

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>Adiantopsis chlorophylla</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)	1	
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?	?	
3.01	Naturalized beyond native range	N	-1
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	Y	1
4.1	Grows on one or more of the following soil types: alfisols, entisols, or mollisols	?	
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	?	
6.01	Evidence of substantial reproductive failure in native habitat	N	0
6.02	Produces viable seed	?	
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic		
6.05	Requires specialist pollinators	N	0
6.06	Reproduction by vegetative fragmentation	Y	1
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	N	-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)		
7.08	Propagules dispersed by other animals (internally)		
8.01	Prolific seed production	Y	1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		-1
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			2

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	10	Yes
B	5	Yes
C	10	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	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. Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago. 3. Cabrera, AL (1977) Flora de la Provincia de Jujuy. Parte II - Pteridophyta. Coleccion Cientifica del Inta, Buenos Aires. 4. Zuloaga, FO and Morrone, O (1996) Catálogo de las plantas vasculares de la República Argentina. Missouri Botanical Garden, St. Louis. 5.	1. Global hardiness zones 11-13 (mostly 12-13). 2. "Guatemala; Colombia south to Argentina, and Brazil". 3. Very common from Ecuador up to northern Argentina and even Brazil. 4. Distribution: Bolivia, Brazil, Paraguay. 5. "Ecuador s. to Bolivia and Argentina, to Brazil. [tropical]"

	Tryon, RM (1964) The ferns of Peru: Polypodiacea (Dennstaedtieae to Oleandreae). Contributions from the Gray Herbarium of Harvard University, no. 194. Gray Herbarium, Harvard University, Cambridge, Mass.	
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago. 3. Cabrera, AL (1977) Flora de la Provincia de Jujuy. Parte II - Pteridophyta. Coleccion Cientifica del Inta, Buenos Aires. 4. Zuloaga, FO and Morrone, O (1996) Catálogo de las plantas vasculares de la República Argentina. Missouri Botanical Garden, St. Louis. 5. Tryon, RM (1964) The ferns of Peru: Polypodiacea (Dennstaedtieae to Oleandreae). Contributions from the Gray Herbarium of Harvard University, no. 194. Gray Herbarium, Harvard University, Cambridge, Mass.	1. 2 climatic regions. 2. "Guatemala; Colombia south to Argentina, and Brazil". 3. Very common from Ecuador up to northern Argentina and even Brazil. 4. Distribution: Bolivia, Brazil, Paraguay. 5. "Ecuador s. to Bolivia and Argentina, to Brazil. [At least 3 biomes]"
2.04	1. Atlapedia Online (http://www.atlapedia.com/online/countries/). 2. World Trade Press Map of Colombia (http://www.worldtradepress.com/Precipitation_Map_Colombia.html). 3. http://www.worldtradepress.com/Precipitation_Map_Argentina.html .	1. For Guatemala: "Average annual precipitation varies from 1,140 mm (70 inches) to 5,080 mm (200 inches) depending on the region."; For Brazil: "the nationwide average annual precipitation varies between 1,010 mm (40 inches) and 2,030 mm (80 inches)." 2. Most of Colombia receives between 49.2 and 98.4 inches of rainfall per year, depending upon the region. 3. Northern Argentina receives between 9.8 and 98.4 inches of rainfall per year, depending upon the region.
2.05	Plant Delights Nursery (http://www.plantdelights.com/Catalog/Current/Detail/05384.html).	Sold in the United States.
3.01		no evidence
3.02		no evidence
3.03		<i>no evidence</i>
3.04		no evidence
3.05		<i>no evidence</i>
4.01	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	no description of these traits
4.02		
4.03	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	no description of parasitism
4.04		
4.05	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	no evidence

4.06		
4.07	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	no evidence
4.08		
4.09	1. Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago. 2. Tryon, RM (1964) The ferns of Peru: Polypodiaceae (Dennstaedtieae to Oleandreae). Contributions from the Gray Herbarium of Harvard University, no. 194. Gray Herbarium, Harvard University, Cambridge, Mass.	1, 2. "In shady woods".
4.1	USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html).	Alfisols, ultisols, and some inceptisols, entisols, and mollisols are found in the distribution region of origin, but distribution range is not specific enough to determine. For example, most of Brazil and Colombia are composed of oxisols and Ecuador consists of primarily andisols and oxisols.
4.11	1. Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago. 2. Organization for Tropical Studies (http://www.ots.duke.edu/en/education/pdfs/graduate/coursebooks/04-9.pdf).	1. "Stem compact to creeping". 2. "Rachis not climbing".
4.12	Cabrera, AL (1977) Flora de la Provincia de Jujuy. Parte II - Pteridophyta. Coleccion Cientifica del Inta, Buenos Aires.	Up to 1.2 m tall.
5.01	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	terrestrial
5.02	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	Pteridaceae
5.03	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	Pteridaceae
5.04	1. Cabrera, AL (1977) Flora de la Provincia de Jujuy. Parte II - Pteridophyta. Coleccion Cientifica del Inta, Buenos Aires. 2. Tryon, RM (1964) The ferns of Peru: Polypodiaceae (Dennstaedtieae to Oleandreae). Contributions from the Gray Herbarium of Harvard University, no. 194. Gray Herbarium, Harvard University, Cambridge, Mass. 3. Organization for Tropical Studies (http://www.ots.duke.edu/en/education/pdfs/graduate/coursebooks/04-9.pdf).	1. "Plantas terrestres con rizomas" [terrestrial plants with rhizomes]. 2. "Rhizome compact to creeping". 3. "Rhizome erect".
6.01		no evidence
6.02		
6.03		
6.04		
6.05		Fern, so does not require specialist pollinators (most likely wind

		pollinated).
6.06	1. Cabrera, AL (1977) Flora de la Provincia de Jujuy. Parte II - Pteridophyta. Coleccion Cientifica del Inta, Buenos Aires. 2. Tryon, RM (1964) The ferns of Peru: Polypodiaceae (Dennstaedtieae to Oleandreae). Contributions from the Gray Herbarium of Harvard University, no. 194. Gray Herbarium, Harvard University, Cambridge, Mass. 3. Organization for Tropical Studies (http://www.ots.duke.edu/en/education/pdfs/graduate/coursebooks/04-9.pdf).	1. "Plantas terrestres con rizomas" [terrestrial plants with rhizomes]. 2. "Rhizome compact to creeping". 3. "Rhizome erect".
6.07		
7.01		
7.02	Plant Delights Nursery (http://www.plantdelights.com/Catalog/Current/Detail/05384.html).	Sold in the United States. [no other evidence that this is dispersed intentionally by people]
7.03		no evidence
7.04	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	This is a fern, so produces spores.
7.05		
7.06		
7.07		
7.08		
8.01	Tryon, RM and Stolze, RG (1989) Pteridophyta of Peru. Part II. Fieldiana No. 22. Field Museum of Natural History, Chicago.	This is a fern, so produces numerous spores.
8.02		
8.03		
8.04		
8.05		