

Taxon: <i>Erythrina zeyheri</i> Harv.	Family: Fabaceae
Common Name(s): harrow breaker plough breaker	Synonym(s):

Assessor: Chuck Chimera	Status: Assessor Approved	End Date: 8 Mar 2017
WRA Score: 0.0	Designation: L	Rating: Low Risk

Keywords: Geophyte, Spiny, N-Fixing, Bird-Pollinated, Water-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	n
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	y
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	?
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	y
402	Allelopathic	y=1, n=0	n
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	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n

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	y
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	y
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)	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	n
705	Propagules water dispersed	y=1, n=-1	y
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m ²)	y=1, n=-1	n
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
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	[No evidence of domestication] " <i>Erythrina zeyheri</i> is a caudiciform species from summer rainfall grasslands of eastern South Africa. Habitat destruction brought about by agriculture, urbanization and establishment of timber plantations has caused a precipitous decline in its numbers in recent decades. Where <i>E. zeyheri</i> was once well represented in the Balfour, Bethal, Delmas and Highveld Ridge districts of Gauteng and Mpumalanga, there are now maize fields, open-cast coal mines, and sprawling informal settlements around the town peripheries; little grassland remains, though scattered populations of this beautiful species do persist. Fortunately, cultivation is not difficult, and sizable caudices will develop in the first season from seed."

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 7 Mar 2017]	"Native: Africa South Tropical Africa: Zimbabwe Southern Africa: Lesotho; South Africa - Cape Province, - Free State, - KwaZulu-Natal, - Transvaal"

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 7 Mar 2017]	

Qsn #	Question	Answer
203	Broad climate suitability (environmental versatility)	n
	Source(s)	Notes
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"USDA hardiness 8-11" ... "It is hardy to zone (UK) 9 and is frost tender."
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 7 Mar 2017]	"Native: Africa South Tropical Africa: Zimbabwe Southern Africa: Lesotho; South Africa - Cape Province, - Free State, - KwaZulu-Natal, - Transvaal"
205	Does the species have a history of repeated introductions outside its natural range?	?
	Source(s)	Notes
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	" <i>E. zeyheri</i> is an ornamental container plant and makes a good rockery subject in areas of summer rainfall. The tubers are tolerant of temperatures below 0°C in the winter, provided they are kept dry."
301	Naturalized beyond native range	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
302	Garden/amenity/disturbance weed	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
303	Agricultural/forestry/horticultural weed	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence
304	Environmental weed	n
	Source(s)	Notes
	Randall, R.P. (2017). <i>A Global Compendium of Weeds</i> . 3rd Edition. Perth, Western Australia. R.P. Randall	No evidence

Qsn #	Question	Answer
305	Congeneric weed	y
	Source(s)	Notes
	Pittwater Council. 2010. Woody Weeds (Trees and Shrubs) - Cocks Comb Coral Tree. http://www.pittwater.nsw.gov.au . [Accessed 7 Mar 2017]	"Coral Tree (<i>Erythrina crista-galli</i>) is a significant woody weed within the Mullet Creek Catchment. <i>Erythrina crista-galli</i> is easily dispersed by seed and suckering. Branches left on the ground can re-grow into new plants. This species invades natural areas such as creeklines and wetlands. <i>Erythrina crista-galli</i> is a deciduous tree and requires treatment in the growing season. It can be drilled or frilled in-situ and poisoned as felled trees and branches will reshoot if in contact with the ground."
	Smith, J. M. B. (1996). Notes on Coral-Trees (<i>Erythrina</i>) in Australia with Particular Reference to <i>E. crista-galli</i> L. in New South Wales. <i>Geographical Research</i> , 34(2), 225-236	" <i>Erythrina variegata</i> , <i>E. insularis</i> and <i>E. vespertilio</i> (the last two possibly conspecific) are native in Australia, and <i>E. fusca</i> occurs as viable seeds in sea drift on Queensland beaches. Higher diversity elsewhere suggests an extra-Australian origin, with dispersal to Australia by sea drift or birds. At least two introduced ornamental species, <i>E. crista galli</i> (native to South America) and <i>E. X sykesii</i> (a sterile hybrid), have become naturalised. <i>Erythrina crista-galli</i> has become abundant on the Wilson-Richmond floodplain, NSW. Its seeds germinate progressively over three years, and may be dispersed by floodwaters. As well as being perceived locally as invasive weeds, naturalized Coral-trees also have conservational value, particularly with regard to nectarivorous birds."

