

**Taxon:** Pachypodium ambongense Poiss.

**Family:** Apocynaceae

**Common Name(s):** elephant's trunk

**Synonym(s):**

**Assessor:** Chuck Chimera

**Status:** Assessor Approved

**End Date:** 4 Jan 2017

**WRA Score:** 0.0

**Designation:** L

**Rating:** Low Risk

**Keywords:** Succulent, Tree, Spiny, Calcareous Soil, 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	n
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed	n=0, y = 1*multiplier (see Appendix 2)	n
401	Produces spines, thorns or burrs	y=1, n=0	y
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
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		
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	n

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	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	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	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/m <sup>2</sup> )		
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	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	"Endemic to Madagascar. Rare." [No evidence of domestication]

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]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 4 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]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 4 Jan 2017]	

203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"DISTRIBUTION. Endemic to Madagascar. Rare. ECOLOGY. LOW open deciduous western forest on Mesozoic calcareous rocks. Alt. less than 100 m."
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium ambongense</i> . <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	"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)."

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	y
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"DISTRIBUTION. Endemic to Madagascar. Rare. ECOLOGY. LOW open deciduous western forest on Mesozoic calcareous rocks. Alt. less than 100 m."

205	Does the species have a history of repeated introductions outside its natural range?	n
	Source(s)	Notes
	Rau, E. 2016. President, Sustainable Bioresources, LLC. Personal Communication. 29 December	" <i>P. ambongense</i> (very rare, early growth seedlings growing outdoors in containers with artificial soil. Needs calcareous soils, ready for sale)"
	Eggl, U. 2002. Illustrated handbook of succulent plants: Dicotyledons. Springer-Verlag, Berlin - Heidelberg - New York	"The last species to be introduced to cultivation."

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. <a href="http://botany.si.edu/">http://botany.si.edu/</a> . [Accessed 4 Jan 2017]	No evidence to date

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

Qsn #	Question	Answer
304	Environmental 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
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 species listed as weed. One species, <i>P. saundersii</i> , with an unconfirmed report of naturalization
401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub 1-2 m high, trunk subglobose, laterally compressed, 10-40 cm in diameter; bark grey-green, smooth or with leaf scars; branched from just below each terminal inflorescence. Branches short, 7-18 cm in diameter; branchlets 18-40 x 5-6 mm, covered with paired straight spines, 2-10 mm long, 0.5-2 mm wide at the base, sparsely pubescent when young."
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] "Accompanied by <i>Pachypodium rutenbergianum</i> , <i>Euphorbia viguieri</i> , <i>Uncarina sakalava</i> , <i>U. perrieri</i> , <i>Lomatophyllum</i> sp., <i>Commiphora</i> sp., and <i>Cyphostemma</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 1-2 m high, trunk subglobose, laterally compressed, 10-40 cm in diameter" [Apocynaceae. No evidence]
404	Unpalatable to grazing animals	
	Source(s)	Notes
	WRA Specialist. 2017. Personal Communication	Unknown, but spines would likely deter browsing
405	Toxic to animals	
	Source(s)	Notes

Qsn #	Question	Answer
	Bester, S. P. 2007. <i>Pachypodium</i> Lindl. PlantZAfrica. SANBI. <a href="https://www.plantzafrica.com/plantnop/pachypodium.htm">https://www.plantzafrica.com/plantnop/pachypodium.htm</a> . [Accessed 4 Jan 2017]	[Unknown. Possibly Yes] " <i>Pachypodium</i> 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	
	Source(s)	Notes
	Bester, S. P. 2007. <i>Pachypodium</i> Lindl. PlantZAfrica. SANBI. <a href="https://www.plantzafrica.com/plantnop/pachypodium.htm">https://www.plantzafrica.com/plantnop/pachypodium.htm</a> . [Accessed 4 Jan 2017]	[Unknown. Possibly Yes] " <i>Pachypodium</i> 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."

408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The only succulent genera in the family Apocynaceae are <i>Adenium</i> , <i>Pachypodium</i> and <i>Plumeria</i> ." [No evidence and unlikely given succulent habit]

409	Is a shade tolerant plant at some stage of its life cycle	
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium ambongense</i> . <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	"Exposure: It like full sun to light shade."
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"On sunny or half-shaded places in deciduous dry forest."

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	" <i>Pachypodium</i> grows on various types of substrates (Tables 4 and 5). Some species occur on one single type of substrate, such as <i>P. ambongense</i> , <i>P. decaryi</i> and <i>P. windsorii</i> growing exclusively on calcareous rocks."
	Rau, E. 2016. President, Sustainable Bioresources, LLC. Personal Communication. 29 December	"very rare, early growth seedlings growing outdoors in containers with artificial soil. Needs calcareous soils"

411	Climbing or smothering growth habit	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"HABIT. Shrub with bottle-shaped stem and few branches at c. 1 m height. It can reach a height of 2 m."

412	Forms dense thickets	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[No evidence] " <i>P. ambongense</i> grows on Mesozoic calcareous rocks in the low open Deciduous Western Forest zone. According to Rauh (1995), this species is associated here with <i>Adenia firingalavensis</i> Harms (Passifloraceae), <i>Aloe</i> sp., <i>Cissus</i> sp. (Vitaceae), <i>Euphorbia viguieri</i> , <i>Lomatophyllum</i> sp. (Liliaceae), <i>Pachypodium rutenbergianum</i> , <i>Pandanus</i> sp., <i>Uncarina</i> sp. (Pedaliaceae), and <i>Xerosicyos perrieri</i> (Cucurbitaceae). It occurs at altitudes of less than 100 m above sea level."

