	Perilla frutescens (Beefsteak-mint, Beefsteakplant, Perilla) -- UNITED STATES	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 US 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).	y	1
2.04	Native or naturalized with mean annual precipitation of 11-60 inches.	y	1
2.05	Does the species have a history of repeated introductions outside its natural range?	y	
3.01	Naturalized beyond native range.	y	2
3.02	Garden/amenity/disturbance weed	y	2
3.03	Weed of agriculture	?	
3.04	Environmental weed	y	4
3.05	Congeneric weed		
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	y	1
4.06	Host for recognised pests and pathogens	?	
4.07	Causes allergies or is otherwise toxic to humans.		
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
4.10	Grows on any soil order representing >5% cover in the US.	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	n	0
6.01	Evidence of substantial reproductive failure in native habitat		
6.02	Produces viable seed	y	1
6.03	Hybridizes naturally		
6.04	Self-compatible or apomictic	y	1
6.05	Requires specialist pollinators		
6.06	Reproduction by vegetative propagation		
6.07	Minimum generative time (years)	1	1
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	?	
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)	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)	n	-1

8.03	Well controlled by herbicides		
8.04	Tolerates, or benefits from, mutilation or cultivation		
8.05	Effective natural enemies present in the contiguous US and Alaska		
	Total Score	**14**	
	Implemented Pacific Second Screening	**no**	
	Risk Assessment Results	**High Risk**	

	Reference	Source data
1.01	1. 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?409896 (16 January 2014).	1. Widely cultivated but no evidence of selection for reduced weediness.
1.02		Skip to 2.01
1.03		Skip to 2.01
2.01	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?409896 (16 January 2014).	No computer analysis was performed. 1. Global plant hardiness zones (5?)6-12(13?); equivalent to USDA Hardiness zones 6a-11b+. 2. Exact native range obscure; native to China (Fujian, Guangdong, Guangxi, Guizhou, Hebei, Hubei, Jiangsu, Jiangxi, Shanxi, Sichuan, Xizang, Yunnan, Zhejiang); Japan (Honshu, Kyushu, Shikoku); Korea; Taiwan; Bhutan; Cambodia; India [n.]; Laos; Myanmar; Nepal; Pakistan; Thailand; Vietnam.
2.02		No computer analysis was performed. Native range is well known; refer to 2.01 source data.
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Distribution is world-wide and occurs in more than 3 climatic groups. 2. In the tropics perilla is found at higher elevations.
2.04	1. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html. Accessed 16 January 2014. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Native areas: 475 mm-4974 mm (18.8"-195.9"). 2. In its range the mean annual rainfall varies between (500-)1000-2000 mm ([19.7"-]39.4"-78.7").
2.05	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA.	1. Introduced to and present in Canada (ON) and L48 USA (AL, AR, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, NC, NE, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WA, WI, WV).
3.01	1. 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?409896 (16 January 2014). 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Widely naturalized. 2. It naturalized in the United States and the Ukraine as an annual weed of waste places, pastures and roadsides.

3.02	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014. 2. Swearingen, J., B. Slattery, K. Reshetiloff, and S. Zwicker. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service. Washington, DC. 2010. Web. http://www.nps.gov/plants/alien/pubs/midatlantic/pefr.htm. Accessed 16 January 2014.	1. It naturalized in the United States and the Ukraine as an annual weed of waste places, pastures and roadsides. 2. Well established in gravel bars, roadsides, railroad, right-of-ways, pastures, fields and other disturbed areas.
3.03	1. Holm, L. et al. A Geographical Atlas of World Weeds. New York: John Wiley & Sons, 1979. Print.	1. Perilla frutsecens is known as a common weed in Japan.
3.04	1. Swearingen, J., B. Slattery, K. Reshetiloff, and S. Zwicker. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service. Washington, DC. 2010. Web. http://www.nps.gov/plants/alien/pubs/midatlantic/pefr.htm. Accessed 16 January 2014.	1. It readily escapes cultivation and has become a problematic invasive plant in natural areas (well established along riparian areas of streams and rivers, and forest edges) across the mid-Atlantic region and elsewhere (reported to be invasive in DC, IL, MD, PN, TN, WV).
3.05		
4.01		These structures are not included in the description of this species.
4.02		
4.03	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA.	1. Family: Lamiaceae (not a parasitic family).
4.04		
4.05	1. 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?409896 (16 January 2014).	1. Economic importance: vertebrate poison (mammals). 2. It has toxic characteristics which may explains why very few herbivores feed on it. It is ordinarily avoided by cattle and has been implicated in cattle poisoning.
4.06	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Diseases known to attack perilla include downy mildew, rust, bacterial wilt and damping off. Cutworm, mites, aphids, leaf folders, browsing caterpillars and whiteflies are among the reported insect pests.
4.07		
4.08		
4.09	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. It needs sunny or partially sunny conditions.
4.10	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. It is tolerant of a soil pH of 5-7.5, and thrives in sandy soils rich in organic matter.

