

Australia/New Zealand Weed Risk Assessment adapted for United States.

Data used for analysis published in: Gordon, D.R. and C.A. Gantz. 2008. Potential impacts on the horticultural industry of screening new plants for invasiveness. Conservation Letters 1: 227-235. Available at: <http://www3.interscience.wiley.com/cgi-bin/fulltext/121448369/PDFSTART>

<i>Loxostylis alata</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 U.S. climates (USDA hardiness 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)	n	0
2.04	Native or naturalized in regions with an average of 11-60 inches of annual precipitation	y	1
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	n	0
4.02	Allelopathic		
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals		
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		
4.09	Is a shade tolerant plant at some stage of its life cycle	n	0
4.1	Grows on one or more of the following soil types: alfisols, entisols, or mollisols	y	1
4.11	Climbing or smothering growth habit	n	0
4.12	Forms dense thickets	?	

5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	n	0
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic	n	-1
6.05	Requires specialist pollinators		
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	y	1
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed	?	
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	?	
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		
8.05	Effective natural enemies present in U.S.		
Total Score			0

Outcome	Accept
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section	# questions answered	satisfy minimum?
A	11	Yes
B	7	Yes
C	11	Yes
total	29	yes

Data collected 2008

Question number	Reference	Source data
1.01		used horticulturally, but no evidence of significant modification
1.02		
1.03		
2.01	<p>1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgn.d.tif). 2. Archer R and Reynolds Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com (http://www.plantzafrica.com/plantklm/loxostylalata.htm). 3. USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?419301). 4. Goldblatt, P and Manning, J (2000) Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Pretoria and Missouri Botanical Garden, St. Louis, Missouri.</p>	<p>1. Global hardiness zones 9-10. 2. distribution lies in subtropics; "will tolerate mild frost". 3. Southern Africa: South Africa - Cape Province [e.], Natal. 4. SE [Cape] (Van Staden's Mts to KwaZulu-Natal).</p>
2.02		
2.03	<p>1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Archer, R and Reynolds, Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com</p>	<p>1. 1-2 climatic regions. 2. The genus <i>Loxostylis</i> contains a single species that only occurs in the Eastern Cape and KwaZulu-Natal. 3. SE [Cape] (Van Staden's Mts to KwaZulu-Natal).</p>

	(http://www.plantzafrica.com/plantklm/loxostylalata.htm). 3. Goldblatt, P and Manning, J (2000) Cape plants: a conspectus of the Cape flora of South Africa. National Botanical Institute, Pretoria and Missouri Botanical Garden, St. Louis, Missouri.	
2.04	Atlapedia Online (http://www.atlapedia.com/online/countries/southafr.htm).	For South Africa: "Average annual precipitation varies from 400 mm (16 inches) in the east to less than 50 mm (2 inches) in the northwest coastal regions. Average annual precipitation in Cape Town is 510 mm (20 inches)"
2.05	1. Ortanique (http://www.ortanique.com/seed_view_all.php?category=Tropical+Seeds). 2. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Loxostylis%20alata&sref=26868).	1, 2. Seeds being sold internationally.
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		Only species in the genus.
4.01	Palmer E & Pitman N (1973) Trees of southern Africa. A. A. Balkema, Cape Town.	no description of these traits
4.02		
4.03	Palmer E & Pitman N (1973) Trees of southern Africa. A. A. Balkema, Cape Town.	no description of parasitism
4.04		
4.05	Palmer E & Pitman N (1973) Trees of southern Africa. A. A. Balkema, Cape Town.	no evidence
4.06		
4.07	Archer R (2001) Trees of the Year 2001, Department of Water Affairs and Forestry (http://dwaf.gov.za/Events/Arborweek/trees/Tarwood.htm).	The leaves and bark are used for medicinal purposes [no evidence of toxicity].
4.08		
4.09	1. Bihrmann's Caudiciforms (http://www.bihrmann.com/caudiciforms/SU	1. "Sun: Medium". 2. "Planting position: Full

