

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>Tricyrtis affinis</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		
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	?	
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	y	1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative fragmentation	y	1
6.07	Minimum generative time (years)	2	0
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)		
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.		
<b>Total Score</b>			<b>4</b>

<b>Outcome</b>	<b>Accept*</b>
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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	5	Yes
C	12	Yes
total	28	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 ( <a href="http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20gnd.tif">http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20gnd.tif</a> ). 2. Takahashi, H (1974) Studies in <i>Tricyrtis</i> ( <i>Liliaceae</i> ). Part 1: Taxonomy of <i>T. macropoda</i> complex. 3. Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C. 4. Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635.	1. Global hardiness zones 5-8. 2. Japan: Hokkaido, Honshu, Shikoku, Kyushu. 3. Hokkaido, Shikoku, Kyushu. 4. <i>T. affinis</i> distributes rather widely from Kyushu to southern Hokkaido, but there are some lacking areas of distribution."
2.02		
2.03	1. Köppen-Geiger climate map ( <a href="http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf">http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf</a> ). 2. Takahashi, H (1974) Studies in <i>Tricyrtis</i> ( <i>Liliaceae</i> ). Part 1: Taxonomy of <i>T. macropoda</i> complex. 3. Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C. 4. Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635.	1. One to two climatic regions. 2. Japan: Hokkaido, Honshu, Shikoku, Kyushu. 3. Hokkaido, Shikoku, Kyushu. 4. <i>T. affinis</i> distributes rather widely from Kyushu to southern Hokkaido, but there are some lacking areas of distribution."
2.04	MSN Encarta ( <a href="http://encarta.msn.com/encyclopedia_761566679_4/Japan.html">http://encarta.msn.com/encyclopedia_761566679_4/Japan.html</a> ).	Average annual precipitation in Sapporo [north] is 1,130 mm (45 in), while in Tokyo [central] it is 1,410 mm (55 in) and in Kagoshima [south] it is 2,240 mm (88 in). [distribution range is north, central, and south Japan]

2.05	B & T World Seeds ( <a href="http://www.b-and-t-world-seeds.com/carth.asp?species=Tricyrtis%20affinis%20Albida&amp;sref=451987">http://www.b-and-t-world-seeds.com/carth.asp?species=Tricyrtis%20affinis%20Albida&amp;sref=451987</a> ).	Seeds sold internationally.
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05		no evidence
4.01	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	no description of these traits
4.02		
4.03	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	no description of parasitism
4.04		
4.05	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	no evidence
4.06		
4.07	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	no evidence
4.08		
4.09		
4.1	USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources ( <a href="http://soils.usda.gov/use/worldsoils/mapindex/order.html">http://soils.usda.gov/use/worldsoils/mapindex/order.html</a> ).	Entisols are present in this region.
4.11	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	"Stems 30-60 cm. long".
4.12	Ohwi, J (1965) Flora of Japan. Smithsonian Institution, Washington, D.C.	"Stems 30-60 cm. long".
5.01		terrestrial
5.02	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland ( <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?40130">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?40130</a> ).	Liliaceae

5.03	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland ( <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?40130">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?40130</a> ).	Liliaceae
5.04	1. Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635. 2. Takahashi, H (1974) Studies in <i>Tricyrtis</i> ( <i>Liliaceae</i> ). Part 1: Taxonomy of <i>T. macropoda</i> complex. Acta Phytotaxonomica et Geobotanica 26(1-2): 31-40.	1. "[Has] rhizomes on which the buds and the roots of the next generation are produced...the mother plants and their rhizomes decay before the next spring and the new buds being separated from each other." 2. "Rhizome and root living for only one year".
6.01		no evidence
6.02	1. Takahashi, H (1989) The floral biology of <i>Tricyrtis affinis</i> Makino ( <i>Liliaceae</i> ). Plant Species Biology 4(1): 61-68. 2. Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635.	1. " <i>T. affinis</i> is also self-compatible...and seeds obtained by self-pollination germinated well." 2. "The radicles begin to grow about 20 days after sowing in... <i>T. affinis</i> ."
6.03		
6.04	Takahashi, H (1989) The floral biology of <i>Tricyrtis affinis</i> Makino ( <i>Liliaceae</i> ). Plant Species Biology 4(1): 61-68.	" <i>T. affinis</i> is also self-compatible...and seeds obtained by self-pollination germinated well."
6.05	Takahashi, H (1994) Floral biology of <i>Tricyrtis macropoda</i> Miq. ( <i>Liliaceae</i> ). Acta Phytotaxonomica et Geobotanica 45(1): 33-40.	"Main pollinator is <i>Bombus diversus diversus</i> (bumblebee)"; "adapted to pollination by large bees because the patent perianth provides a platform suitable for easy foraging".
6.06	1. Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635. 2. Takahashi, H (1974) Studies in <i>Tricyrtis</i> ( <i>Liliaceae</i> ). Part 1: Taxonomy of <i>T. macropoda</i> complex. Acta Phytotaxonomica et Geobotanica 26(1-2): 31-40.	1. "[Has] rhizomes on which the buds and the roots of the next generation are produced...the mother plants and their rhizomes decay before the next spring and the new buds being separated from each other." 2. "Rhizome and root living for only one year".
6.07	Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635.	"In the next year of germination the internodes of the stem elongate and they bear the flowers."

7.01		
7.02	B & T World Seeds ( <a href="http://www.b-and-t-world-seeds.com/carth.asp?species=Tricyrtis%20affinis%20Albida&amp;sref=451987">http://www.b-and-t-world-seeds.com/carth.asp?species=Tricyrtis%20affinis%20Albida&amp;sref=451987</a> ).	Seeds sold internationally.
7.03		no evidence
7.04	Takahashi, H (1980) A taxonomic study on the genus <i>Tricyrtis</i> . Science Reports of the Faculty of Education, Gifu University (Natural Science) 6(4): 583-635.	"The seeds are dispersed mainly by wind, the flat shape being adaptive to be brought by air"; "seeds...about 2 mm in length, 1.5 mm in width, and 0.5-1 mm in thickness."
7.05		
7.06		
7.07		
7.08		
8.01		
8.02		
8.03		
8.04		
8.05		