401	Produces spines, thorns or burrs	y
	Source(s)	Notes
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	"The large leaves are compound, with three leaflets, and covered with large, recurved prickles on the midrib and larger side veins."
	Guillarmod, A., Jubb, R., & Skead, C. (1979). Field Studies of Six Southern African Species of <i>Erythrina</i> . <i>Annals of the Missouri Botanical Garden</i> , 66(3), 521-527	"These give rise to large (up to 0.5 m or more long) leaves, which bear sharp thorns on both sides of the leaflet lamina, along the veins."

402	Allelopathic	n
	Source(s)	Notes
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"This species has a symbiotic relationship with certain soil bacteria, these bacteria form nodules on the roots and fix atmospheric nitrogen. Some of this nitrogen is utilized by the growing plant but some can also be used by other plants growing nearby"
	WRA Specialist. 2017. Personal Communication	No evidence for allelopathy found

403	Parasitic	n
	Source(s)	Notes
	Hennessy, E. F. (1991). <i>Erythrineae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	"Suffrutex with branched, corky, perennial subterranean stems and enlarged rootstock; aerial stems annual, semi-erect or decumbent, 0,3-0,5 m; juvenile parts pubescent." [Fabaceae. No evidence]

Qsn #	Question	Answer
404	Unpalatable to grazing animals	
	Source(s)	Notes
	Kass, D. L. (1994). <i>Erythrina</i> species - pantropical multipurpose tree legumes. Pp 84-96 in Gutteridge, R.C. & Shelton, H.M. (eds). <i>Forage Tree Legumes in Tropical Agriculture</i> . CABI, Wallingford, UK	"A brief account is given of the genus <i>Erythrina</i> , including botanical description, origins, environmental adaptation, establishment and cultivation, production and management, and utilization (shade and support trees, live fences, livestock forage, green manure, human food, medicinal uses, ornamental and wood)." ... "Ruminants find the foliage of the various <i>Erythrina</i> species used in Costa Rica more palatable than <i>G. sepium</i> ." [Several <i>Erythrina</i> species provide fodder for livestock, but unknown for <i>E. zeyheri</i>]
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	"The prickles on the leaves probably deter grazing animals."
405	Toxic to animals	
	Source(s)	Notes
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"The plant contains alkaloids that have powerful narcotic and purgative effects" [Possibly]
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	n
	Source(s)	Notes
	Quattrocchi, U. 2012. <i>CRC World Dictionary of Medicinal and Poisonous Plants: Common Names, Scientific Names, Eponyms, Synonyms, and Etymology</i> . CRC Press, Boca Raton, FL	[No evidence. Medicinal uses] "South Africa, Zimbabwe. Perennial non-climbing shrub, suffruticose shrublet, large underground rootstock, leaves compound covered with large recurved prickles on the midrib, scarlet flowers, upright inflorescences on long stalks, smooth black pod, orange-red seeds" ... "Antibacterial, bark and leaves. Underground rootstock smoked for asthma."
408	Creates a fire hazard in natural ecosystems	n
	Source(s)	Notes
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	[Tolerates fire, but does not increase fire risk] " <i>E. zeyheri</i> flowers profusely after the first few rainstorms of the summer. The brilliant flowers attract a wide range of insects particularly honey bees and flying beetles. Pollination is always best when the grass cover is shortest. This is usually in the summer following a winter grass fire. The fires clear the habitat of dead, dry grass and render the flowering plants more conspicuous amongst the much shorter green grass blades."

