Taxon: Phoenix sylvestris **Family:** Arecaceae

Common Name(s): date sugar palm
Indian date
silver date palm
wild date palm

Synonym(s): Elate sylvestris L. (basionym)

Assessor: No Assessor **Status:** Assessor Approved **End Date:** 29 Jul 2014

WRA Score: 5.0 **Designation:** EVALUATE **Rating:** Evaluate

Keywords: Naturalized, Tropical Palm, Spiny, Dioecious, Bird-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	y
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)	y
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	y
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n

Qsn #	Question	Answer Option	Answer
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		
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	y
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation		
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**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[No evidence] "Phoenix sylvestris is common, wild or cultivated, in the plains of India and Pakistan."

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**
	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 21 Jul 2014]	"Native: ASIA-TROPICAL Indian Subcontinent: India - Bihar, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal; Nepal"
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Phoenix sylvestris is common, wild or cultivated, in the plains of India and Pakistan."

202	**Quality of climate match data**	**High**
	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 21 Jul 2014]	

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 not as hardy to cold as is the Canary Island date, being good in zones 9b through 11 and marginal in most areas of 9a."
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Low elevation tropics] "Phoenix sylvestris thrives from the plains to the coast in low-lying wastelands, scrub forest and areas that have been disturbed or are prone to periodic or seasonal inundation with water, causing water-logging."

204	**Native or naturalized in regions with tropical or subtropical climates**	**y**
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Phoenix sylvestris is common, wild or cultivated, in the plains of India and Pakistan."

205	**Does the species have a history of repeated introductions outside its natural range?**	**y**
	Source(s)	**Notes**
	Roig, F. A., Carretero, E. M., & Osorio, V. E. M. 2006. Phoenix sylvestris (L.) Roxburg (Arecaceae) en Argentina. Multequina, 1 (1): 49-54	"Phoenix sylvestris (L.) Roxburg, cultivated as ornamental and naturalized in anthropic environments of Mendoza, San Juan, and other provinces of Argentina, is presented herein. We think that this species was introduced nearly 100 years ago, and is cited for the first time for Argentina."
	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). Palms, 52(2): 71-83	"The wild date palm, P. sylvestris from southern and eastern Asia is locally naturalized in Mauritius near Port Louis (Rouillard & Guého 1981–1985, 1999)."

301	**Naturalized beyond native range**	**y**
	Source(s)	**Notes**
	Roig, F. A., Carretero, E. M., & Osorio, V. E. M. 2006. Phoenix sylvestris (L.) Roxburg (Arecaceae) en Argentina. Multequina, 1 (1): 49-54	"Phoenix sylvestris (L.) Roxburg, cultivated as ornamental and naturalized in anthropic environments of Mendoza, San Juan, and other provinces of Argentina, is presented herein. We think that this species was introduced nearly 100 years ago, and is cited for the first time for Argentina. Ph. sylvestris hybridizes with Ph. canariensis, cultivated too, which on many occasions makes its determination difficult."
	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). Palms, 52(2): 71-83	"The wild date palm, P. sylvestris from southern and eastern Asia is locally naturalized in Mauritius near Port Louis (Rouillard & Guého 1981–1985, 1999)."

Qsn #	Question	Answer
302	**Garden/amenity/disturbance 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

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). Palms, 52(2): 71-83	[No detrimental environmental impacts specified at this time] "The wild date palm, P. sylvestris from southern and eastern Asia is locally naturalized in Mauritius near Port Louis (Rouillard & Guého 1981–1985, 1999)." ... "the wild date palm (Phoenix sylvestris) ... has formed locally extensive stands in mesic habitats in Hawaii (Hodel, personal observation"
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	**Congeneric weed**	**y**
	Source(s)	**Notes**
	DiTomaso, J. 2007. Weeds of California and Other Western States, Volume 1. UCANR Publications, Oakland, CA	"Canary Island date palm [Phoenix canariensis Chabaud]" ... "Mexican fan palm [Washingtonia robusta H. Wendl.] ... "These palm trees have become problematic in natural riparian stream and river corridors, orchard crops, and as seedlings that volunteer in landscaped areas. Both are commonly cultivated as landscape ornamentals. In wildlands, invasive palms are most common in southern California. Populations are densest downstream from the source of invasion, which are typically residential areas."

