

Taxon: Pelagodoxa henryana	Family: Arecaceae
Common Name(s): Marquesas palm	Synonym(s): Pelagodoxa mesocarpa Burret

Assessor: No Assessor	Status: Assessor Approved	End Date: 1 Aug 2014
WRA Score: -2.0	Designation: L	Rating: Low Risk

Keywords: Tropical Palm, Naturalized, Endangered, Large Fruit, Water-dispersed

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	y
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	y=1, n=-1	n
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	y=1, n=0	y
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		

Qsn #	Question	Answer Option	Answer
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	y
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	n
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	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut		
801	Prolific seed production (>1000/m ²)	y=1, n=-1	n
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
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[Evidence of human dispersal, but no evidence of modification through domestication] "The origin and natural distribution of <i>Pelagodoxa</i> is not known with certainty. This palm was first collected by Henry in 1916 on Nuku Hiva Marquesas Islands, and was described from this material as <i>Pelagodoxa henryana</i> Becc. Only a single small population, consisting of five adults and 20 juveniles, was known in 1973 in the bottom of Taipi valley, at ca. 50 m elevation, in the understory of the dense humid lowland forest."
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2014. 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
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	"The origin and natural distribution of <i>Pelagodoxa</i> is not known with certainty. This palm was first collected by Henry in 1916 on Nuku Hiva, Marquesas Islands, and was described from this material as <i>Pelagodoxa henryana</i> Becc." ... "Wood and Perlman (1997) more recently de- scribed the population from an expedition in 1997. They describe the area and associated species as Nuku Hiva; Taipivai..."
202	Quality of climate match data	High
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[Native range uncertain, but clearly suited to tropical climates] "The origin and natural distribution of <i>Pelagodoxa</i> is not known with certainty. This palm was first collected by Henry in 1916 on Nuku Hiva, Marquesas Islands, and was described from this material as <i>Pelagodoxa henryana</i> Becc."

Qsn #	Question	Answer
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.	"The palm is tropical in its requirements and is marginal in zone 10b. It must have copious and regular moisture, constantly high humidity, and protection from the full sun of hot climates. It does not tolerate hot or cold dry winds and needs protection from any strong breeze if its elegant, undivided leaves are to remain pristine."

204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	"The genus <i>Pelagodoxa</i> Becc. (Arecaceae, Arecoideae, Areceae) is of particular interest because of its unusual morphological characteristics, such as the large undivided leaves and large corky-warted fruits, and its curious distribution, in the Marquesas Islands and Melanesian Islands of the Southwest Pacific, where it is found only in anthropogenic habitats (Gillett 1971; Dowe and Cabalion 1996). The type species, <i>P. henryana</i> Becc., is found in a restricted area of Nuku Hiva, Marquesas Islands, and has large fruits, 10-15 cm in diameter (Beccari in Bois 1917; Chapin 1999)."

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. <i>Cultivated Palms of the World</i> . UNSW Press, Sydney, Australia	"Limited in cultivation, it is an excellent landscaping palm for tropical climates and needs filtered light and ample moisture."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Stauffer, F. W., Baker, W. J., Dransfield, J., & Endress, P. K. 2004. Comparative floral structure and systematics of <i>Pelagodoxa</i> and <i>Sommieria</i> (Arecaceae). <i>Botanical Journal of the Linnean Society</i> , 146(1): 27-39	" <i>Pelagodoxa</i> is monotypic and is thought to be endemic to the Marquesas, but with additional records from scattered localities in Melanesia from anthropogenic habitats (Gillett, 1971; Uhl & Dransfield, 1987; Chapin, Essig & Pintaud, 2001). Given that the sole locality in the Marquesas is associated with an archaeological site, to which people may have introduced the palms, none of the known populations of <i>Pelagodoxa</i> can be said with any confidence to be truly wild."