	BS/lox-ala-sub.asp). 2. Gardening Eden (http://www.gardeningeden.co.za/plants-loxostylis-alata.html)	sun".
4.1	1. USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html). 2. Archer R (2001) Trees of the Year 2001, Department of Water Affairs and Forestry (http://dwaf.gov.za/Events/Arborweek/trees/Tarwood.htm). 3. Bihrmann's Caudiciforms (http://www.bihrmann.com/caudiciforms/SUBS/lox-ala-sub.asp). 4. Gardening Eden (http://www.gardeningeden.co.za/plants-loxostylis-alata.html)	1. Alfisols are the predominant soil order in this region. 2. "Occurs on rocky outcrops and cliffs of sandstone and quartzite". 3. Well-drained soil. 4. Fertile compost-enriched soil.
4.11	Archer R and Reynolds Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com (http://www.plantzafrica.com/plantklm/loxostylalata.htm).	"Small tree or large shrub".
4.12	Palmer E & Pitman N (1973) Trees of southern Africa. Cape Town: A. A. Balkema.	"Small, dense, often rather spreading and ornamental little tree usually up to 6 m high, but higher in forest."
5.01		terrestrial
5.02	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?419301).	Anacardiaceae
5.03	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland (http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?419301).	Anacardiaceae
5.04	Archer R and Reynolds Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com (http://www.plantzafrica.com/plantklm/loxostylalata.htm).	"Small tree or large shrub".

6.01		no evidence
6.02	1. Archer R and Reynolds Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com (http://www.plantzafrica.com/plantklm/loxostylalata.htm). 2. Palmer E & Pitman N (1973) <i>Trees of southern Africa</i> . Cape Town: A. A. Balkema.	1. "Seeds germinate easily". 2. "The seed germinates easily but seedlings transplant badly."
6.03		
6.04	1. Archer R and Reynolds Y (2001) <i>Loxostylis alata</i> A. Spreng., Plantzafrica.com (http://www.plantzafrica.com/plantklm/loxostylalata.htm). 2. Palmer E & Pitman N (1973) <i>Trees of southern Africa</i> . Cape Town: A. A. Balkema.	1. "The flowers are male or female, on different trees" [i.e., dioecious]. 2. "The flowers, in terminal sprays, are male or female, borne on different trees."
6.05		
6.06		
6.07		
7.01		
7.02	1. Ortanique (http://www.ortanique.com/seed_view_all.php?category=Tropical+Seeds). 2. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Loxostylis%20alata&sref=26868).	1, 2. Seeds being sold internationally.
7.03		no evidence
7.04	Ridley, H.N. (1930) <i>The Dispersal of Plants Throughout the World</i> . William Clowes and Sons Ltd., London.	"Has small, round-winged fruits...it seems probable that these small flat-winged circular fruits are rather destined to be drifted along the ground in open country".
7.05		
7.06	1. Ridley, H.N. (1930) <i>The Dispersal of Plants Throughout the World</i> . William Clowes and Sons Ltd., London. 2. University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/137.html).	1. "Has small, round-winged fruits...it seems probable that these small flat-winged circular fruits are rather destined to be drifted along the ground in open country". 2. "Fruits are small and fleshy".
7.07	1. Ridley, H.N. (1930) <i>The Dispersal of Plants Throughout the World</i> . William Clowes and Sons Ltd., London. 2. University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/gard	1. "Has small, round-winged fruits...it seems probable that these small flat-winged circular fruits are rather destined to be drifted along the ground in open country". 2. "Fruits are small and fleshy". [no evidence of

	en/species/137.html).	adaptations to external dispersal]
7.08	1. Ridley, H.N. (1930) The Dispersal of Plants Throughout the World. William Clowes and Sons Ltd., London. 2. University of Pretoria Botanical Garden (http://www.up.ac.za/academic/botany/garden/species/137.html).	1. "Has small, round-winged fruits...it seems probable that these small flat-winged circular fruits are rather destined to be drifted along the ground in open country". 2. "Fruits are small and fleshy".
8.01		
8.02		
8.03		
8.04		
8.05		