forest"

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	Family: Arecaceae (alt.Palmae) Subfamily: Arecoideae Tribe: Areceae

503	Nitrogen fixing woody plant	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, Agricultural Research Service, National Plant Germplasm System. (2020). Germplasm Resources Information Network (GRIN-Taxonomy). National Germplasm Resources Laboratory, Beltsville, Maryland. <a href="https://npgsweb.ars-grin.gov/">https://npgsweb.ars-grin.gov/</a> . [Accessed 15 Apr 2020]	Family: Arecaceae (alt.Palmae) Subfamily: Arecoideae Tribe: Areceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Tall single-trunked trees beautifully ringed with brownish leaf base scars"

601	Evidence of substantial reproductive failure in native habitat	n
	<b>Source(s)</b>	<b>Notes</b>
	Palmpedia. (2020). <i>Clinostigma ponapense</i> . <a href="https://www.palmpedia.net/wiki/Clinostigma_ponapense">https://www.palmpedia.net/wiki/Clinostigma_ponapense</a> . [Accessed 15 Apr 2020]	"This species, forms <i>Clinostigma</i> palm forests on Pohnpei, where it is one of the most common species between 450 and 600 m."

602	Produces viable seed	y
	<b>Source(s)</b>	<b>Notes</b>
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	"The fruit is oblong and seed germinates in 4 to 6 months with bottom heat."

603	Hybridizes naturally	



Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	rarepalmseeds.com. (2020). <i>Clinostigma ponapense</i> X <i>C. harlandii</i> F2. <a href="http://www.rarepalmseeds.com/pix/CliPonHar.shtml">http://www.rarepalmseeds.com/pix/CliPonHar.shtml</a> . [Accessed 15 Apr 2020]	[Possibly. Artificial hybridization possible] "A vigorous and at the same time graceful hybrid, made in Hawaii between <i>Clinostigma ponapense</i> , native to Ponape in the Micronesian Caroline Islands and <i>Clinostigma harlandii</i> from Vanuatu in the Southwest Pacific. Like most <i>Clinostigma</i> , it is a magnificent and fast growing palm for the tropics."

604	Self-compatible or apomictic	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown

605	Requires specialist pollinators	n
	<b>Source(s)</b>	<b>Notes</b>
	Kato, M., Itino, I., Hotta, M., Abbas, I., & Okada, H. 1989. Flower visitors of 32 plant species in West Sumatra. Occasional papers of the Kagoshima University Research center for South Pacific, 16: 15-31.	"Table 4. Plant species observed to be visited by honeybees in the Bonin Islands, with the months when flowering and honeybee visits were observed" [Related species, <i>Clinostigma savoryana</i> , visited, and presumably pollinated by honeybees]
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[No evidence from flora morphology of genus] "Inflorescences infrafoliar, branched to 3 orders; prophyll and peduncular bract enclosing inflorescence in bud, caducous; rachillae bearing superficial spiral triads throughout, or proximally only with staminate flowers distally. Staminate flowers asymmetrical; sepals and petals distinct; stamens 6, filaments inflexed, anthers versatile, latrorse; pistillode conical. Staminodes (5-)6. Stigmatic remains eccentrically apical, lateral, or basal; epicarp smooth, mesocarp fibrous, endocarp smooth, operculum elliptic."

606	Reproduction by vegetative fragmentation	n
	<b>Source(s)</b>	<b>Notes</b>
	Ellison, D. & Ellison, A. 2001. Cultivated Palms of the World. UNSW Press, Sydney, Australia	[No evidence of vegetative spread] "The fruit is oblong and seed germinates in 4 to 6 months with bottom heat."
	Quattrocchi, U. (2017). CRC World Dictionary of Palms: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	[Solitary trunk. No evidence of clumping or spreading by vegetative means] "Tall single-trunked trees"

607	Minimum generative time (years)	>3
	<b>Source(s)</b>	<b>Notes</b>
	Riffle, R.L. & Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"None of these species are fast growing but neither are they terribly slow."
	Hodel, D.R. 1993. The Growth of Some Palms in Tahiti. <i>Principes</i> 37(3): 124-138	[Specifics unknown for <i>C. ponapense</i> , but presumably similar to <i>C. samoense</i> and more than 4 years] "Table 1. Palms in Papeari, August, 1990. 1 : years in ground, 2 : years in ground to flowering" ... [ <i>Clinostigma samoense</i> - years in ground to flowering = 7 years]