Qsn #	Question	Answer
	<p>IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf. [Accessed 1 Aug 2014]</p>	<p>["Naturalized" due to human assistance] "There are no known wild populations; there are three documented anthropogenic sites in Vanuatu, Marquesas and Fiji Islands." ... "<i>Pelagodoxa henryana</i> is found in cultivation or anthropogenic habitats with a peculiar distribution pattern attributed to human dispersal. The fruits have poor dispersal by floatation in water. Populations have been documented from the Marquesas Islands and Melanesian Islands of the Southwest Pacific, including San Cristobal and Mikiri Harbour, in the Solomon Islands. The type species, <i>P. henryana</i> was found in Nuku Hiva, Marquesas Islands. The smallest fruited <i>Pelagodoxa</i> was vouchered in 1983 and observed and documented in Vanua Lava, Vanuatu, with reports of an inland population on at least one island. <i>Pelagodoxa henryana</i> has naturalized in many of these regions."</p>
	<p>Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i>, 2 (4): 779-785</p>	<p>[Probably naturalized with the aid of human-mediated dispersal] "No truly wild population of any <i>Pelagodoxa</i> is known either in the Marquesas or in the southwest Pacific." ... "<i>Pelagodoxa</i> is also known from the Melanesian archipelagos of the southwestern Pacific where its status is also unclear. It is found as an ornamental tree in Melanesian villages in Vanuatu, where it has been recorded from Vanua Lava (Banks group), Erromango, and Malakula (Dowe and Cabalion 1996; Phillips 1996). Populations occurring on slopes in lowland rainforest in southeast Malakula and isolated trees in the same environment in Vanua Lava are interpreted as the result of naturalization (Dowe and Cabalion 1996; Veillon pers. comm.). <i>Pelagodoxa</i> is also recorded from San Cristobal in the Solomon Islands. A population has been recorded at Makiri Harbour on the south coast of this island, and isolated trees found some distance away are said to have developed from fruits washed up after a storm (Corer 1969). The small-fruited morph is also present in Fiji islands where it has clearly been introduced (Phillips 1996). In all these southwest Pacific islands, only the small-fruited morph is known and seems to correspond to Burret's <i>Pelagodoxa mesocarpa</i> (Burret 1928)."</p>

302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	<p>IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf. [Accessed 1 Aug 2014]</p>	<p>[No evidence] "Status: Extinct in the wild (EW)"</p>
	<p>Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia</p>	<p>No evidence</p>

Qsn #	Question	Answer
303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	Environmental weed	n
	Source(s)	Notes
	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 of invasiveness in natural areas] "The origin of <i>Pelagodoxa henryana</i> is still somewhat controversial because all its known locations in the Marquesas and in Melanesia (Vanuatu and the Solomon Islands) are at sites currently or known to have been inhabited in the past."

305	Congeneric weed	n
	Source(s)	Notes
	Stauffer, F. W., Baker, W. J., Dransfield, J., & Endress, P. K. 2004. Comparative floral structure and systematics of <i>Pelagodoxa</i> and <i>Sommieria</i> (Arecaceae). <i>Botanical Journal of the Linnean Society</i> , 146(1): 27-39	" <i>Pelagodoxa</i> is monotypic and is thought to be endemic to the Marquesas, but with additional records from scattered localities in Melanesia from anthropogenic habitats (Gillet, 1971; Uhl & Dransfield, 1987; Chapin, Essig & Pintaud, 2001)." ... "The presence of small-fruited plants of <i>Pelagodoxa</i> in cultivation in the National Tropical Botanic Garden in Kauai, Hawaii, may suggest that a second species exists (D. Lorence, pers. comm.), but this requires further investigation."

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed]	" <i>Pelagodoxa henryana</i> belongs to the monotypic genus <i>Pelagodoxa</i> (Pelagodoxeae: Arecaceae). It is an unarmed, solitary palm to 11 m height. The stem is up to 15 cm diam, and the leaf scars are closely spaced. The leaves are large, undivided, pinnately ribbed with a bifid apex, and may extend to 3 m long and to about 1 m wide. The upper surface is green and glabrous, and the lower surface has a distinctive silvery glaucous bloom. The petiole is stout and short, to about 22 cm long. The leaf bases are densely tomentose, do not form a crownshaft but have a loose entanglement of fine fibres along the lower margins."

