

**Taxon:** Elephantorrhiza burkei Benth.

**Family:** Fabaceae

**Common Name(s):** broad-pod  
elephant root

**Synonym(s):**

**Assessor:** Chuck Chimera

**Status:** Assessor Approved

**End Date:** 18 May 2017

**WRA Score:** -1.0

**Designation:** L

**Rating:** Low Risk

**Keywords:** Tropical, Tree, Unarmed, Fodder, N-Fixing

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)		
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)	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		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems		
409	Is a shade tolerant plant at some stage of its life cycle		

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)		
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets	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	y
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally		
604	Self-compatible or apomictic		
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	n
607	Minimum generative time (years)		
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	n
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/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)	y=1, n=-1	y
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
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	[No evidence of domestication] "Distribution: from Mpumalanga, Mozambique and Gauteng in the south, northwards through the Limpopo Province and North-West Province, into Zimbabwe and Botswana. General: Roots are used to tan leather. The roots are also used in traditional medicines for constipation and as an anti-emetic drug."

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
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Botswana, Mozambique, South Africa, Zimbabwe. Perennial non-climbing tree, shrub or small tree, cream or yellow flowers"

202	Quality of climate match data	High
	Source(s)	Notes
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	

Qsn #	Question	Answer
203	<b>Broad climate suitability (environmental versatility)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Germishuizen, G. & Meyer, N.L. (eds). (2003). Plants of southern Africa: an annotated checklist. Strelitzia 14. National Botanical Institute, Pretoria	"Alt 350–1500 m."
	JSTOR Global Plants. 2003. Entry for <i>Elephantorrhiza burkei</i> Benth. [family LEGUMINOSAE]. Entry From FZ, Vol 3, Part 1, (1970) Author: J.P.M. Brenan. plants.jstor.org	"Altitude range c. 970–1370 m."
	Wild Flower Nursery. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/">http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/</a> . [Accessed 17 May 2017]	"Hardiness: Very hardy"

204	<b>Native or naturalized in regions with tropical or subtropical climates</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Botswana, Mozambique, South Africa, Zimbabwe. Perennial non-climbing tree, shrub or small tree, cream or yellow flowers"

205	<b>Does the species have a history of repeated introductions outside its natural range?</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	No evidence of widespread introduction outside native range
	Wild Flower Nursery. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/">http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/</a> . [Accessed 17 May 2017]	Unknown. Cultivated as an ornamental in native range.

301	<b>Naturalized beyond native range</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
	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 ]	No evidence to date

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

303	<b>Agricultural/forestry/horticultural weed</b>	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
<b>304</b>	<b>Environmental weed</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. (2017). A Global Compendium of Weeds. 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
<b>305</b>	<b>Congeneric weed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Wells, M. J. (1986). Catalogue of problem plants in Southern Africa. Botanical Research Institute, Republic of South Africa	"Elephantorrhiza elephantina ... KIND OF WEED: Ruderal (general), agrestal (general), pastoral (natural), health related (humans) UNDESIRABLE CHARACTERISTICS: Competitive (space, light, water, nutriment), replacing preferred vegetation (grass), poisonous, contaminant (seed) SUBJECT OF: Herbicide registration"
<b>401</b>	<b>Produces spines, thorns or burrs</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Thomas, V. & Grant, R. 2005. Sappi Tree Spotting: Bushveld, Including Pilanesberg and Magaliesberg. Jacana Media, Johannesburg, South Africa	"Multi-stemmed shrub grows on rocky hillsides; may reach 6 m; no thorns; twice compound. blue-green leaves; leaflets slender and sharply pointed (7 - 15 x 1 - 4 mm);"
<b>402</b>	<b>Allelopathic</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown. No evidence found
<b>403</b>	<b>Parasitic</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Thomas, V. & Grant, R. 2005. Sappi Tree Spotting: Bushveld, Including Pilanesberg and Magaliesberg. Jacana Media, Johannesburg, South Africa	"Multi-stemmed shrub grows on rocky hillsides; may reach 6 m; no thorns; twice compound. blue-green leaves; leaflets slender and sharply pointed (7 - 15 x 1 - 4 mm);" [Fabaceae. No evidence]
<b>404</b>	<b>Unpalatable to grazing animals</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Davy, J. B. (1922). The suffrutescent habit as an adaptation to environment. Journal of Ecology, 10(2), 211-219	"Elephantorrhiza Burkei is a Bush-veld shrub 3-4 ft. high, but on the High- veld there are two species, E. Burchellii Benth. and E. obliqua Burt Davy, which are suffrutices with short, annual stems from a stout, somewhat fusi- form, woody perennial underground rootstock. When the stems and foliage are young they are browsed by cattle and antelope."

