

Taxon: Pachypodium horombense Poiss.

Family: Apocynaceae

Common Name(s): horombe clubfoot
yellow bell pachypodium

Synonym(s): P. rosulatum var. horombense (Poiss.)
C. D. C.

Assessor: Chuck Chimera

Status: Assessor Approved

End Date: 23 Jan 2017

WRA Score: -1.0

Designation: L

Rating: Low Risk

Keywords: Tuberos, Shrub, Spiny, Toxic, Wind-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	?
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	y
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
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)	y=1, n=0	n
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	y=1, n=0	n
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	y
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	2
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	y
705	Propagules water dispersed	y=1, n=-1	n
706	Propagules bird dispersed		
707	Propagules dispersed by other animals (externally)		
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	n
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire	y=1, n=-1	y
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	Is the species highly domesticated?	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[No evidence of domestication] "DISTRIBUTION. Between Ihosy and Antanimora"

102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	NA

103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2017. 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, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	"Native: Africa Western Indian Ocean: Madagascar"

202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Altitude range: 500-1000 metres above sea level." ... "Hardiness: It is sensitive to cold and should be kept totally dry in winter at or around 10°C, but it demonstrates some cold resilience if dormant and the soil is bone dry in winter. Protect from frost. It tends to lose its leave and go dormant in winter (USDA Hardiness zones: 10– 11)."
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"ECOLOGY. Savanna and scrubland on gneissic and granitic rocks. Alt. 400-1100 m."

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	"Native: Africa Western Indian Ocean: Madagascar"

Qsn #	Question	Answer
205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. Pachypodium horombense. http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Cultivation and Propagation: Pachypodium horombense is one of the most attractive species in the entire genus that can be grown both indoors, as well as outdoors in warm climates. It's a moderate grower and an impressive caudex can be steadily developed. In the winters it is deciduous, except in very tropical areas. Pretty cold sensitive- supposedly prone to rot if wet in winter cold. It may be grown as a specimen among rocks and low-growing plants in a hot rockery. It may also be grown in a heavy container on the sunny patio." [Unclear how widely cultivated this species is]

Qsn #	Question	Answer
301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2017. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/ . [Accessed 23 Jan 2017]	No evidence to date

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

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

Qsn #	Question	Answer
304	Environmental weed	n

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

305	Congeneric 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

401	Produces spines, thorns or burrs	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub up to 60 cm high, 50-70 cm in diameter; trunk cactus-like, 20-30 cm in diameter; bark grey-green, shiny, smooth, medium green on section, 4 mm thick; wood cream. Branches up to 10 cm in diameter; branchlets 20-40 x 6-20 mm, covered with paired straight spines, 3-10 mm long, 1-3 mm in diameter at the base, basal part conical, 0.16-0.42 of the spine length."

402	Allelopathic	
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Unknown. Grows with other vegetation] "ECOLOGY. Mostly on bare gneiss rocks in full sun. Alt. from 750 m. Accompanied by <i>Pachypodium lamerei</i> , <i>Aloe betsileensis</i> , <i>Euphorbia horombensis</i> , <i>E. milii</i> , <i>Alluaudia dumosa</i> , <i>Stapelianthus</i> sp. and <i>Tetradenia</i> sp."

403	Parasitic	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub up to 60 cm high, 50-70 cm in diameter; trunk cactus-like, 20-30 cm in diameter; bark grey green, shiny, smooth, medium green on section, 4 mm thick; wood cream. Branches up to 10 cm in diameter" [Apocynaceae. No evidence]

404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown, but spines, and potential toxicity, might deter browsing

405	Toxic to animals	y
	Source(s)	Notes

Qsn #	Question	Answer
	Stein, G. 2012. Pachypodiums- The caudiciform collectors plant- Introduction to the species and cultivational suggestions. http://davesgarden.com/guides/articles/view/539 . [Accessed]	"Pachypodiums are members of the family Apocynaceae which also includes Adeniums, Oleanders, Plumeria and Periwinkles. Pachypodium means [thick foot', referring to the large, swollen caudiciform stems all members of this genus have. They not only have succulent stems but most are heavily armed with thick, stiff spines on the caudex and branches. They are also protected by their toxic sap (true of all Apocynaceae, though Pachypodiums have clear sap, not the white latex seen running from Plumeria injuries)."
	Bester, S. P. 2007. Pachypodium Lindl. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantnop/pachypodium.htm . [Accessed 23 Jan 2017]	[Generic description] "Pachypodium falls in a group of the Apocynaceae notorious for poisonous properties and for yielding potent poisons that have been used most effectively in arrow poison since ancient times. The active principles in these poisons are usually glucosides with a digitalis-like action that stimulates the heart, and their effect is well known to hunters who often control and administer them with great skill. "