Qsn #	Question	Answer
409	Is a shade tolerant plant at some stage of its life cycle	n
	Source(s)	Notes
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"Requires a moderately fertile well-drained soil in a very sunny position"
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	"The plants require direct sunlight or very light dappled shade in order to grow well."

410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	n
	Source(s)	Notes
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	" <i>E. zeyheri</i> inhabited moist short grassland around the banks of streams, seepage areas near sheets of rock and rocky outcrops. A habitat particularly favoured by these plants consisted of deep loamy soil in water retentive, seasonally moist depressions."
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"Requires a moderately fertile well-drained soil in a very sunny position"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Hennessy, E. F. (1991). <i>Erythrinaeae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	"Suffrutex with branched, corky, perennial subterranean stems and enlarged rootstock; aerial stems annual, semi-erect or decumbent, 0,3-0,5 m; juvenile parts pubescent."

412	Forms dense thickets	n
	Source(s)	Notes
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	"The largest populations are found growing in the open grasslands that still remain in suburbia. These are usually adjacent to marshes or streams and unsuitable for housing developments. Smaller populations are found in railway line reserves and along watercourses with broad level banks. Large populations consisting of scattered groups of plants are occasionally found on rocky hills such as those south-west of Morgenzon."
	Guillarmod, A., Jubb, R., & Skead, C. (1979). Field Studies of Six Southern African Species of <i>Erythrina</i> . <i>Annals of the Missouri Botanical Garden</i> , 66(3), 521-527	[No evidence] " <i>Erythrina zeyheri</i> Harvey, a geophyte or underground shrub, is distributed in scattered, isolated patches now (its former distribution is unknown) throughout an area of much higher altitude than the other species discussed."

501	Aquatic	n
	Source(s)	Notes

Qsn #	Question	Answer
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	[Occurs in periodically flooded habitats] "The headwaters of the Bronkhorstspruit contain numerous wetland areas and some raised ground adjacent to the river much favored by erythrinas, whose habitat is periodically flooded when the river rises. There are several large groups of these plants spread along about six kilometers of the river, remnants of much larger populations that used to occur in the open veld adjacent to the Bronkhorstspruit."

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 7 Mar 2017]	Family: Fabaceae (alt.Leguminosae) Subfamily: Faboideae Tribe: Phaseoleae

503	Nitrogen fixing woody plant	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 7 Mar 2017]	Family: Fabaceae (alt.Leguminosae) Subfamily: Faboideae Tribe: Phaseoleae

504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y
	Source(s)	Notes
	Guillarmod, A., Jubb, R., & Skead, C. (1979). Field Studies of Six Southern African Species of <i>Erythrina</i> . <i>Annals of the Missouri Botanical Garden</i> , 66(3), 521-527	" <i>Erythrina zeyheri</i> Harvey, a geophyte or underground shrub, is distributed in scattered, isolated patches now (its former distribution is unknown) throughout an area of much higher altitude than the other species discussed."
	Hennessy, E. F. (1991). <i>Erythrineae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	"Suffrutex with branched, corky, perennial subterranean stems and enlarged rootstock"

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	Loffler, L. & Loffler, P. 2005. Swaziland Tree Atlas—including selected shrubs and climbers. Southern African Botanical Diversity Network Report No. 38. SABONET, Pretoria, S.A.	"Conservation Status: Least Concern. General: Probably more widespread in western Swaziland and needs further surveying."
	van der Westhuizen, E. & van Staden, S. . 2015. Floral, Faunal, Wetland and Aquatic Assessment as Part of the Environmental Authorisation Process for the Proposed Commissiekraal Colliery, Kwazulu-Natal Province. Scientific Aquatic Services CC, Gardenview	" <i>Erythrina zeyheri</i> - Threat status = LC" [Least concern]

