

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>Cladochaeta candidissima</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		
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		
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	?	
7.05	Propagules water dispersed		
7.06	Propagules bird dispersed		
7.07	Propagules dispersed by other animals (externally)	?	
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			1

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	11	Yes
B	6	Yes
C	8	Yes
total	25	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%20Ign d.tif). 2. Gagnidze, R, Gviniashvili, T, Shetekauri, S, and Margalitadze, N (2002) Endemic genera of the Caucasian flora. Feddes Repertorium 113(7-8): 616-630. 3. Amirkhanov, AM and Komzha, AL. <i>Cladochaeta candidissima</i>. The Red Book of Russia. (http://209.85.135.104/translate_c?hl=en&u=http://biodat.ru/db/rbp/rb.php%3Fsrc%3D1%26vid%3D55). Accessed 2008. 4. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.</p>	<p>1. Global plant hardiness zones 4-6. 2. "<i>C. candidissima</i> grows in central and eastern parts of the Caucasus from the montane to the alpine belt. In Georgia it is distributed in the floristic regions of Kartli, Mtiuleti and Gare Kakheti." 3. "In the RSFSR found in Kabardino-Bal-karskoy, North Ossetia, Chechen-Ingush and Dagestan ASSR-cal, in the Soviet Union, moreover, in the Central, occasionally in East Caucasus." 4. "Caucasus: Ciscaucasia, Dagestan, eastern and southern Transcaucasia, Talysh."</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. Gagnidze, R, Gviniashvili, T, Shetekauri, S, and Margalitadze, N (2002) Endemic genera of the Caucasian flora. Feddes Repertorium 113(7-8): 616-630. 3. Amirkhanov, AM and Komzha, AL. <i>Cladochaeta candidissima</i>. The Red Book of Russia. (http://209.85.135.104/translate_c?hl=en&u=http://biodat.ru/db/rbp/rb.php%3Fsrc%3D1%26vid%3D55). Accessed 2008. 4. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.</p>	<p>1. Only two climatic regions. 2. "<i>C. candidissima</i> grows in central and eastern parts of the Caucasus from the montane to the alpine belt. In Georgia it is distributed in the floristic regions of Kartli, Mtiuleti and Gare Kakheti." 3. "In the RSFSR found in Kabardino-Bal-karskoy, North Ossetia, Chechen-Ingush and Dagestan ASSR-cal, in the Soviet Union, moreover, in the Central, occasionally in East Caucasus." 4. "Caucasus: Ciscaucasia, Dagestan, eastern and southern Transcaucasia, Talysh."</p>
2.04	<p>1. Atlapedia Online (http://www.atlapedia.com/online/countries/georgia.htm). 2. Atlapedia Online (http://www.atlapedia.com/online/countries/russia.htm)</p>	<p>1. For Georgia: along the coast average annual precipitation varies from 1,200 to 2,800 mm (47 to 110 inches) to 600 to 800 mm (24 to 31.5 inches) in the mountainous</p>

).	regions. 2. For the Russian Federation: rainfall is highest in the westerly mountain regions which has an average annual precipitation of up to 2,000 mm (79 inches) while on the East European Plain it averages between 600 and 700 mm (24 to 27.5 inches) and up to 1,000 (39 inches) in the southern areas of the Far East.
2.05	Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	"Cultivation: sunny, dry, rock crevices, protection against winter wet, alpine house, poor, drained soil, sun" [Information provided on a Czech rock garden database].
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	no description of these traits
4.02		
4.03	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	no description of parasitism
4.04	Amirkhanov, AM and Komzha, AL. Cladochaeta candidissima. The Red Book of Russia. (http://209.85.135.104/translate_c?hl=en&u=http://bio.dat.ru/db/rbp/rb.php%3Fsrc%3D1%26vid%3D55). Accessed 2008.	"Bessistemny grazing" [unable to determine what "bessistemny" means]
4.05	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	no evidence
4.06		

4.07	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	no evidence
4.08		
4.09	Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	"Cultivation: sunny"
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. Gagnidze, R, Gviniashvili, T, Shetekauri, S, and Margalitadze, N (2002) Endemic genera of the Caucasian flora. Feddes Repertorium 113(7-8): 616-630. 3. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	1. Alfisols and mollisols occur in the region of origin. 2. " <i>Cladochaeta</i> grows on gravel or sand" 3. "Coastal sands, rubbly places, dry stream beds, up to mid-montane zone and in plains."
4.11		
4.12		
5.01	1. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA. 2. Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	1, 2. terrestrial
5.02	1. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA. 2. Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	1, 2. Asteraceae
5.03	1. Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA. 2. Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	1, 2. Asteraceae
5.04	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae.	"Roots slender, numerous".

	Science Publishers, Inc, USA.	
6.01		no evidence
6.02	1. Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm). 2. Amirkhanov, AM and Komzha, AL. Cladochaeta candidissima. The Red Book of Russia. (http://209.85.135.104/translate_c?hl=en&u=http://bio.dat.ru/db/rbp/rb.php%3Fsrc%3D1%26vid%3D55). Accessed 2008.	1. "Propagation: seed in spring". 2. Seed propagation.
6.03		
6.04		
6.05		
6.06		
6.07		
7.01		
7.02	Slabý, P. (2007) Rock Garden Plant Database (http://www.kadel.cz/flora/g/kvCard.asp-Id=13853.htm).	"Cultivation: sunny, dry, rock crevices, protection against winter wet, alpine house, poor, drained soil, sun" [Information provided on a Czech rock garden database].
7.03		no evidence
7.04	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	"Achenes glabrous, about 1 mm long".
7.05		
7.06		
7.07	Schischkin, BK (1997) Flora of the USSR. Volume XXV. Compositae. Tribes Eupatorieae, Astereae, Inuleae, Ambrosieae, Heliantheae and Helenieae. Science Publishers, Inc, USA.	"Achenes glabrous, about 1 mm long".
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		