406	Host for recognized pests and pathogens	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

407	Causes allergies or is otherwise toxic to humans	y
	Source(s)	Notes
	Bester, S. P. 2007. Pachypodium Lindl. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantnop/pachypodium.htm . [Accessed 23 Jan 2017]	"Pachypodium falls in a group of the Apocynaceae notorious for poisonous properties and for yielding potent poisons that have been used most effectively in arrow poison since ancient times. The active principles in these poisons are usually glucosides with a digitalis-like action that stimulates the heart, and their effect is well known to hunters who often control and administer them with great skill. "
	Stein, G. 2012. Pachypodiums- The caudiciform collectors plant- Introduction to the species and cultivational suggestions. http://davesgarden.com/guides/articles/view/539 . [Accessed 23 Jan 2017]	"Pachypodiums are members of the family Apocynaceae which also includes Adeniums, Oleanders, Plumeria and Periwinkles. Pachypodium means 'thick foot', referring to the large, swollen caudiciform stems all members of this genus have. They not only have succulent stems but most are heavily armed with thick, stiff spines on the caudex and branches. They are also protected by their toxic sap (true of all Apocynaceae, though Pachypodiums have clear sap, not the white latex seen running from Plumeria injuries)."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). Pachypodium (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"HABIT. Tuberous plant up to 60 cm high, with numerous thick branches. ECOLOGY. Mostly on bare gneiss rocks in full sun." [No evidence. Unlikely given succulent habit & habitat]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes

Qsn #	Question	Answer
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"ECOLOGY. Mostly on bare gneiss rocks in full sun."
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Exposure: It like full sun to light shade."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	" <i>Pachypodium horombense</i> grows on outcrops of gneiss and granite in crevices or fissures." ... "Substrate loose peat with a little gneiss, pH 4.5."
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Soil: Needs a gritty, porous cactus potting mix that's not strongly acidic."

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub up to 60 cm high, 50-70 cm in diameter; trunk cactus-like, 20-30 cm in diameter; bark grey green, shiny, smooth, medium green on section, 4 mm thick; wood cream. Branches up to 10 cm in diameter"

412	Forms dense thickets	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[No evidence] "ECOLOGY. Mostly on bare gneiss rocks in full sun. Alt. from 750 m. Accompanied by <i>Pachypodium lamerei</i> , <i>Aloe betsileensis</i> , <i>Euphorbia horombensis</i> , <i>E. milii</i> , <i>Alluaudia dumosa</i> , <i>Stapelianthus</i> sp. and <i>Tetradenia</i> sp."

501	Aquatic	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Terrestrial] "ECOLOGY. Mostly on bare gneiss rocks in full sun."

502	Grass	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	Family: Apocynaceae Subfamily: Apocynoideae Tribe: Malouetieae

Qsn #	Question	Answer
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	Family: Apocynaceae Subfamily: Apocynoideae Tribe: Malouetieae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub up to 60 cm high, 50-70 cm in diameter; trunk cactus-like, 20-30 cm in diameter; bark grey green, shiny, smooth, medium green on section, 4 mm thick; wood cream. Branches up to 10 cm in diameter"

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html . [Accessed 23 Jan 2017]	"Economic Importance: CITES Appendix II: (I)" [Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.]

602	Produces viable seed	y
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Propagation: Seeds or (rarely) cuttings. Fresh seeds results in a remarkable yield of new plants, perhaps 90% and seedlings grow fairly easily. Soak seeds in warm water for 24 hours before sowing in a 5 mm deep, sterile, moist sandy medium (4 parts fine and 4 parts coarse river sand 1 part sieved, well-rotten compost; 1 part perlite; 1 part vermiculite. Keep the mix moist and at a temperature of 27–35°C to ensure rapid germination. Seed start sprouting in just 3-4 days (but continue to germinate erratically for about 6 month)"
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"REPRODUCTION. By seeds."

603	Hybridizes naturally	
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"A wild hybrid has been recorded with <i>Pachypodium densiflorum</i> ." [Possibly yes]
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	No evidence

Qsn #	Question	Answer
604	Self-compatible or apomictic	
	Source(s)	Notes
	Lipow, S. R., & Wyatt, R. (1999). Floral morphology and late-acting self-incompatibility in <i>Apocynum cannabinum</i> (Apocynaceae). <i>Plant Systematics and Evolution</i> , 219(1-2): 99-109	[Unknown for <i>P. horombense</i>] "... five species of <i>Pachypodium</i> (Anderson 1983) are self compatible."