602	Produces viable seed	y
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Qsn #	Question	Answer
	Source(s)	Notes
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	"Plants are readily grown from seed, which can be sown on the surface of a well-drained medium consisting of equal parts sandy soil and coarse, gravely sand to which some fine, well-rotted humus has been added."
	Johnson, D., Johnson, S. & Nichols, G. 2002. <i>Down to Earth: Gardening with Indigenous Shrubs</i> . Struik Publishers, Cape Town, South Africa	"Propagation: Seed, which germinates best if fresh, scarified or received hot water treatment."
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	"This shrublet is only propagated from seeds that have been immersed in boiling water overnight and soaked. Once the seeds have been soaked they are ready for sowing. Sow the seeds in 5 mm diameter seedling trays or pans. Use a sifted loam and bark mixture. The seeds should be covered with the mixture not more than 1mm thick; otherwise the seeds will not germinate easily. The soil medium should be keep moist at all times, but do not over-water. Use a mist or fine spray for watering."

603	Hybridizes naturally	
	Source(s)	Notes
	Hennessy, E. F. (1991). <i>Erythrineae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	[Unknown. A number of natural hybrids are reported in this publication, but none with <i>Erythrina zeyheri</i>]

604	Self-compatible or apomictic	
	Source(s)	Notes
	Neill, D. A. (1988). Experimental studies on species relationships in <i>Erythrina</i> (Leguminosae: Papilionoideae). <i>Annals of the Missouri Botanical Garden</i> , 75(3): 886-969	[Unknown for <i>Erythrina zeyheri</i>] " <i>Erythrina</i> species are self-compatible, but some inbreeding depression is associated with selfing...Self-incompatibility has previously been reported for seven species of <i>Erythrina</i> : <i>E. senegalensis</i> and <i>E. speciosa</i> (East, 1940); <i>E. crista galli</i> (Fryxell, 1957); <i>E. mitis</i> and <i>E. poeppigiana</i> (Arroyo, 1981); <i>E. leptorhiza</i> (Hernandez & Toledo, 1979); and <i>E. montana</i> (Hernandez, 1982). Only for <i>E. montana</i> was the assertion of self incompatibility supported by evidence from experimental self-pollinations and outcrossing controls."

605	Requires specialist pollinators	n
	Source(s)	Notes
	Hennessy, E. F. (1991). <i>Erythrineae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	"Although birds do not appear to discriminate between species (Jacot Guillarmod et al. 1979), any one plant being visited by a number of local bird species, it may be significant that sunbirds (which have finer feathers at microscopic level than other passerine birds, particularly on the feathers of the patches of iridescent plumage on the throat and head of the males), are the main pollinating agents of <i>E. humeana</i> and <i>E. zeyheri</i> ."
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	" <i>Erythrinas</i> are normally pollinated by insects and sunbirds."

Qsn #	Question	Answer
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	"Erythrinas are probably visited by a range of insects, and honey bees are particularly important pollinators (although the honey bees used in agriculture are of little use, because erythrinas flower several months earlier than most seasonal food crops)." ... "The best rates of pollination and highest seed sets are usually found in colonies of plants on the peripheries of towns or in undeveloped suburban grassland. Preliminary indications are that this is attributable to the large number of honey bees found in suburban gardens. Further study into the full range of insects that pollinate the erythrinas, and which are most numerous and effective in the full extent of modern habitat occupied by the plants, is required."

606	Reproduction by vegetative fragmentation	n
	Source(s)	Notes
	Johnson, D., Johnson, S. & Nichols, G. 2002. <i>Down to Earth: Gardening with Indigenous Shrubs</i> . Struik Publishers, Cape Town, South Africa	"Propagation: Seed, which germinates best if fresh, scarified or received hot water treatment."