401	**Produces spines, thorns or burrs**	**n**
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"acanthophylls closely inserted, arranged in several planes, c. 13 - 18 on each side of rachis, conduplicate, yellow-green, very sharp, 4 - 14 cm long;" ... "leaflets irregularly fascicled, arranged in several planes, c. 80 - 90 on each side of rachis, concolorous, greyish-green, often waxy, very sharp, 18 - 35 x 1.2 - 2.4 cm."
	Hickey, M. & King, C.1988. 100 Families of Flowering Plants. Cambridge University Press, Cambridge, UK	"The leaves are pinnate and have a spiny stalk."

Qsn #	Question	Answer
402	**Allelopathic**	
	Source(s)	**Notes**
	WRA Specialist. 2014. Personal Communication	Unknown

403	**Parasitic**	**n**
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Solitary tree palm." [Arecaceae]

404	**Unpalatable to grazing animals**	**n**
	Source(s)	**Notes**
	Sheikh, K. A., Telang, S., Bhat, S. A., & Wani, M. A. 2012. Food habits of Chital (Axis axis axis) in Van Vihar National Park, Bhopal, Madhya Pradesh, Central India. Indian J. Applied & Pure Bio. 27(2): 147-154	[Axis deer consume leaves and fruit of P. sylvestris] "Table-1. Food Plants of Chital in Van Vihar National Park, Bhopal, M.P. (June 2010-May 2011) Food parts eaten: L-leaf, Fl-flower, Fr-fruit" [Phoenix sylvestris - PART USED = L,Fr]
	Devendra, C. (ed.). 1990. Shrubs and tree fodders for farm animals: proceedings of a workshop in Denpasar, Indonesia, 24-29 July 1989. International Development Research Centre, Ottawa, Canada	[Used as fodder. Unknown if foliage, or fruits are used] "Table 1. Multipurpose shrubs and trees predominantly grown in some Asian countries." [Phoenix sylvestris - Use - 1, fodder; 2, firewood, fuelwood; 3, timber; 4, human food.]

405	**Toxic to animals**	**n**
	Source(s)	**Notes**
	Sheikh, K. A., Telang, S., Bhat, S. A., & Wani, M. A. 2012. Food habits of Chital (Axis axis axis) in Van Vihar National Park, Bhopal, Madhya Pradesh, Central India. Indian J. Applied & Pure Bio. 27(2): 147-154	[No evidence of toxicity. Axis deer consume leaves and fruit of P. sylvestris] "Table-1. Food Plants of Chital in Van Vihar National Park, Bhopal, M.P. (June 2010-May 2011) Food parts eaten: L-leaf, Fl-flower, Fr-fruit" [Phoenix sylvestris - PART USED = L,Fr]
	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**	
	Source(s)	**Notes**
	Elliott, M. L. 2009. Emerging palm diseases in Florida. HortTechnology, 19(4): 717-718	"Fusarium oxysporum f. sp. canariensis, the causal agent of Fusarium wilt of canary island date palm, was identified in Florida in the mid-1990s (Plyler et al., 1999)." ... "Interestingly, this pathogen has also been isolated from senegal date palm (Phoenix reclinata) and wild date palm (Phoenix sylvestris), exhibiting typical fusarium wilt symptoms. Pathogenicity tests are in progress to determine if the isolates are crosspathogenic on these and other date palms."
	Riffle, R.L.& Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"The species is slightly susceptible to lethal yellowing disease."

407	**Causes allergies or is otherwise toxic to humans**	**y**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Northrop, R.J., Andreu, M.G., Friedman, M.H., McKenzie, M. & Quintana, H.V. 2010. Phoenix sylvestris, Wild Date Palm. FOR 246. University of Florida IFAS Extension, Gainesville, FL. http://edis.ifas.ufl. [Accessed 27 Jul 2014]	"Each individual tree is either a male or a female (as is true for all species within this genus). Male trees are extremely allergenic because their pollen is air-borne, whereas female palms cause minimal to no allergies."
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[No evidence] "In parts of India, particularly West Bengal, sweet sap is tapped from the stem of P sylvestrisa nd drunk fresh or processed into a dark sugar (gur or jaggery) or alcoholic toddy (Davis 1972). The astringent fruits are rarely eaten fresh but are processed as jellies and jams. Blatter (1926) noted the fruits to comprise one constituent of a natural restorative, and the seeds when ground up with the root of Achyranthes aspera L. (Amaranthaceae) and chewed with betel leaves (Areca catechu L., Palmae) are considered a remedy for 'ague'."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Possibly, but areas with seasonal inundation unlikely to burn during wet seasons] "Phoenix sylvestris thrives from the plains to the coast in low-lying wastelands, scrub forest and areas that have been disturbed or are prone to periodic or seasonal inundation with water, causing water-logging."