501	Aquatic	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Terrestrial] "ECOLOGY. On strongly eroded calcareous rocks, the fissures of which are filled with humus. Alt. 70-100 m. On sunny or half-shaded places in deciduous dry forest."

502	Grass	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 4 Jan 2017]	Family: Apocynaceae Subfamily: Apocynoideae Tribe: Malouetieae

Qsn #	Question	Answer
503	<b>Nitrogen fixing woody plant</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, Germplasm Resources Information Network. 2017. National Plant Germplasm System [Online Database]. <a href="http://www.ars-grin.gov/npgs/index.html">http://www.ars-grin.gov/npgs/index.html</a> . [Accessed 4 Jan 2017]	Family: Apocynaceae Subfamily: Apocynoideae Tribe: Malouetieae

504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Shrub with bottle-shaped stem and few branches at c. 1 m height. It can reach a height of 2 m."

601	<b>Evidence of substantial reproductive failure in native habitat</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"Endemic to Madagascar. Rare." [Rare, but no evidence of substantial reproductive failure]

602	<b>Produces viable seed</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium ambongense</i> . <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 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	<b>Hybridizes naturally</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Eggl, U. 2002. Illustrated handbook of succulent plants: Dicotyledons. Springer-Verlag, Berlin - Heidelberg - New York	[Unknown] "Occasional wild hybrids have been reported, and garden hybrids have been created, but none so fare between Madagascan and African species."

604	<b>Self-compatible or apomictic</b>	
	<b>Source(s)</b>	<b>Notes</b>



Qsn #	Question	Answer
	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. ambongense</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
	Rapanarivo, S.H.J.V. (1999). <i>Pachypodium</i> (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"REPRODUCTION. By seeds."
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium ambongense</i> . <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	[Cuttings often fail to root] "Seeds or (rarely) cuttings." ... "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."

607	Minimum generative time (years)	3
Source(s)		Notes
	Staples, G.W. & Herbst, D.R. 2005. <i>A Tropical Garden Flora - Plants Cultivated in the Hawaiian Islands and Other Tropical Places</i> . Bishop Museum Press, Honolulu, HI	" <i>Pachypodium lamerei</i> ... Potted specimens are young plants that do not flower until they have attained a height of several feet, which for this slow growing species takes several years; flowering rarely occurs indoors in any case." [Related taxon slow-growing and reaches maturity in 3+ years]
	LLIFLE - Encyclopedia of living forms. 2017. <i>Pachypodium ambongense</i> . <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	"Seedlings grow fairly slowly compared to other <i>Pachypodium</i> species. Young plants have more conical spines and begin early to swell nicely, branch and even flower."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	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." [No evidence]

Qsn #	Question	Answer
702	<b>Propagules dispersed intentionally by people</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Rau, E. 2016. President, Sustainable Bioresources, LLC. Personal Communication. 29 December	"P. ambongense (very rare, early growth seedlings growing outdoors in containers with artificial soil. Needs calcareous soils, ready for sale)"
	LLIFLE - Encyclopedia of living forms. 2017. Pachypodium ambongense. <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	"Pachypodium ambongense 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."

703	<b>Propagules likely to disperse as a produce contaminant</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). Pachypodium (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	"The seeds of Pachypodium 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	<b>Propagules adapted to wind dispersal</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). Pachypodium (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Yes, but may be ineffective over long distances] "The seeds of Pachypodium 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	<b>Propagules water dispersed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Rapanarivo, S.H.J.V. (1999). Pachypodium (Apocynaceae): Taxonomy, Ecology & Cultivation. CRC Press, Boca Raton, FL	[Unlikely. Tufted seeds may be buoyant, but occurs in dry forest] "The seeds of Pachypodium 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." ... "On strongly eroded calcareous rocks, the fissures of which are filled with humus. Alt. 70-100 m. On sunny or half-shaded places in deciduous dry forest."

706	<b>Propagules bird dispersed</b>	
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	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)	
	<b>Source(s)</b>	<b>Notes</b>
	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
	<b>Source(s)</b>	<b>Notes</b>
	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)	
	<b>Source(s)</b>	<b>Notes</b>
	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)	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	Baskin, C.C. & Baskin, J.M. 2014. Seeds Ecology, Biogeography, and Evolution of Dormancy and Germination. Second Edition. Academic Press, San Francisco, CA	[Unknown. Related taxon listed as having non-dormant seeds] "TABLE 9.30 Dormancy class or nondormancy (D/ND) in seeds of succulent perennials in hot semideserts and deserts. *5type of dormancy is inferred from available information on germination and on characteristics of seeds in that family." ... "Pachypodium namaquanum - ND*]

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	y
	Source(s)	Notes
	LLIFLE - Encyclopedia of living forms. 2017. Pachypodium ambongense. <a href="http://www.llifle.com/">http://www.llifle.com/</a> . [Accessed 4 Jan 2017]	[Presumably Yes] "Maintenance: This Pachypodium 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
- Possibly toxic
- Seeds likely dispersed by wind and people
- Able to regenerate after cutting

Low Risk / Desirable Traits

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