607	Minimum generative time (years)	2
	Source(s)	Notes
	Wild Flower Nursery. 2017. <i>Erythrina zeyheri</i> . http://wildflownursery.co.za/indigenous-plant-database/erythrina-zeyheri/ . [Accessed 8 Mar 2017]	"Growth Rate: Moderate Flowering Time: Spring"
	Johnson, D., Johnson, S. & Nichols, G. 2002. <i>Down to Earth: Gardening with Indigenous Shrubs</i> . Struik Publishers, Cape Town, South Africa	"It flowers by the second year at the latest."
	Plants for a Future. 2017. <i>Erythrina zeyheri</i> . http://www.pfaf.org/user/Plant.aspx?LatinName=Erythrina+zeyheri . [Accessed 8 Mar 2017]	"Plants take 3 - 4 years to flower from seed"

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n
	Source(s)	Notes
	Hennessy, E. F. (1991). <i>Erythrineae (Fabaceae) in Southern Africa</i> . <i>Bothalia</i> , 21(1), 1-25	"Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm." [No evidence. No means of external attachment]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. <i>Cactus and Succulent Journal</i> , 80(2), 86-89	" <i>E. zeyheri</i> is an ornamental container plant and makes a good rockery subject in areas of summer rainfall. The tubers are tolerant of temperatures below 0°C in the winter, provided they are kept dry."

703	Propagules likely to disperse as a produce contaminant	n
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Qsn #	Question	Answer
	Source(s)	Notes
	Hennessy, E. F. (1991). Erythrineae (Fabaceae) in Southern Africa. Bothalia, 21(1), 1-25	[No evidence. Unlikely given relatively large fruit & seed size] "Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm."

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Hennessy, E. F. (1991). Erythrineae (Fabaceae) in Southern Africa. Bothalia, 21(1), 1-25	"Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm."

705	Propagules water dispersed	y
	Source(s)	Notes
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. Cactus and Succulent Journal, 80(2), 86-89	[Rain-dispersed] "Successful recruitment of young plants depends on hot weather and rain. Heat permits the seed pods to mature and split open, and rain serves to disperse liberated seed in runoff. Germination is best if rain and cloudy weather last for several days after seed dispersal, but these optimum conditions are rarely met."

706	Propagules bird dispersed	n
	Source(s)	Notes
	Hennessy, E. F. (1991). Erythrineae (Fabaceae) in Southern Africa. Bothalia, 21(1), 1-25	"Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm." [No evidence. Not fleshy-fruited, although red color may be attractive to birds]
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. Cactus and Succulent Journal, 80(2), 86-89	"Heat permits the seed pods to mature and split open, and rain serves to disperse liberated seed in runoff."

707	Propagules dispersed by other animals (externally)	n
	Source(s)	Notes
	Hennessy, E. F. (1991). Erythrineae (Fabaceae) in Southern Africa. Bothalia, 21(1), 1-25	"Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm." [No means of external attachment]

708	Propagules survive passage through the gut	n
	Source(s)	Notes
	Craib, C. (2008). <i>Erythrina zeyheri</i> in eastern Gauteng and western Mpumalanga, South Africa. Cactus and Succulent Journal, 80(2), 86-89	"Successful recruitment of young plants depends on hot weather and rain. Heat permits the seed pods to mature and split open, and rain serves to disperse liberated seed in runoff. Germination is best if rain and cloudy weather last for several days after seed dispersal, but these optimum conditions are rarely met." [No evidence that seeds are consumed or internally dispersed]

Qsn #	Question	Answer
801	Prolific seed production (>1000/m²)	n
	Source(s)	Notes
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	"Even in years when the plants do seed well the young seeds in the ripening pods are eaten by insect larvae. In some years virtually no seeds escape parasitism."
	Hennessy, E. F. (1991). <i>Erythrineae</i> (Fabaceae) in Southern Africa. <i>Bothalia</i> , 21(1), 1-25	"Fruit subligneous, falcate, moniliform, blackish, smooth. Seeds scarlet, 10-17 x ± 10 mm; hilum oval, depressed, pale, 4 - 5 x 2 - 3 mm."
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	"The fruit is a smooth black pod with a few orange-red seeds. Immature seeds are often attacked by insects."