402	Allelopathic	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

403	Parasitic	n
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Qsn #	Question	Answer
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	" <i>Pelagodoxa henryana</i> belongs to the monotypic genus <i>Pelagodoxa</i> (<i>Pelagodoxeae</i> : <i>Arecaceae</i>). It is an unarmed, solitary palm to 11 m height."
404	Unpalatable to grazing animals	n
	Source(s)	Notes
	Lucas, G. & Synge, H.(eds.). 1978. The IUCN Plant Red Data Book. IUCN, Gland, Switzerland	[Presumably palatable] "This species had presumably declined due to the destruction of the native forests from grazing by sheep and cattle. In 1970 Gillett found it was 'reproducing very well, with the population slowly expanding. The feral pigs had not (by then) apparently discovered this food source.'"
405	Toxic to animals	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence
406	Host for recognized pests and pathogens	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 2 Aug 2014]	"...in cultivation the palm seedlings are highly susceptible to fungal attacks and disease."
407	Causes allergies or is otherwise toxic to humans	n
	Source(s)	Notes
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence
408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Lucas, G. & Synge, H.(eds.). 1978. The IUCN Plant Red Data Book. IUCN, Gland, Switzerland	[No evidence. Does not occur in fire prone ecosystems] "Under tropical rain-forest with <i>Inocarpus edulis</i> J.R. & G. Forster and <i>Hibiscus tiliaceus</i> L., on stony, gently sloping ground at c. 40 m altitude, about 0.5 km from a high waterfall (6)."
409	Is a shade tolerant plant at some stage of its life cycle	y

Qsn #	Question	Answer
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[In the understory of dense forest. Presumably shade tolerant] "Only a single small population, consisting of five adults and 20 juveniles, was known in 1973 in the bottom of Taipi valley, at ca. 50 m elevation, in the understory of the dense humid lowland forest."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Riffle, R.L. & Craft, P. 2003. <i>An Encyclopedia of Cultivated Palms</i> . Timber Press, Portland, OR.	"It prefers humus-laden soil but does well even in calcareous soil if organic matter or a mulch is added."
	Lucas, G. & Synge, H.(eds.). 1978. <i>The IUCN Plant Red Data Book</i> . IUCN, Gland, Switzerland	"Under tropical rain-forest with <i>Inocarpus edulis</i> J.R. & G. Forster and <i>Hibiscus tiliaceus</i> L., on stony, gently sloping ground at c. 40 m altitude, about 0.5 km from a high waterfall (6)."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Kubitzki, K. (ed.). 1998. <i>The Families and genera of vascular plants. Volume IV. Flowering plants, Monocotyledons: Alismatanae and Commelinanae (except Gramineae)</i> . Springer-Verlag, Berlin, Heidelberg, New York	"Solitary. Crownshaft absent. Lamina entire, margins praemorse."

412	Forms dense thickets	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[No evidence] "Although <i>P. henryana</i> has been observed reproducing in the wild, the small number of individuals that are known do not represent a healthy, viable population structure."

501	Aquatic	n
	Source(s)	Notes
	Lucas, G. & Synge, H.(eds.). 1978. <i>The IUCN Plant Red Data Book</i> . IUCN, Gland, Switzerland	"Under tropical rain-forest with <i>Inocarpus edulis</i> J.R. & G. Forster and <i>Hibiscus tiliaceus</i> L., on stony, gently sloping ground at c. 40 m altitude, about 0.5 km from a high waterfall (6)."
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Terrestrial] " <i>Pelagodoxa henryana</i> belongs to the monotypic genus <i>Pelagodoxa</i> (Pelagodoxeae: Arecaceae). It is an unarmed, solitary palm to 11 m height."

502	Grass	n
	Source(s)	Notes

Qsn #	Question	Answer
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	Arecaceae

503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: http://www.ars-grin.gov/ . [Accessed 1 Aug 2014]	Arecaceae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	" <i>Pelagodoxa henryana</i> belongs to the monotypic genus <i>Pelagodoxa</i> (Pelagodoxeae: Arecaceae). It is an unarmed, solitary palm to 11 m height."