409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	**Notes**
	Learn 2 Grow. 2014. Phoenix sylvestris. www.learn2grow.com/plants/phoenix-sylvestris/	"Grow silver date palm in full sun in any well-draining soil." ... "Sun Exposure - Full Sun"
	Palmpedia. 2014. Phoenix sylvestris. http://www.palmpedia.net/wiki/Phoenix_sylvestris. [Accessed 28 Jul 2014]	"Light Requirements: High"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	**Notes**
	Learn 2 Grow. 2014. Phoenix sylvestris. www.learn2grow.com/plants/phoenix-sylvestris/	"Grow silver date palm in full sun in any well-draining soil." ... "Soil pH - Acidic, Neutral, Alkaline Soil Drainage - Well Drained Soil type - Loam, Sand"
	Riffle, R.L.& Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"It thrives on most fast-draining soils but needs sun, especially when in the juvenile stage."
	Palmpedia. 2014. Phoenix sylvestris. http://www.palmpedia.net/wiki/Phoenix_sylvestris. [Accessed 28 Jul 2014]	"Soil Requirements: Widely adaptable."

411	Climbing or smothering growth habit	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Solitary tree palm. Stem to 10 - 15 (20) m tall, without leaf sheaths c. 20 - 30 cm diam., with persistent, diamond-shaped leaf bases; stem base with mass of roots. Crown hemispherical, with more than 50 leaves. Leaves c. 1.5 x 4 m long; leaf sheath reddish-brown, fibrous; pseudopetiole 40 - 50 cm long x 3 - 5 cm wide at base; acanthophylls closely inserted, arranged in several planes, c. 13 - 18 on each side of rachis, conduplicate, yellow-green, very sharp, 4 - 14 cm long; leaflets irregularly fascicled, arranged in several planes, c. 80 - 90 on each side of rachis, concolorous, greyish-green, often waxy, very sharp, 18 - 35 x 1.2 - 2.4 cm"

412	Forms dense thickets	
	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). Palms, 52(2): 71-83	[Forms extensive stands. Unknown if monocultures or thickets are formed] "Indeed, several species have recently escaped from cultivation to become naturalized in Hawaii, including the cascade or cataract palm (Chamaedora cataractarum) (Staples & Herbst 2005), the West Indian royal palm (Roystonea oleracea) and the wild date palm (Phoenix sylvestris), which has formed locally extensive stands in mesic habitats in Hawaii (Hodel, personal observation)."
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Solitary habit] "Phoenix sylvestris differs from the date palm primarily in its solitary habit, its short pseudopetiole with congested, conspicuously folded acanthophylls, its shorter infructescence peduncle bearing smaller fruits that are scarcely fleshy and non-comestible, and its ability to withstand wet conditions."

501	Aquatic	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Terrestrial palm] "Phoenix sylvestris thrives from the plains to the coast in low-lying wastelands, scrub forest and areas that have been disturbed or are prone to periodic or seasonal inundation with water, causing water-logging."

502	Grass	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Solitary tree palm." [Arecaceae]

503	Nitrogen fixing woody plant	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Solitary tree palm." [Arecaceae]

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Solitary tree palm. Stem to 10 - 15 (20) m tall, without leaf sheaths c. 20 - 30 cm diam., with persistent, diamond-shaped leaf bases; stem base with mass of roots. Crown hemispherical, with more than 50 leaves."

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Phoenix sylvestris is common, wild or cultivated, in the plains of India and Pakistan."