802	Evidence that a persistent propagule bank is formed (>1 yr)	n
	Source(s)	Notes
	Johnson, D., Johnson, S. & Nichols, G. 2002. <i>Down to Earth: Gardening with Indigenous Shrubs</i> . Struik Publishers, Cape Town, South Africa	"Propagation: Seed, which germinates best if fresh, scarified or received hot water treatment."
	Craib, C. (2006). <i>Erythrina zeyheri</i> in the grasslands of the Eastern Highveld: feature. <i>Veld & Flora</i> , 92(4), 210-212	"The seed pods, which resemble dry brown beans, require direct sunlight to split open and release the seeds. Seeds are most viable shortly after release as they are able to absorb moisture fairly rapidly at this time. (The seed coat becomes very hard and water resistant if it is exposed to successive days of hot dry weather). Fresh seeds that land on moist ground absorb moisture after rainfall and swell to twice their normal size. A root is pushed into the soil within two to three days of the seed swelling. Should the soil be too dry at this stage the young root shrivels and the seeds fail to germinate."

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

804	Tolerates, or benefits from, mutilation, cultivation, or fire	y
	Source(s)	Notes
	Johnson, D., Johnson, S. & Nichols, G. 2002. <i>Down to Earth: Gardening with Indigenous Shrubs</i> . Struik Publishers, Cape Town, South Africa	"Frost and fire cut it back to below ground every year." [Cutting may have the same effect]
	Lithudzha, E. & Behr, K. 2004. <i>Erythrina zeyheri</i> Harv. PlantZAfrica. SANBI. https://www.plantzafrica.com/plantefg/erythrinzey.htm . [Accessed 7 Mar 2017]	"The large rootstock has probably evolved to allow the plant to survive the frequent veld fires that sweep the grasslands and to store food and water in times of drought."

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	

Qsn #	Question	Answer
	Source(s)	Notes
	<p>Messing, R. H., Noser, S., & Hunkeler, J. (2009). Using host plant relationships to help determine origins of the invasive <i>Erythrina</i> gall wasp, <i>Quadrastichus erythrinae</i> Kim (Hymenoptera: Eulophidae). <i>Biological Invasions</i>, 11(10), 2233–2241</p>	<p>[Unknown if <i>E. zeyheri</i> is affected] "The <i>Erythrina</i> gall wasp has recently invaded a wide swath of Asian and Pacific countries, causing severe damage to several species of <i>Erythrina</i> trees. It poses an imminent threat to native <i>Erythrina</i> species in Latin America, Asia, Australia and the Pacific. While an African origin of the pest is presumed, it's exact home on the continent remains unknown. We examined host plant relationships of the wasp using 71 of the world's species of <i>Erythrina</i> that are planted in the botanical gardens of Hawaii. Observational and experimental data indicate that species endemic to Africa are more resistant to the wasp than those from other continents. Complete absence of galling on all <i>Erythrina</i> native to Benin, Burundi, Congo, Gambia, Lesoto, Rwanda, and Somalia make those countries highly unlikely to be the origin of the wasp. Mozambique, South Africa, Swaziland, and Zimbabwe were also shown to be unlikely sources. We present susceptibility indices of all 71 <i>Erythrina</i> species, including a number of economically useful trees, and we provide a warning for several species of conservation concern...We found a wide range of susceptibility to gall wasp damage among Latin America's native <i>Erythrina</i> species (Appendix 1)."</p>

Summary of Risk Traits:

High Risk / Undesirable Traits

- Able to grow in tropical climates
- Other *Erythrina* species have become invasive
- Large prickles or thorns on leaf midrib and veins
- Contains alkaloids that have powerful narcotic and purgative effects
- Nitrogen fixing
- Geophyte
- Reproduces by seeds
- Able to reach maturity in two years of growth
- Seeds dispersed by water & intentionally by people
- Resprouts after fires

Low Risk Traits

- No reports of invasiveness or naturalization
- Ornamental
- Not reported to spread vegetatively
- Seeds relatively large & unlikely to be accidentally dispersed