

Australia/New Zealand Weed Risk Assessment adapted for Florida.

Data used for analysis published in: Gordon, D.R., D.A. Onderdonk, A.M. Fox, R.K. Stocker, and C. Gantz. 2008. Predicting Invasive Plants in Florida using the Australian Weed Risk Assessment. Invasive Plant Science and Management 1: 178-195.

<i>Carissa bispinosa (hedgethorn)</i>			
Question number	Question	Answer	Score
1.01	Is the species highly domesticated?	n	0
1.02	Has the species become naturalised where grown?		
1.03	Does the species have weedy races?		
2.01	Species suited to Florida's USDA climate zones (0-low; 1-intermediate; 2-high)	2	
2.02	Quality of climate match data (0-low; 1-intermediate; 2-high)	2	
2.03	Broad climate suitability (environmental versatility)		
2.04	Native or naturalized in habitats with periodic inundation		
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range	n	-2
3.02	Garden/amenity/disturbance weed	n	0
3.03	Weed of agriculture	n	0
3.04	Environmental weed	n	0
3.05	Congeneric weed	n	0
4.01	Produces spines, thorns or burrs	y	1
4.02	Allelopathic	n	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	n	-1
4.05	Toxic to animals	n	0
4.06	Host for recognised pests and pathogens		
4.07	Causes allergies or is otherwise toxic to humans	n	0
4.08	Creates a fire hazard in natural ecosystems	n	0
4.09	Is a shade tolerant plant at some stage of its life cycle	?	
4.1	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils)	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	n	0

5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte		
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative fragmentation		
6.07	Minimum generative time (years)		
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	n	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	n	-1
7.06	Propagules bird dispersed	y	1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	y	1
8.01	Prolific seed production		
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05	Effective natural enemies present in Florida, or east of the continental divide		
Total Score			0

Outcome	Accept*
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*Used secondary screen from: Daehler, C. C., J.L. Denslow, S. Ansari, and H. Kuo. 2004. A risk assessment system for screening out harmful invasive pest plants from Hawaii's and other Pacific islands. *Conserv. Biol.* 18: 360-368.

section	# questions answered	satisfy minimum?
A	6	yes
B	10	yes
C	13	yes
total	29	yes

Data collected 2006-2007

Question number	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		
1.03		
2.01	University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/130.html).	"It tolerates slight frost".
2.02		
2.03	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	occurs in southeastern and southern Africa
2.04		
2.05	Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm).	"cultivated extensively"
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	"spines furcate or bifurcate"
4.02		no evidence
4.03	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	no description of this
4.04	Owen-Smith, N and SM Cooper (1987) Palatability of woody plants to browsing ruminants in a South African savanna. <i>Ecology</i> 68: 319-331.	<i>Carissa bispinosa</i> was eaten infrequently by kudus, moderately by impalas, and commonly by goats. It was categorized as a palatable species.
4.05		no evidence
4.06		

4.07	Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm).	"The whole fruit, including the seed, is edible".
4.08		no evidence
4.09	1. Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm). 2. University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/130.html).	1. Plants "grow in semi-shade to full sun". 2. "It can be grown in the garden in semi-shade or in full sun."
4.1	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	"mostly on sandy soils, less often on limy soils"
4.11	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	a much branched shrub
4.12		no evidence
5.01		terrestrial
5.02	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	Apocynaceae
5.03	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	Apocynaceae
5.04		
6.01		
6.02	1. Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers. 2. Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm).	1. "propagation is by ripe seeds" 2. "It can easily be cultivated from seed."
6.03		
6.04		
6.05	Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm).	"Plants produce attractive flowers that may attract birds, insects (especially butterflies) and even monkeys to your garden."
6.06		
6.07	1. Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm). 2. University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/130.html).	1. fast-growing BUT 2. "It is a fairly slow- grower".
7.01		
7.02	Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm).	"cultivated extensively"
7.03		no evidence
7.04	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	fruit a red, ellipsoid berry, to 2 cm [no evidence of

		adaptations to wind dispersal]
7.05		no evidence
7.06	University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/130.html).	"The species bears edible red fruits (berries) which are sought after by birds and other animals."
7.07	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	fruit a red, ellipsoid berry, to 2 cm [no evidence of any means of attachment]
7.08	University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/130.html).	"The species bears edible red fruits (berries) which are sought after by birds and other animals."
8.01	Leeuwenberg, AJM, and FJH van Dilst (2001) Series of revisions of Apocynaceae XLIX <i>Carissa</i> L. Backhuys Publishers.	1-2 seeds/fruit
8.02		
8.03		
8.04	1. Bester, SP (2004) <i>Carissa bispinosa</i> (L.) Desf. ex Brenan., Plantzafrica.com (http://www.plantzafrica.com/plantcd/carisbispin.htm). 2. Huxley (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "Natural environments with frequent fire regimes result in low-growing forms." [so tolerates fire] 2. "very tolerant of close clipping" [genus <i>Carissa</i>]
8.05		