Qsn #	Question	Answer
405	<b>Toxic to animals</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Davy, J. B. (1922). The suffrutescent habit as an adaptation to environment. <i>Journal of Ecology</i> , 10(2), 211-219	[No evidence] "Elephantorrhiza Burkei is a Bush-veld shrub 3-4 ft. high, but on the High- veld there are two species, E. Burchellii Benth. and E. obliqua Burt Davy, which are suffrutices with short, annual stems from a stout, somewhat fusi- form, woody perennial underground rootstock. When the stems and foliage are young they are browsed by cattle and antelope."
	Wells, M. J. (1986). Catalogue of problem plants in Southern Africa. Botanical Research Institute, Republic of South Africa	[Related taxon reportedly toxic] "Elephantorrhiza elephantina ... KIND OF WEED: Ruderal (general), agrestal (general), pastoral (natural), health related (humans) UNDESIRABLE CHARACTERISTICS: Competitive (space, light, water, nutriment), replacing preferred vegetation (grass), poisonous, contaminant (seed) SUBJECT OF: Herbicide registration"

406	Host for recognized pests and pathogens	
	<b>Source(s)</b>	<b>Notes</b>
	FAO. 2017. Grassland Species Profiles - Elephantorrhiza elephantina. <a href="http://www.fao.org/ag/agp/agpc/doc/Gbase/">http://www.fao.org/ag/agp/agpc/doc/Gbase/</a> . [Accessed 17 May 2017]	[Unknown. Related taxon without major pests or pathogens] "Diseases and pests - None known"

407	Causes allergies or is otherwise toxic to humans	
	<b>Source(s)</b>	<b>Notes</b>
	Quattrocchi, U. 2012. CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology. CRC Press, Boca Raton, FL	"Bark astringent, antimicrobial"
	Kuete, V. (2014). Toxicological Survey of African Medicinal Plants. Elsevier, London	"Table 10.1 African Medicinal Plants Screened for Their Mutagenicity" ... "Elephantorrhiza burkei ... Traditional Use - Relieve asthma, reduce pain, hypnotic, aphrodisiac; Fruit: toothache, sore throat, tonsillitis;" ... "Observed Effects - Weakly increases the number of His1 revertant colonies with and without S91 activation in Ames test (Salmonella typhimurium tester strain TA98) [164]."

408	Creates a fire hazard in natural ecosystems	
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	[Unknown] "Deciduous, large multi-stemmed shrub or small tree, 1-3 m, occasionally to 6 m; along rocky ridges and slopes in bushveld, rarely found in open grassland."

409	Is a shade tolerant plant at some stage of its life cycle	
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	"along rocky ridges and slopes in bushveld, rarely found in open grassland" [Suggests open, high light environments]

Qsn #	Question	Answer
	Wild Flower Nursery. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/">http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/</a> . [Accessed 17 May 2017]	"Position: Sun"

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	
	Source(s)	Notes
	Wild Flower Nursery. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/">http://wildflownursery.co.za/indigenous-plant-database/elaphantorrhiza-burkei/</a> . [Accessed 17 May 2017]	"Soil: Loam"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Thomas, V. & Grant, R. 2005. Sappi Tree Spotting: Bushveld, Including Pilanesberg and Magaliesberg. Jacana Media, Johannesburg, South Africa	"Multi-stemmed shrub grows on rocky hillsides; may reach 6 m; no thorns; twice compound. blue green leaves; leaflets slender and sharply pointed (7 - 15 x 1 - 4 mm);"