602	Produces viable seed	y
	Source(s)	**Notes**
	Renuka, C. 2008. KFRI Palmetum (Final report of the project KFRI 444/04-Strengthening and enriching the Palmetum). Kerala Forest Research Institute, Kerala, India	"Seeds usually take two to three months to germinate."
	Squire, D. 2007. Palms and Cycads. A Complete Guide to Selecting, Growing and Propagating. Ball Publishing, Batavia, Illinois	"Sow fresh seed, which germinates within 12 weeks."

603	Hybridizes naturally	y
	Source(s)	**Notes**
	Roig, F. A., Carretero, E. M., & Osorio, V. E. M. 2006. Phoenix sylvestris (L.) Roxburg (Arecaceae) en Argentina. Multequina, 1 (1): 49-54	"Ph. sylvestris hybridizes with Ph. canariensis, cultivated too, which on many occasions makes its determination difficult."
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Hybridization documented for other species in genus] "The ease with which species of Phoenix hybridize in cultivation is well known (Corner 1966; Hodel 1995), and the large number of horticultural names associated with 'canariensis-like' palms reflects the number and variety of hybrids in existence."

604	Self-compatible or apomictic	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Presumably not self-compatible] "All species of Phoenix are dioecious [although DeMason & Tisserat (1980) reported the occurrence of apparently bisexual flowers in P dactylifera."

605	Requires specialist pollinators	n
	Source(s)	**Notes**
	Hickey, M. & King, C.1988. 100 Families of Flowering Plants. Cambridge University Press, Cambridge, UK	"Pollination. The large inflorescence composed of numerous, inconspicuous flowers indicates adaptation to wind-pollination."

Qsn #	Question	Answer
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Staminate inflorescences to 25 per plant, erect, not extending far beyond prophyll; prophyll coriaceous, bright orange internally when young, splitting first adaxially (side adjacent to trunk), 25 - 40 x 6 - 15 cm; peduncle 20 - 30 x 1.2 - 2.2 cm; rachis 13 - 18 cm long with numerous, congestedly arranged rachillae, each 4 - 16 cm long. Staminate flowers white-yellow, musty-scented; calyx a deep cupule to 2 - 2.5 mm high with 3 poorly defined lobes; petals 3 (rarely 4), apices obtuse, slightly hooded, 6 - 10 x c. 3 mm; anthers 3 - 4 mm long. Pistillate inflorescences erect, arching on fruit maturation; peduncle green and upright, becoming golden-orange and arching on fruit maturation, to c. 90 x 2 cm; prophyll papery, short, splitting twice between margins, c. 24 x 5 cm; rachillae arranged in irregular horizontal whorls, c. 50 - 60 in number, yellow-green in colour, c. 8 - 34 cm long. Pistillate flowers creamy-white, c. 40 - 50 mostly restricted to distal half of rachilla; calyx cupule 1.5 - 2.5 mm high; petals 3 - 4 x 4 - 5 mm."

606	Reproduction by vegetative fragmentation	
	Source(s)	**Notes**
	Chowdhury, M. S. H., Halim, M. A., Muhammed, N., Haque, F., & Koike, M. 2008. Traditional utilization of wild date palm (Phoenix sylvestris) in rural Bangladesh: an approach to sustainable biodiversity management. Journal of Forestry Research, 19(3): 245 251	[Conflicting information from Barrow 1998] "Natural regeneration takes place freely by seeds (FAO 2007) and birds act as the main agent in dispersing the seeds (Mishra and Singh 1989). The palm, however, also has the capability of vegetative propagation by the formation of offshoots (FAO 2007)."
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Does not produce basal suckers] "All but four species (P. canariensis, P rupicola, P sylvestris and P andamanensis) produce basal suckers which may or may not develop into full-sized stems."