4.11	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Family: Lamiaceae. 2. Erect, aromatic, annual herb, 0.3-2 m tall.
4.12	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Family: Lamiaceae. 2. Erect, aromatic, annual herb, 0.3-2 m tall.
5.01	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Family: Lamiaceae. 2. Erect, aromatic, annual herb, 0.3-2 m tall.
5.02	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Family: Lamiaceae. 2. Erect, aromatic, annual herb, 0.3-2 m tall.
5.03	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Family: Lamiaceae. 2. Erect, aromatic, annual herb, 0.3-2 m tall.
5.04	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA.	Family: Lamiaceae.
6.01		
6.02	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Germination of Perilla seed takes 5-15 days. Perilla is commercially propagated by seed.
6.03		

6.04	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Perilla is predominantly self-pollinating.
6.05		
6.06		
6.07	1. USDA, NRCS. 2014. The PLANTS Database (http://plants.usda.gov, 16 January 2014). National Plant Data Team, Greensboro, NC 27401-4901 USA. 2. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Annual. 2. Seeds are mature about 6 weeks after flowering (undisturbed plants start flowering about 4 months after sowing).
7.01		
7.02	1. 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?409896 (16 January 2014).	1. Economic importance: food additive (flavoring), material (lipids), medicines (folklore).
7.03	1. 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?409896 (16 January 2014).	1. Potential seed contaminant.
7.04	1. Swearingen, J., B. Slattery, K. Reshetiloff, and S. Zwicker. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service. Washington, DC. 2010. Web. http://www.nps.gov/plants/alien/pubs/midatlantic/pefr.htm. Accessed 16 January 2014.	1. Spreads by seed that either drops close to parent plant or may be transported by wind or water.
7.05	1. Swearingen, J., B. Slattery, K. Reshetiloff, and S. Zwicker. Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. National Park Service and U.S. Fish and Wildlife Service. Washington, DC. 2010. Web. http://www.nps.gov/plants/alien/pubs/midatlantic/pefr.htm. Accessed 16 January 2014.	1. Spreads by seed that either drops close to parent plant or may be transported by wind or water.
7.06		
7.07	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	No adaptations that would suggest propagules could be temporarily attached to an animal. 1. Fruit composed of 4 subglobose nutlets 1-2 mm in diameter, grey-brown to blackbrown, with netted surface, enclosed within the persistent calyx.
7.08		
8.01	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. For abundant flowering and hence abundant production of seeds, perilla should be exposed to short days for 3-4 weeks.

8.02	1. de Guzman, C.C. & Siemonsma, J.S., 1999. Perilla frutescens (L.) Britton[Internet] Record from Proseabase. de Guzman, C.C. and Siemonsma, J.S. (Editors). PROSEA (Plant Resources of South-East Asia) Foundation, Bogor, Indonesia. http://www.proseanet.org. Accessed from Internet: 16 January 2014.	1. Seeds developing in autumn remain dormant until spring. Gibberellin is sometimes used to break dormancy. Seeds lose their viability in less than a year at room temperature, but viability can be extended if they are stored at low temperatures and low humidity
8.03		
8.04		
8.05		