412	Forms dense thickets	n
	Source(s)	Notes
	Nkosi, S. E., Barrett, A. S., & Brown, L. R. (2016). Vegetation ecology of the Nooitgedacht section of Loskop Dam Nature Reserve, Mpumalanga. <i>South African Journal of Botany</i> , 105, 79-88	"Table 2 Woody species density per height class for the different plant communities (L = Lower, M = Medium, U = Upper)." [No evidence for <i>Elephantorrhiza burkei</i> ]
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	[No evidence] "Deciduous, large multi-stemmed shrub or small tree, 1-3 m, occasionally to 6 m; along rocky ridges and slopes in bushveld, rarely found in open grassland."
	Ross, J.H. (ed.). (1975). <i>Flora of Southern Africa</i> . Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	[No evidence] "Found in Botswana, Rhodesia, Mozambique and the Transvaal. Favours rocky situations, in woodland, grassland and scrub."

501	Aquatic	n
	Source(s)	Notes
	Thomas, V. & Grant, R. 2005. Sappi Tree Spotting: Bushveld, Including Pilanesberg and Magaliesberg. Jacana Media, Johannesburg, South Africa	[Terrestrials] "Multi-stemmed shrub grows on rocky hillsides"

502	Grass	n
	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 17 May 2017]	Family: Fabaceae (alt. Leguminosae) Subfamily: Caesalpinioideae Tribe: Mimoseae

Qsn #	Question	Answer
503	<b>Nitrogen fixing woody plant</b>	<b>y</b>
	<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 17 May 2017]	Family: Fabaceae (alt.Leguminosae) Subfamily: Caesalpinioideae Tribe: Mimoseae
504	<b>Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Thomas, V. & Grant, R. 2005. Sappi Tree Spotting: Bushveld, Including Pilanesberg and Magaliesberg. Jacana Media, Johannesburg, South Africa	"Multi-stemmed shrub grows on rocky hillsides; may reach 6 m; no thorns; twice compound. blue-green leaves; leaflets slender and sharply pointed (7 - 15 x 1 - 4 mm);"
601	<b>Evidence of substantial reproductive failure in native habitat</b>	<b>n</b>
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	"Distribution: from Mpumalanga, Mozambique and Gauteng in the south, northwards through the Limpopo Province and North-West Province, into Zimbabwe and Botswana." [No evidence]
602	<b>Produces viable seed</b>	<b>y</b>
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	"Fruit flat woody pods, 100-190 x 25- 40 mm; the persistent pod margins remain long after the seeds have broken loose with pieces of the pod."
	Sunshine Seeds. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en">http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en</a> . [Accessed 17 May 2017]	"Propagation: Seeds/Division"
603	<b>Hybridizes naturally</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"A genus of 9 species restricted to Africa south of the equator." [Unknown. No hybrids reported]
604	<b>Self-compatible or apomictic</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"Flowers normally hermaphrodite, 5-merous, usually pale yellowish-white, on pedicels 1-2 mm long." [Unknown, but potentially yes]
605	<b>Requires specialist pollinators</b>	<b>n</b>



Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Grobler, A. 2010. <i>Elephantorrhiza elephantina</i> . PlantZAfrica. SANBI. <a href="https://www.plantzafrica.com/plantefg/elephanteleph.htm">https://www.plantzafrica.com/plantefg/elephanteleph.htm</a> . [Accessed 17 May 2017]	[Description applies to all species] "The most frequent pollinator of all <i>Elephantorrhiza</i> species is the African honeybee, <i>Apis mellifera</i> . Other insects that seemingly do not aid in the pollination of the plant's flowers, such as beetles, can be seen eating the flowers. The most common beetle found pillaging the flowers is the fruit chafer, <i>Pachnoda sinuata</i> , in the insect family Scarabaeidae. Flowers of <i>Elephantorrhiza</i> species provide only pollen as reward. Anther glands are present at the tips of anthers, but they soon fall off or are removed by visiting insects. This is a relatively rare characteristic within the Mimosoideae and their exact function remains a mystery. Since they occur on the reproductive parts of the plant they must presumably somehow aid in pollination by either attracting pollinators or, as some have suggested, act as pseudopollen—a mimetic device to attract pollinators to receptive stigmas before and after real pollen award is available."
	Johannsmeier, M.F. (2016). Beeplants of South Africa. Sources of nectar, pollen, honeydew and propolis for honeybees. <i>Strelitzia</i> 37. South African National Biodiversity Institute, Pretoria	[Possibly Bees] "Northern provinces, BOT. Rocky locations in bushveld. Multi-stemmed shrub with feathery foliage. Many pale yellow florets on long 'catkins'. Value based on one published hearsay record. Bees have never been observed on sumach bean in the Magaliesberg, where it flowers during the general spring flow of that region."