601	Evidence of substantial reproductive failure in native habitat	y
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	" <i>Pelagodoxa henryana</i> is already extinct in the wild." ... "The known populations are subject to habitat destruction, and in cultivation the palm seedlings are highly susceptible to fungal attacks and disease."
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	"Threats include fire, rats, and loss of habitat, ca 470 ft." ... "Since the low and medium elevation forests of the Marquesas Islands have been destroyed to a large extent or heavily modified by human activity, it is not clear whether <i>Pelagodoxa</i> occurs naturally there or was introduced by humans. <i>Pelagodoxa</i> is generally considered endemic to the Marquesas Islands in the taxonomic literature (Uhl and Dransfield 1987; Dowe 1989; Dowe and Cabalion 1996) but this conclusion has been questioned (Gillett 1971; Florence pers. comm.). If <i>Pelagodoxa</i> is native in the Marquesas Islands, its rarity may be due to extensive habitat destruction or destructive use of the palm in the past (Halle 1978)."

602	Produces viable seed	y
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. <i>Cultivated Palms of the World</i> . UNSW Press, Sydney, Australia	"Limited in cultivation, it is an excellent landscaping palm for tropical climates and needs filtered light and ample moisture."

Qsn #	Question	Answer
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	"Seeds of the Marquesas and Fiji source palms have been documented to produce viable seed. The anthropogenic sites may suggest a food source or famine food, as the fruit endosperm is edible."

603	Hybridizes naturally	n
	Source(s)	Notes
	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	"Only one sp., <i>P. henryana</i> Becc., Marquesas."
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	" <i>Pelagodoxa henryana</i> belongs to the monotypic genus <i>Pelagodoxa</i> (Pelagodoxeae: Arecaceae)."

604	Self-compatible or apomictic	n
	Source(s)	Notes
	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	[Unknown, but protandrous flowers could limit possibility of self-pollination] "Inflorescences interfoliar, branching to 2 orders, protandrous; peduncular bract longer than prophyll. Rachillae with triads in pits, staminate flowers distally. Staminate sepals 3, distinct; petals 3, basally connate; stamens 6, filaments united basally to pistillode, anthers medifixed, sagittate, latrorse, connective prolonged; pistillode pyramidal. Staminodes 3, triangular, small. Stigmatic remains basal; epicarp corkywarted; endocarp smooth."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Zomlefer, W.B. 1994. Guide to Flowering Plant Families. The University of North Carolina Press, Chapel Hill & London	"Although early monographers assumed that many palms were anemophilous, the flowers actually are predominantly entomophilous. Common insect vectors include beetles, Hymenoptera, and flies; bats and hummingbirds also have been noted (Henderson 1986)."
	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]"Inflorescences interfoliar, branching to 2 orders, protandrous; peduncular bract longer than prophyll. Rachillae with triads in pits, staminate flowers distally. Staminate sepals 3, distinct; petals 3, basally connate; stamens 6, filaments united basally to pistillode, anthers medifixed, sagittate, latrorse, connective prolonged; pistillode pyramidal. Staminodes 3, triangular, small. Stigmatic remains basal; epicarp corkywarted; endocarp smooth."

606	Reproduction by vegetative fragmentation	n
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Qsn #	Question	Answer
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Reproduces by seed] "It is an unarmed, solitary palm to 11 m height. The stem is up to 15 cm diam, and the leaf scars are closely spaced." ... "Seeds of the Marquesas and Fiji source palms have been documented to produce viable seed." ... "Although <i>P. henryana</i> has been observed reproducing in the wild, the small number of individuals that are known do not represent a healthy, viable population structure."

607	Minimum generative time (years)	>3
	Source(s)	Notes
	Hodel, D.R. 1993. The Growth of Some Palms in Tahiti. <i>Principes</i> 37(3): 124-138	"Table 1. Palms in Papeari, August, 1990. 1 = years in ground, 2 = years in ground to flowering" ... [<i>Pelagodoxa henryana</i> : years in ground to flowering = 10 years]

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Unlikely. Fruits & seeds relatively large & lack means of external attachment] "The fruit is globose, with a corky warty epicarp that is tan colored at maturity. Three size cohorts occur that differ mostly in proportion (the two smaller ones ripen with a pulpy, orange, fragrant mesocarp, the largest ripens to a tan fibrous mesocarp): 2.0 cm diam. (Vanuatu); 5.5 to 6.0 cm diam. (Fiji); 10 to 15 cm diam. (Marquesas)."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Ellison, D. & Ellison, A. 2001. <i>Cultivated Palms of the World</i> . UNSW Press, Sydney, Australia	[Landscaping & ornamental uses] "Limited in cultivation, it is an excellent landscaping palm for tropical climates and needs filtered light and ample moisture."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Even smaller fruit are still relatively large & unlikely to become a contaminant of produce] "The fruit is globose, with a corky warty epicarp that is tan colored at maturity. Three size cohorts occur that differ mostly in proportion (the two smaller ones ripen with a pulpy, orange, fragrant mesocarp, the largest ripens to a tan fibrous mesocarp): 2.0 cm diam. (Vanuatu); 5.5 to 6.0 cm diam. (Fiji); 10 to 15 cm diam. (Marquesas)."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes

Qsn #	Question	Answer
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	"Two species have been described. The type species, <i>Pelagodoxa henryana</i> , from the Marquesas Islands, has large fruits, 8.5 cm in diameter, while a species with smaller fruits (6 cm in diameter) was described as <i>P. mesocarpa</i> and later considered as a synonym of <i>P. henryana</i> . The smaller-fruited entity is known from the Melanesian archipelagos of the southwest Pacific, but the type of <i>P. mesocarpa</i> is of doubtful origin."

705	Propagules water dispersed	y
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[Corky fruit an adaptation for water dispersal] "The genus <i>Pelagodoxa</i> Becc. (Arecaceae, Arecoideae, Areceae) is of particular interest because of its unusual morphological characteristics, such as the large undivided leaves and large corky-warted fruits, and its curious distribution, in the Marquesas Islands and Melanesian Islands of the Southwest Pacific, where it is found only in anthropogenic habitats (Gillett 1971; Dowe and Cabalion 1996)." ... "A population has been recorded at Makiri Harbour on the south coast of this island, and isolated trees found some distance away are said to have developed from fruits washed up after a storm (Corer 1969)." ... "If <i>Pelagodoxa</i> is native in the Marquesas, it must have reached these remote islands by long-distance dispersal, but not necessarily by flotation. The composition of fibers, lighter tissues of the pericarp, and hydrophobic corky warted exocarp form a possible, but short-lived dispersal system by flotation in water. Both the small and large fruit morphs do not float when fresh, but will float in fresh water after two weeks of drying out (Chapin pers. obs.). However, their ability to float lasts for only a week or two before the pericarp begins to disintegrate. Hydrochory as a dispersal mechanism is poor and ineffective and may be only incidental." ... "Beside short-distance dispersal as suggested in San Cristobal, it is not known for how long the fruits are able to float in salt water and if the seeds are still viable after a long journey in sea water, as are those of the coconut (Harries 1978). Effective hydrochory of <i>Pelagodoxa</i> is nevertheless in contradiction with its restricted occurrence, inland on Nuku Hiva"

Qsn #	Question	Answer
706	Propagules bird dispersed	n
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[Speculation for bird dispersal, but size of fruit suggests no] "The type species, <i>P henryana</i> Becc., is found in a restricted area of Nuku Hiva, Marquesas Islands, and has large fruits, 10-15 cm in diameter (Beccari in Bois 1917; Chapin 1999). A second species, <i>P mesocarpa</i> Burret, with smaller fruits (5.5 cm diam.) was described from a single collection of fruits supposedly coming from New Caledonia (Burret 1928) but was later considered as conspecific with <i>P henryana</i> , leaving <i>Pelagodoxa</i> monotypic and isolated within the subtribe <i>Iguanurinae</i> of the tribe <i>Areceae</i> according to <i>Genera Palmarum</i> (Uhl and Dransfield 1987)." ... " ... "There may be a dispersal method that is no longer functioning due to extinction of birds or mammals, or it may have involved dispersal by humans."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Meyer, J. Y., & Butaud, J. F. 2009. The impacts of rats on the endangered native flora of French Polynesia (Pacific Islands): drivers of plant extinction or coup de grâce species?. <i>Biological Invasions</i> , 11(7): 1569-1585	"Table 2 Threatened and endangered plant species damaged by rats in French Polynesia" [Includes <i>Pelagodoxa henryana</i>]
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[External transport, if any, by rats would likely result in predation rather than dispersal] "Threats include fire, rats, and loss of habitat, ca 470 ft." ... "incidental. There may be a dispersal method that is no longer functioning due to extinction of birds or mammals, or it may have involved dispersal by humans."
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Fruits & seeds lack means of external attachment] "The fruit is globose, with a corky warty epicarp that is tan colored at maturity. Three size cohorts occur that differ mostly in proportion (the two smaller ones ripen with a pulpy, orange, fragrant mesocarp, the largest ripens to a tan fibrous mesocarp): 2.0 cm diam. (Vanuatu); 5.5 to 6.0 cm diam. (Fiji); 10 to 15 cm diam. (Marquesas)."