605	Requires specialist pollinators	y
	Source(s)	Notes
	Eggl, U. 2002. <i>Illustrated handbook of succulent plants: Dicotyledons</i> . Springer-Verlag, Berlin - Heidelberg - New York	"Pollination is as for <i>Adenium</i> ..." "... <i>Adenium</i> .. Pollination requires a long, slender proboscis to enter the lower chamber between one of the five slits in the androecial cone. Incoming pollen lands on the stigmatic area; as the proboscis is withdrawn it is gummed by contact with the knob of the style and picks up fresh pollen from the anthers above. In cultivation a cat's whisker or horse's tail hair can be used to cross-pollinate two plants."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	"Propagation: Seeds or (rarely) cuttings. Fresh seeds results in a remarkable yield of new plants, perhaps 90% and seedlings grow fairly easily. Soak seeds in warm water for 24 hours before sowing in a 5 mm deep, sterile, moist sandy medium (4 parts fine and 4 parts coarse river sand 1 part sieved, well-rotten compost; 1 part perlite; 1 part vermiculite. Keep the mix moist and at a temperature of 27–35°C to ensure rapid germination. Seed start sprouting in just 3-4 days (but continue to germinate erratically for about 6 month) they are also propagated by removal of branches from old plant (if they need to be pruned). They should be allowed to dry for 5 to 8 days before potting up, however the cuttings often fail to root."
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"REPRODUCTION. By seeds."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Rarexoticseeds. 2017. <i>Pachypodium horombense</i> Seeds (<i>Pachypodium</i> Seeds). http://www.rarexoticseeds.com/ . [Accessed 23 Jan 2017]	"It produces large, bell shaped, yellow flowers. Flowers will set in the second or third year in good conditions. It blooms in small containers and never gets too big."

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

Qsn #	Question	Answer
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant." [No evidence]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Rau, E. 2016. President, Sustainable Bioresources, LLC. Personal Communication. 29 December	" <i>P. horembense</i> (ready for sale)"
	Rarexoticseeds. 2017. <i>Pachypodium horombense</i> Seeds (<i>Pachypodium</i> Seeds). http://www.rarexoticseeds.com/ . [Accessed 23 Jan 2017]	Seeds sold online

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant." [Unlikely. No evidence]

704	Propagules adapted to wind dispersal	y
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Yes, but may be ineffective over long distances] "The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant."

705	Propagules water dispersed	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Unlikely. Tufted seeds may be buoyant, but occurs in dry habitat] "ECOLOGY. Mostly on bare gneiss rocks in full sun. Alt. from 750 m." ... "The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant. In addition, it is possible that insects, birds and also small rodents may disperse the seeds."

706	Propagules bird dispersed	

Qsn #	Question	Answer
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant. In addition, it is possible that insects, birds and also small rodents may disperse the seeds." [Possibly No. Primarily adapted for wind dispersal]

707	Propagules dispersed by other animals (externally)	
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant. In addition, it is possible that insects, birds and also small rodents may disperse the seeds." [Possibly. Hairs may adhere to fur or feathers, or rodents may cache and disperse seeds]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. <i>Plant Protection Quarterly</i> , 25(2): 56-74	"Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut."
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of <i>Pachypodium</i> spp. are provided with awns suggesting that dispersal is by wind. However, according to Keraudren (1963) wind dispersal may not be very effective because the awns of the seeds separate easily or even as soon as the fruit follicles open, and the seeds will fall on the ground near the mother plant. In addition, it is possible that insects, birds and also small rodents may disperse the seeds." [Probably No. Seed dispersal, if any, by animals likely to occur externally]

801	Prolific seed production (>1000/m2)	
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"REPRODUCTION. By seeds." [Unknown, but probably no. No description of prolific seeding]

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

Qsn #	Question	Answer
	Bester, S. P. 2007. <i>Pachypodium</i> Lindl. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantnop/pachypodium.htm . [Accessed 23 Jan 2017]	[Generic description] "Seeds soon lose their viability. Harvest fresh seed from the taped up pods and sow in a ± 5 mm deep, sterile, sandy medium (4 parts fine and 4 parts coarse river sand; 1 part sieved, well-rotten compost; 1 part perlite; 1 part vermiculite) in summer. Keep moist and at a temperature of 27-35°C to ensure rapid germination. All seed not germinated after 6 weeks can be regarded as nonviable."

803	Well controlled by herbicides	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	Yes
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium horombense</i> . http://www.llifle.com/ . [Accessed 23 Jan 2017]	[Presumably Yes] "Maintenance: This <i>Pachypodium</i> will not require any pruning to look like a very interesting and unusual bonsai, but after several years it can outgrow its indoor location, requiring a 'pruning'. It has amazing regenerative properties."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits

- Grows in tropical climates
- Spiny
- Genus reportedly toxic
- Reproduces by seeds
- Reaches maturity in 2 years
- Seeds likely dispersed by wind and people
- Able to regenerate after cutting or damage

Low Risk Traits

- No reports of invasiveness or naturalization, but limited evidence of widespread introduction outside native range
- Landscaping and ornamental value
- Specialized pollinator requirements (likely limits seed set outside native range)
- Not reported to spread vegetatively