606	Reproduction by vegetative fragmentation	n
	<b>Source(s)</b>	<b>Notes</b>
	Sunshine Seeds. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en">http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en</a> . [Accessed 17 May 2017]	"Propagation: Seeds/Division" [No evidence]

607	Minimum generative time (years)	n
	<b>Source(s)</b>	<b>Notes</b>
	Wild Flower Nursery. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://wildflownursery.co.za/indigenous-plant-database/elephantorrhiza-burkei/">http://wildflownursery.co.za/indigenous-plant-database/elephantorrhiza-burkei/</a> . [Accessed 17 May 2017]	"Growth Rate: Moderate"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	"Fruit flat woody pods, 100-190 x 25- 40 mm; the persistent pod margins remain long after the seeds have broken loose with pieces of the pod." [Pods & seeds relatively large & lack means of external attachment]

Qsn #	Question	Answer
	Gunn, C. R. (1984). Fruits and seeds of genera in the subfamily Mimosoideae (Fabaceae). USDA Agriculture Research Service. Technical Bulletin 1681. 194 pp	[Generic description. No means of external attachment] "Seed 9-26 x 8-18 x 3.5-13 mm, elliptic to circular or tending to be quadrangular, compressed and with umbo centered in areola to nearly terete and without umbo. Testa glossy to dull, black with white to tan patches of endocarp or enclosed by coriaceous endocarp tissue, minutely sculptured-pittedrugose, osseous, without pleurogram except E, sp. with 90 percent pleurogram, without fracture line or wing or aril. Hilum punctiform to minutely elliptic, exposed, recessed, subapical. Lens not discernible. Endosperm thin, adnate to testa. Cotyledons with simple split over radicle, concealing radicle. Embryonic axis straight. Plumule moderately developed."

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Sunshine Seeds. 2017. <i>Elephantorrhiza burkei</i> . <a href="http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en">http://www.sunshine-seeds.de/Elephantorrhiza-burkei-53276p.html?language=en</a> . [Accessed 17 May 2017]	Seeds sold online

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"A branched shrub or small tree 1-3(6) m high, occasionally as small as 0,3 m, but then the stems distinctly woody and branched" ... "Pods dark brown to reddish-brown, 10-19(28) x 2.5-4 cm, straight or slightly curved, oblong, compressed, sometimes prominently transversely venose, at maturity the valves separating from the persistent margins, the outer layer of the pod-wall peeling off the inner layer, the layers remaining intact or breaking up irregularly. Seeds ±9-13 x 8-12 mm." [Unlikely given habit, & large pod & seed size]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	[No evidence] "Pods dark brown to reddish-brown, 10-19(28) x 2,5^ cm, straight or slightly curved, oblong, compressed, sometimes prominently transversely venose, at maturity the valves separating from the persistent margins, the outer layer of the pod-wall peeling off the inner layer, the layers remaining intact or breaking up irregularly. Seeds ±9-13 x 8-12 mm."

705	Propagules water dispersed	n
	Source(s)	Notes
	JSTOR Global Plants. 2003. Entry for <i>Elephantorrhiza burkei</i> Benth. [family LEGUMINOSAE]. Entry From FZ, Vol 3, Part 1, (1970) Author: J.P.M. Brenan. <a href="http://plants.jstor.org">plants.jstor.org</a>	[Buoyancy of pods unknown, but not known to naturally occur in riparian areas] "Pods 10-19 x 2.5-4 cm. Seeds c. 11-13 x 8-12 x 8 mm., the few seen irregular in shape." ... "Habitat Usually in rocky places, in woodland and grassland"