607	Minimum generative time (years)	>3
	Source(s)	**Notes**
	Riffle, R.L.& Craft, P. 2003. An Encyclopedia of Cultivated Palms. Timber Press, Portland, OR.	"It serves the same landscape purposes and usually grows significantly faster than P. canariensis."
	eHow. 2014. The Growth Rate of the Sylvester Palm. http://www.ehow.com/facts_7560805_growth-rate-sylvester-palm.html. [Accessed 28 Jul 2014]	"Mature Size At maturity, the Sylvester Palm reaches up to40 or 50 feet tall, with a 25-foot-wide spread. At its base, the trunk is between 13 and 18 inches in diameter. Time Frame Sylvester Palms are typically sold and transplanted as saplings, beginning with year-old plants that are about a foot tall. At 10 to 12 years of age, the tree is around 10 feet tall."
	Barreveld, W.H. 1993. Date Palm Products. FAO, Rome	[Reproductive age unspecified for P. sylvestris, but faster growth rate suggests this tree would reach maturity more rapidly than 12-13 years, but not earlier than 4 years] "Phoneix dactylifera" ... "full maturity of the palms is not reached before 12-13 years"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[No evidence, and unlikely. Fruits & seeds relatively large and lack means of external attachment] "Fruit obovoid, 15 - 25 x 12 mm, ripening from green to orange-yellow, with mesocarp moderately fleshy and astringent. Seed obovoid with rounded apices, 15 - 20 x 7 - 10 mm; embryo lateral opposite raphe; endosperm homogeneous."

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	Hickey, M. & King, C.1988. 100 Families of Flowering Plants. Cambridge University Press, Cambridge, UK	"Native to India and cultivated there for its sap which yields sugar, but often planted elsewhere as an ornamental tree."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Fruits & seeds relatively large and unlikely to become an inadvertent contaminant of produce] "Fruit obovoid, 15 - 25 x 12 mm, ripening from green to orange-yellow, with mesocarp moderately fleshy and astringent. Seed obovoid with rounded apices, 15 - 20 x 7 - 10 mm"

704	Propagules adapted to wind dispersal	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[No evidence. Fleshy-fruited] "Fruit obovoid, 15 - 25 x 12 mm, ripening from green to orange-yellow, with mesocarp moderately fleshy and astringent. Seed obovoid with rounded apices, 15 - 20 x 7 - 10 mm; embryo lateral opposite raphe; endosperm homogeneous."

705	Propagules water dispersed	
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Fruits possibly moved by water during periods of inundation] "Phoenix sylvestris thrives from the plains to the coast in low-lying wastelands, scrub forest and areas that have been disturbed or are prone to periodic or seasonal inundation with water, causing water-logging."

706	Propagules bird dispersed	y
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Fruits of Phoenix species are one-seeded berries with a smooth epicarp, variously fleshy mesocarp and silvery, membranous endocarp. Fruits mature through a range of colours from green to yellow to orange, ripening either golden yellow-orange (P sylvestris and P canariensis),..." ... "Fruit obovoid, 15 - 25 x 12 mm, ripening from green to orange-yellow, with mesocarp moderately fleshy and astringent. Seed obovoid with rounded apices, 15 - 20 x 7 - 10 mm;"

Qsn #	Question	Answer
	Nama, K. S., & Choudhary, K. 2013. Dispersal pattern of some tree species of Mukundara Hills National Park. International Journal of Pure & Applied Bioscience 1(2), 24 -30	"Small seeded fruits of Phoenix sylvestris were consumed by small birds like Common Tailorbird (Orthotomus sutorius) and Baya Weaver (Ploceus phillippinus)."
	Mishra, R. M., & Singh, S. K. 1989. Dispersal ecology of Phoenix sylvestris Roxb. Environment and Ecology 7(4): 878-881	"The foraging behaviour was studied of birds visiting a single tree of P. sylvestris on the campus of APS University, Madhya Pradesh, from June to August 1987. Three bird species were recorded (Acridotheres tristis, Sturnus contra and S. pagodarum), and shown to disperse the seeds of P. sylvestris for up to 1km. Seeds were recorded under the canopy of P. sylvestris itself, and also under the canopies of 6 other tree species ..."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[No means of external attachment. Adapted for consumption and dispersal by frugivorous animals] "Fruit obovoid, 15 - 25 x 12 mm, ripening from green to orange-yellow, with mesocarp moderately fleshy and astringent. Seed obovoid with rounded apices, 15 - 20 x 7 - 10 mm;"