Qsn #	Question	Answer
701	<b>Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Presumably No. Fleshy-fruited & lacking means of external attachment] "epicarp smooth, mesocarp fibrous, endocarp smooth, operculum elliptic. Seed with basal or lateral, rounded to elongate hilum"
702	<b>Propagules dispersed intentionally by people</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Wong, M. 2006. Palms for Hawaii Landscapes. Landscape L-19. College of Tropical Agriculture and Human Resources, Honolulu, HI	[Ornamental & landscaping uses] "Tropical" theme palms The following palm species can be used to portray a strong "tropical" theme:" [List includes <i>Clinostigma ponapensis</i> ]
703	<b>Propagules likely to disperse as a produce contaminant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unlikely. Fruits & seeds presumably large enough to prevent inadvertent contamination of other produce, potting soil etc.
704	<b>Propagules adapted to wind dispersal</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae). Springer-Verlag, Berlin, Heidelberg, New York	[Fleshy-fruited] "epicarp smooth, mesocarp fibrous, endocarp smooth, operculum elliptic. Seed with basal or lateral, rounded to elongate hilum"
705	<b>Propagules water dispersed</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Buoyancy of fruit or distribution around streams unknown
706	<b>Propagules bird dispersed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Zona, S., & Henderson, A. 1989. A review of animal-mediated seed dispersal of palms. Selbyana 11: 6-21	[Presumably bird-dispersed, as are other species in the genus. Dispersal of seeds is generally by means of animals for fleshy-fruited palms]
707	<b>Propagules dispersed by other animals (externally)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Presumably adapted for consumption by frugivores and internal dispersal. Lack means of external attachment
708	<b>Propagules survive passage through the gut</b>	<b>y</b>

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Zona, S., & Henderson, A. 1989. A review of animal-mediated seed dispersal of palms. <i>Selbyana</i> 11: 6-21	[Presumably yes. Fleshy-fruited & adapted for frugivory, as are other species in the genus]
<b>801</b>	<b>Prolific seed production (&gt;1000/m<sup>2</sup>)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown
<b>802</b>	<b>Evidence that a persistent propagule bank is formed (&gt;1 yr)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Royal Botanic Gardens Kew. (2020) Seed Information Database (SID). Version 7.1. Available from: <a href="http://data.kew.org/sid/">http://data.kew.org/sid/</a> . [Accessed 15 Apr 2020]	"Storage Behaviour: No data available for species or genus. Of 124 known taxa of family ARECACEAE, 29.03% Orthodox(p/?), 33.06% Recalcitrant(?), 9.68% Intermediate(?), 28.23% Uncertain"
<b>803</b>	<b>Well controlled by herbicides</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species
<b>804</b>	<b>Tolerates, or benefits from, mutilation, cultivation, or fire</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Wortel, O.L. 2010. Federated States of Micronesia Fourth National Report. United Nations Global Environment Facility, UN Development Programme, UN Environment Programme	"Although native palms are resilient under natural disturbance regimes of tree windfall, observations in areas currently being cleared for sakau cultivation suggest that <i>Clinostigma</i> does not re-establish well after large-scale disturbances (TNC 2003)."
<b>805</b>	<b>Effective natural enemies present locally (e.g. introduced biocontrol agents)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. (2020). Personal Communication	Unknown

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Thrives in tropical climates
- Some shade tolerance (may be able to spread into intact forests)
- May possibly form dense stands in native range
- May be able to hybridize with other *Clinostigma* species
- Seeds dispersed by frugivores & intentionally by people
- Limited ecological information makes accurate risk prediction difficult

Low Risk Traits

- No reports of invasiveness or naturalization, but no evidence of widespread introduction outside native range
- Unarmed (no spines, thorns or burrs)
- Ornamental
- Not reported to spread vegetatively
- Reaches maturity in 7+ years