

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>Iris caucasica</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	y	2
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	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	y	1
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		
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	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		
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			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	11	Yes
B	7	Yes
C	10	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	<p>1. PERAL NAPPFAST Global Plant Hardiness (http://www.nappfast.org/Plant_hardiness/NAPPFAST%20Global%20zones/10-year%20climate/PLANT_HARDINESS_10YR%20lgnd.tif). 2. 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?20270). 3. Czerepanov, SK (1995) Vascular Plants of Russia and Adjacent States (the former USSR). Cambridge University Press, Cambridge and New York. 4. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 5. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 6. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 7. Huxley, A (1992) The New Royal Horticultural Society</p>	<p>1. Global plant hardiness zones 4-8. 2. Western Asia: Iran [nw. possibly]; Iraq; Turkey [E.]; Caucasus: Armenia; Azerbaijan. 3. Caucasus. 4. "C & NE Turkey, NE Iraq, NW Iran, USSR (Caucasus)". 5. "Distribution of species: N.E. Iraq, Caucasia". 6. "Caucasus: E. and S. Transc. Gen. distr.: N. Iran, Asia Minor(?)". 7. "C & NE Turkey, NE Iraq, NW Iran, USSR".</p>

	Dictionary of Gardening. The MacMillan Press, London.	
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. 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?20270). 3. Czerepanov, SK (1995) Vascular Plants of Russia and Adjacent States (the former USSR). Cambridge University Press, Cambridge and New York. 4. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 5. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 6. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 7. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.</p>	<p>1. Only two climatic regions. 2. Western Asia: Iran [nw. possibly]; Iraq; Turkey [E.]; Caucasus: Armenia; Azerbaijan. 3. Caucasus. 4. "C & NE Turkey, NE Iraq, NW Iran, USSR (Caucasus)". 5. "Distribution of species: N.E. Iraq, Caspasia". 6. "Caucasus: E. and S. Transc. Gen. distr.: N. Iran, Asia Minor(?)". 7. "C & NE Turkey, NE Iraq, NW Iran, USSR".</p>
2.04	<p>1. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 2. Microsoft Encarta World Precipitation and Average Rainfall (http://uk.encarta.msn.com/encnet/RefPages/RefMedia.aspx?refid=461530746&artrefid=761554737&pn=3&sec=-1). 3. Atlapedia Online (http://www.atlapedia.com/online/countries/armenia.htm). 4. Atlapedia Online</p>	<p>1. For Iran, average annual precipitation ranges from less than 10 inches/year to 20 inches/year. 2. For Turkey, average annual precipitation ranges from less than 10 inches/year to 40 inches/year. 3. For Armenia: average annual precipitation varies from 300 to 635 mm (12 to 25 inches). 4. For Azerbaijan: average annual precipitation is between 200 to 300 mm (8 to 12 inches) in the lowlands and 300 to 900 mm (12 to 35.5 inches) in the highlands, although precipitation is distributed unevenly throughout the year. 5. For Iraq: "in the</p>

	(http://www.atlapeia.com/online/countries/azerbaj.htm). 5. Atlapeia Online (http://www.atlapeia.com/online/countries/iraq.htm).	northeast where it is highest, it varies from 400 to 600 mm (16 to 23 inches) annually."
2.05	1. Alpine Garden Club of B.C. (http://www.agc-bc.ca/archive/2002-seedlist.asp). 2. Ad Hoc Plants (http://www.adhocplants.com/page63.html). 3. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Iris%20caucasica&sref=444691). 4. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. On 2002 seed exchange list (Canada). 2. Sold in the U.K. 3. Information about species listed on website which sells seeds internationally (although seeds not currently available). 4. Species is listed in reference, which is a dictionary of gardening for the UK.
3.01		no evidence
3.02		no evidence
3.03		no evidence
3.04		no evidence
3.05	1. Holm, L, JV Pancho, JP Herberger, and DL Plucknett (1979) A Geographical Atlas of World Weeds. John Wiley and Sons, New York. 2. Weber, E (2003) Invasive Plant Species of the World. CAB International, Oxon, United Kingdom.	1. One congener is a principal weed in New Zealand; one is a common weed in 4 countries; one is present as a weed in the US. 2. One congener is invasive in Australia and New Zealand.
4.01	Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York.	no description of these traits
4.02		
4.03	Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York.	no description of parasitism
4.04		
4.05	Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta,	no evidence

	Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York.	
4.06		
4.07	Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York.	no evidence
4.08		
4.09		
4.1	USDA, National Resources Conservation Services (NRCS), Soil Survey Division, World Soil Resources (http://soils.usda.gov/use/worldsoils/mapindex/order.html).	Entisols occur throughout almost all of Iran and northwest Iran and northern Iraq. Mollisols occur in much of northeastern Turkey. Alfisols, entisols, and mollisols occur in Azerbaijan and entisols and mollisols occur in Armenia.
4.11	1. Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 2. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 3. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 4. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "Plant 10-15 cm." 2. "Plant (8-)10-18 cm". 3. "Stem 10-20 cm long". 4. "Stems to 15 cm".
4.12	1. Walters, SM <i>et al</i> (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 2. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 3. Komarov, VL (1935) Flora of the U.S.S.R.	1. "Plant 10-15 cm." 2. "Plant (8-)10-18 cm". 3. "Stem 10-20 cm long". 4. "Stems to 15 cm".

	Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 4. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	
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?20270).	Iridaceae
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?20270).	Iridaceae
5.04	1. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 2. Fedorov, AA (1999) Flora of Russia: The European Part and Bordering Regions. Volume IV. A.A. Balkema, Rotterdam and Brookfield, Vermont. 3. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 4. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 5. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.	1. "Bulb with only slightly thickened roots". 2. "Perennial rhizomatous plants" [genus description]. 3. "Bulb 1.5-2.5 cm diam". 4. "Bulb ca. 2 cm in diameter". 5. "Bulb tunics papery."
6.01		no evidence

6.02		
6.03		
6.04		
6.05		
6.06	<p>1. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 2. Fedorov, AA (1999) Flora of Russia: The European Part and Bordering Regions. Volume IV. A.A. Balkema, Rotterdam and Brookfield, Vermont. 3. ZipcodeZoo.com (http://zipcodezoo.com/Plants/I/Iris_caucasica.asp). 4. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968). 5. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.</p>	<p>1. "Bulb with only slightly thickened roots". 2. "Perennial rhizomatous plants" [genus description]. 3. "Rhizomes homogeneous with branches like primary in size and texture, or heterogeneous, branches cordlike with scalelike leaves, enlarging at apex to produce vegetative leaves, additional cordlike branches, and flowering stems." [genus description]. 4. "Roots subfusiform, only slightly thickened" [indicates no rhizomes]. 5. "Bulb tunics papery."</p>
6.07		
7.01		
7.02	<p>1. Alpine Garden Club of B.C. (http://www.agc-bc.ca/archive/2002-seedlist.asp). 2. Ad Hoc Plants (http://www.adhocplants.com/page63.html). 3. B & T World Seeds (http://www.b-and-t-world-seeds.com/carth.asp?species=Iris%20caucasica&sref=444691). 4. Huxley, A (1992) The New Royal Horticultural Society Dictionary of Gardening. The MacMillan Press, London.</p>	<p>1. On 2002 seed exchange list (Canada). 2. Sold in the U.K. 3. Information about species listed on website which sells seeds internationally (although seeds not currently available). 4. Species is listed in reference, which is a dictionary of gardening for the UK.</p>
7.03		no evidence
7.04	<p>1. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 2. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New</p>	<p>1. "Capsule c. 3 × 1 cm, ellipsoid; seeds c. 3 mm". 2. "Capsule cylindrical to ellipsoid"; "seeds numerous, sometimes bearing a fleshy appendage (aril)" [genus description]. 3. "Fruit a 3-angled sometimes ribbed loculicidal many-seeded capsule; seeds flattened or subglobose" [genus description]. [no evidence of adaptations to wind</p>

	York. 3. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968).	dispersal]
7.05		
7.06	Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York.	"Capsule cylindric to ellipsoid"; "seeds numerous, sometimes bearing a fleshy appendage (aril)" [genus description]. [no evidence of adaptations to wind dispersal]
7.07	1. Davis, PH (Editor) (1984) Flora of Turkey and the East Aegean Islands. Volume 8. Pp. 406-407. Edinburgh University Press, Edinburgh. 2. Walters, SM et al (1984) The European Garden Flora. Volume I. Pteridophyta, Gymnospermae, Angiospermae-Monocotyledons (Part I). Pp. 335-336, 352. Cambridge University Press, Cambridge (Cambridgeshire) and New York. 3. Komarov, VL (1935) Flora of the U.S.S.R. Volume IV. Liliiflorae and Microspermae. Pp. 390, 424, 437. Izdatel'stvo Akademii Nauk SSSR, Leningrad and Israel Program for Scientific Translations (1968).	1. "Capsule c. 3 x 1 cm, ellipsoid; seeds c. 3 mm". 2. "Capsule cylindric to ellipsoid"; "seeds numerous, sometimes bearing a fleshy appendage (aril)" [genus description]. 3. "Fruit a 3-angled sometimes ribbed loculicidal many-seeded capsule; seeds flattened or subglobose" [genus description]. [no evidence of adaptations to external dispersal]
7.08		
8.01	ZipcodeZoo.com (http://zipcodezoo.com/Plants/I/Iris_caucasica.asp).	"Seeds 4-20".
8.02		
8.03		
8.04		
8.05		