708	Propagules survive passage through the gut	
	Source(s)	Notes
	Chapin, M. H., Essig, F. B., & Pintaud, J. C. 2001. The morphology and histology of the fruits of <i>Pelagodoxa</i> (Arecaceae): taxonomic and biogeographical implications. <i>Systematic Botany</i> , 2 (4): 779-785	[Unknown, but not currently known to be consumed by frugivores] "There may be a dispersal method that is no longer functioning due to extinction of birds or mammals, or it may have involved dispersal by humans."

801	Prolific seed production (>1000/m2)	n
	Source(s)	Notes

Qsn #	Question	Answer
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Large fruit & seed size, & long time to reproductive maturity suggest that such large seed numbers would not be produced] "It is an unarmed, solitary palm to 11 m height." ... "The fruit is globose, with a corky warty epicarp that is tan colored at maturity. Three size cohorts occur that differ mostly in proportion (the two smaller ones ripen with a pulpy, orange, fragrant mesocarp, the largest ripens to a tan fibrous mesocarp): 2.0 cm diam. (Vanuatu); 5.5 to 6.0 cm diam. (Fiji); 10 to 15 cm diam. (Marquesas)." ... "Seeds of the Marquesas and Fiji source palms have been documented to produce viable seed." ... "While seed banking protocols have recently been applied to palms, the large seed size does not make this palm a good candidate for seed storage."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	"While seed banking protocols have recently been applied to palms, the large seed size does not make this palm a good candidate for seed storage."
	Orozco-Segovia, A., Batis, A.I., Rojas-Arechiga, M. & Mendoza, A. 2003. Seed Biology of Palms: A Review. <i>Palms</i> 47(2): 79–94	[Seeds may take a long time to germinate] "There is also wide variation in germination time among palms (Koebernik 1971, Basu & Mukherjee 1972, Wagner 1982, Endt 1996), including those from the same environment (Braun 1968, Jordan 1970)." ... "Seeds of <i>Metroxylon warburgii</i> and <i>M. vitiense</i> germinated almost simultaneously after falling to the ground (Doren 1997), while in <i>Ceroxylon ceriferum</i> (as <i>C. klopstockia</i>), <i>Chamaedorea elegans</i> , <i>Elaeis guineensis</i> , <i>Gronophyllum ramsayi</i> and <i>Pelagodoxa henryana</i> , germination is erratic, and several years may be required for all seeds to germinate (Hussey 1958, Poole & Conover 1974, Braun 1976, Wagner 1982, Braun 1984, Clarke 1988, Phillips 1996)."

803	Well controlled by herbicides	
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Unknown. Endangered species with no history of or reason for control with herbicides] " <i>Pelagodoxa henryana</i> is already extinct in the wild."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	Notes
	IUCN Species Survival Commission - Palm Specialist Group. 2009. <i>Pelagodoxa henryana</i> conservation fact sheet. http://cmsdata.iucn.org/downloads/psg_pelagodoxa_henryana.pdf . [Accessed 1 Aug 2014]	[Probably No] " <i>Pelagodoxa henryana</i> is already extinct in the wild." ... "The known populations are subject to habitat destruction..."

Qsn #	Question	Answer
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Naturalized in tropical Pacific Islands (but extinct in the wild)
- Thrives in tropical climates
- Shade tolerant
- Seeds dispersed by water & intentionally by people

Low Risk Traits

- No reports of invasiveness (but no evidence of widespread introduction outside native range)
- Unarmed (no spines, thorns or burrs)
- Palatable to grazing animals (contributes to endangerment)
- Ornamental
- Not reported to spread vegetatively
- Long time to reproductive maturity (10+ years)
- Large fruit & seeds unlikely to be inadvertently dispersed, or dispersed over long distances