Qsn #	Question	Answer
706	<b>Propagules bird dispersed</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Schmidt, E., Lötter, M. & McClelland, W. 2002. Trees and shrubs of Mpumalanga and Kruger National Park. Jacana Media, Johannesburg, South Africa	"Fruit flat woody pods, 100-190 x 25- 40 mm; the persistent pod margins remain long after the seeds have broken loose with pieces of the pod."
707	<b>Propagules dispersed by other animals (externally)</b>	n
	<b>Source(s)</b>	<b>Notes</b>
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"Pods dark brown to reddish-brown, 10-19(28) x 2,5-4 cm, straight or slightly curved, oblong, compressed, sometimes prominently transversely venose, at maturity the valves separating from the persistent margins, the outer layer of the pod-wall peeling off the inner layer, the layers remaining intact or breaking up irregularly. Seeds ±9-13 x 8-12 mm." [No means of external attachment]
708	<b>Propagules survive passage through the gut</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Davy, J. B. (1922). The suffrutescent habit as an adaptation to environment. Journal of Ecology, 10(2), 211-219	"When the stems and foliage are young they are browsed by cattle and antelope." [No evidence that seeds are consumed]
801	<b>Prolific seed production (&gt;1000/m2)</b>	
	<b>Source(s)</b>	<b>Notes</b>
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"Pods dark brown to reddish-brown, 10-19(28) x 2,5-4 cm, straight or slightly curved, oblong, compressed, sometimes prominently transversely venose, at maturity the valves separating from the persistent margins, the outer layer of the pod-wall peeling off the inner layer, the layers remaining intact or breaking up irregularly. Seeds ±9-13 x 8-12 mm." [Unlikely given large pod & seed size]
802	<b>Evidence that a persistent propagule bank is formed (&gt;1 yr)</b>	y
	<b>Source(s)</b>	<b>Notes</b>
	Nichols, G. 2005. Growing rare plants: a practical handbook on propagating the threatened plants of southern Africa. Southern African Botanical Diversity Network Report No. 36. SABONET, Pretoria	"Seed of Acacia, Erythrina, Erythrophleum, and Elephantorrhiza are examples of hard seeds that need to be scarified to germinate successfully. I always soak my seeds in room temperature fresh water after scarification to ensure that they are swelling before finally sowing them."
803	<b>Well controlled by herbicides</b>	
	<b>Source(s)</b>	<b>Notes</b>
	WRA Specialist. 2017. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species
804	<b>Tolerates, or benefits from, mutilation, cultivation, or fire</b>	

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Ross, J.H. (ed.). (1975). Flora of Southern Africa. Volume 16 Part 1. Botanical Research Institute, Republic of South Africa	"E. burkei differs from E. elephantina primarily in being a shrub or tree with branched perennial aerial stems and not a suffrutex with annual unbranched aerial stems (unless damaged)."
	Grobler, A. 2010. Elephantorrhiza elephantina. PlantZAfrica. SANBI. <a href="https://www.plantzafrica.com/plantefg/elephanteleph.htm">https://www.plantzafrica.com/plantefg/elephanteleph.htm</a> . [Accessed 17 May 2017]	[Related taxon adapted to survive fires] "The suffrutescent habit of E. elephantina can be explained as an adaptation to the environment—a trait that a plant evolved deliberately in order to survive certain environmental constraints. The main ecological driving forces behind the development of this extraordinary habit are frost and fire throughout the species' natural distribution."

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

**Summary of Risk Traits:**

High Risk / Undesirable Traits

- Can grow in tropical & subtropical climates
- Other *Elephantorrhiza* species are regarded as weeds
- N-fixing (may modify soil chemistry)
- Reproduces by seeds
- Seeds dispersed by gravity & intentionally by people
- Hard seeds may form a persistent seed bank
- Limited ecological information limits accuracy of risk prediction

Low Risk Traits

- No reports of invasiveness or naturalization, but no evidence of widespread introduction outside native range
- Unarmed (no spines, thorns or burrs)
- Provides fodder for livestock
- Not reported to spread vegetatively
- Relatively large pods & seeds may limit risk of accidental or long-distance dispersal