708	Propagules survive passage through the gut	y
	Source(s)	**Notes**
	Chowdhury, M. S. H., Halim, M. A., Muhammed, N., Haque, F., & Koike, M. 2008. Traditional utilization of wild date palm (Phoenix sylvestris) in rural Bangladesh: an approach to sustainable biodiversity management. Journal of Forestry Research, 19(3): 245 251	"After ripening, the fruits with a huge number of seeds are found to be dispersed here and there in the vicinity of the palms. The seeds are dispersed by means of birds, squirrels, cow, goat etc., and by human who use to eat the fruits in their houses leaving the seeds with sweepings and other household wastage."
	David, J. P., Manakadan, R., & Ganesh, T. 2015. Frugivory and seed dispersal by birds and mammals in the coastal tropical dry evergreen forests of southern India: A review. Tropical Ecology, 5 (1): 41-55	[Feral pigs and other introduced mammals could act as dispersal agents in the Hawaiian Islands] "Large fruits and fruits with seed protection, such as Strychnos nuxvomica, Phoenix sylvestris, Mimusops elengi, and Garcinia spicata, are solely dependent on mammals for their dispersal."

801	Prolific seed production (>1000/m2)	
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	"Fruits of Phoenix species are one-seeded berries with a smooth epicarp, variously fleshy mesocarp and silvery, membranous endocarp." [Unlikely to achieve such high densities]

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**

Qsn #	Question	Answer
	Pritchard, H. W., Wood, C. B., Hodges, S., & Vautier, H. J. 2004. 100-seed test for desiccation tolerance and germination: a case study on eight tropical palm species. Seed Science and Technology, 32(2): 393-403	"In agreement, Ellison and Ellison (2001) noted that P. roebelenii, P. rupicola and P. sylvestris all germinate readily in 2 to 3 months,..." ... "Storage information on P. rupicola and P. sylvestris is more basic, being limited previously to successful 1 hour exposure of air-dry seeds to liquid nitrogen temperature (Al-Madeni and Tisserat, 1986), suggestive of orthodox storage behavior (Hong et al., 1998)." ... "The genus Phoenix consists of 17 species, most of which are plants of the semi-arid regions but grow near water sources (Uhl and Dransfield, 1987). In keeping with the general ecology of the species, a total of six Phoenix species have now been observed to have desiccation tolerant seeds (figure 1; Tweddle et al., 2003)."
	Royal Botanic Gardens Kew. 2008. Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/. [Accessed 29 Jul 2014]	"Storage Behaviour: Orthodox?"

803	Well controlled by herbicides	
	Source(s)	**Notes**
	Langeland, K.A.& Stocker, R.K. 2001. Control of Non-native Plants in Natural Areas of Florida. SP 242. Institute of Food & Agricultural Sciences, University of Florida, Gainesville, FL	[Possibly. Other Phoenix species effectively controlled by herbicides] "Control methods being used for invasive non-native plants by land managers in Florida are listed in Table 4. All methods listed have been found effective under certain circumstances." ... "Phoenix reclinata Senegal date palm. Treatment: Cut stems near ground level and treat with 50% Garlon 3A or 10% Garlon 4 or apply 10% Garlon 4 to meristem."

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	**Notes**
	Barrow, S. C. 1998. A monograph of Phoenix L.(Palmae: Coryphoideae). Kew Bulletin 53(3): 513-575	[Possibly No. Does not produce basal suckers] "All but four species (P. canariensis, P rupicola, P sylvestris and P andamanensis) produce basal suckers which may or may not develop into full-sized stems."

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
• Thrives in tropical climates
• Naturalized in Argentina, and possibly naturalizing on Oahu, Hawaiian Islands (confirmation needed)
• Other Phoenix species have become invasive
• Leaves with spiny stalks
• Pollen of male trees acts as an allergen
• Tolerates many soil types
• Hybridizes with other Phoenix species
• Seeds dispersed by birds, mammals & intentionally by people

Low Risk Traits
• Naturalized, but no negative impacts documented
• Provides fodder for livestock
• Ornamental
• Used to produce sugar
• Trees dioecious
• Reaches maturity in 4+ years

Second Screening Results for Tree/tree-like shrubs

(A) Shade tolerant or known to form dense stands?>Uncertain. Possibly forming dense stands on Oahu, Hawaiian Isladns
(B) Bird-dispersed?> Dispersed by birds
(C) Life cycle <4 years? No
Outcome = Evaluate