Taxon: Hosta sieboldii (Paxton) J. W. Ingram **Family:** Asparagaceae

Common Name(s): fukurin-gibōshi
hosta à feuilles étroites
narrow-leaved hosta

Synonym(s): Funkia albomarginata Hook.
Hemerocallis sieboldii Paxton
Hosta albomarginata (Hook.) Ohwi

Assessor: Chuck Chimera **Status:** Assessor Approved **End Date:** 26 Jan 2016

WRA Score: 3.0 **Designation:** L **Rating:** Low Risk

Keywords: Temperate Herb, Ornamental, Rhizomatous, Self-Compatible, Wind-Dispersed

Qsn #	Question	Answer Option	Answer
101	Is the species highly domesticated?	y=-3, n=0	n
102	Has the species become naturalized where grown?		
103	Does the species have weedy races?		
201	Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"	(0-low; 1-intermediate; 2-high) (See Appendix 2)	Low
202	Quality of climate match data	(0-low; 1-intermediate; 2-high) (See Appendix 2)	High
203	Broad climate suitability (environmental versatility)	y=1, n=0	y
204	Native or naturalized in regions with tropical or subtropical climates	y=1, n=0	n
205	Does the species have a history of repeated introductions outside its natural range?	y=-2, ?=-1, n=0	?
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	n
302	Garden/amenity/disturbance weed	n=0, y = 1*multiplier (see Appendix 2)	n
303	Agricultural/forestry/horticultural weed	n=0, y = 2*multiplier (see Appendix 2)	n
304	Environmental weed	n=0, y = 2*multiplier (see Appendix 2)	n
305	Congeneric weed		
401	Produces spines, thorns or burrs	y=1, n=0	n
402	Allelopathic		
403	Parasitic	y=1, n=0	n
404	Unpalatable to grazing animals		
405	Toxic to animals		
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans		
408	Creates a fire hazard in natural ecosystems	y=1, n=0	n
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	y

Qsn #	Question	Answer Option	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y=1, n=0	y
411	Climbing or smothering growth habit	y=1, n=0	n
412	Forms dense thickets		
501	Aquatic	y=5, n=0	n
502	Grass	y=1, n=0	n
503	Nitrogen fixing woody plant	y=1, n=0	n
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	y=1, n=0	n
601	Evidence of substantial reproductive failure in native habitat	y=1, n=0	n
602	Produces viable seed	y=1, n=-1	y
603	Hybridizes naturally	y=1, n=-1	y
604	Self-compatible or apomictic	y=1, n=-1	y
605	Requires specialist pollinators	y=-1, n=0	y
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)		
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	y=1, n=-1	n
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant		
704	Propagules adapted to wind dispersal	y=1, n=-1	y
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	n
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	n
801	Prolific seed production (>1000/m2)		
802	Evidence that a persistent propagule bank is formed (>1 yr)		
803	Well controlled by herbicides		
804	Tolerates, or benefits from, mutilation, cultivation, or fire		
805	Effective natural enemies present locally (e.g. introduced biocontrol agents)		

Supporting Data:

Qsn #	Question	Answer
101	**Is the species highly domesticated?**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	[No evidence that H. sieboldii has been domesticated. Sterile cultivars would be restricted in their ability to spread] "Some of the older cultivars introduced to the West from Japan are sterile, exhibiting problems at meiosis. Many of the more recent hybrids regularly set seed."

102	**Has the species become naturalized where grown?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

103	**Does the species have weedy races?**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	NA

201	**Species suited to tropical or subtropical climate(s) - If island is primarily wet habitat, then substitute "wet tropical" for "tropical or subtropical"**	**Low**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	"Native: Asia-Temperate Eastern Asia: Japan - Hokkaido, - Honshu, - Kyushu, - Shikoku"

202	**Quality of climate match data**	**High**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	

Qsn #	Question	Answer
203	**Broad climate suitability (environmental versatility)**	**y**
	Source(s)	**Notes**
	Schmid, W. G. 2010. The H. sieboldii Complex Part 1. Hosta Species Update. The Hosta Library. http://www.hostalibrary.org/. [Accessed]	"H. sieboldii var. sieboldii" ... "Populations of this taxon are widespread and their habitat extends over several climatic zones from northern to southern regions of the Japanese archipelago. The species is endemic in ecologies ranging from lower elevation wetlands and moors to subalpine meadows, as well as the lower vegetation belt on mountains and montane forest margins."
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 25 Jan 2016]	"USDA hardiness zone : 4-8" [5 hardiness zones]

204	**Native or naturalized in regions with tropical or subtropical climates**	**n**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	"Native: Asia-Temperate Eastern Asia: Japan - Hokkaido, - Honshu, - Kyushu, - Shikoku"
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

205	**Does the species have a history of repeated introductions outside its natural range?**	**?**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 25 Jan 2016]	"Cultivated: . also cult."

301	**Naturalized beyond native range**	**n**
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence
	Wagner, W.L., Herbst, D.R.& Lorence, D.H. 2016. Flora of the Hawaiian Islands. Smithsonian Institution, Washington, D.C. http://botany.si.edu/pacificislandbiodiversity/hawaiianflora/index.htm. [Accessed 22 Jan 2016]	No evidence

Qsn #	Question	Answer
302	**Garden/amenity/disturbance weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

303	**Agricultural/forestry/horticultural weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

304	**Environmental weed**	**n**
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

305	**Congeneric weed**	
	Source(s)	**Notes**
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	Hosta fortuna & Hosta montana included in a citations of weeds. No evidence of impacts found. Other species are naturalized

401	**Produces spines, thorns or burrs**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Perennial herbs from a large, clumpy, horizontal rhizome with a thick fibrous covering; roots thickened, fleshy; leaves spiral, basal, numerous; leaf blades dorsiventral, strongly veined, linearlanceolate, or cordate-ovate, often petiolate." [Genus description. No evidence]

402	**Allelopathic**	
	Source(s)	**Notes**
	Qiu, D. R., Wang, D. C., Chung, I. M., Zhang, M. Z., Cheng, H., Wei, D. S., Qin, J. C., & Yang, S. X. (2015). Allelopathic effects of essential oil of Hosta ventricosa flowers on seed germination and seedling growth of crops. Allelopathy Journal, 36(1): 103-108	[Unknown. Allelopathy documented in genus] "The chemical composition of essential oil isolated from the flowers of Hosta ventricosa by hydrodistillation was analyzed by GC/MS. Twenty four compounds were identified, representing 98.12 % of total oil. The oil was found rich in organic acid (52.66 %). In petriplate bioassay, the essential oil at high concentration (200mg/m3) significantly inhibited the germination and seedling growth of Raphanus sativus, Triticum aestivum, Medicago sativa, and Zea mays. While low doses (25mg/m3) decreased the germination and partially inhibited the seedling growth of all tested plants."

Qsn #	Question	Answer
403	**Parasitic**	**n**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	"Family: Asparagaceae Subfamily: Agavoideae" [No evidence]

404	Unpalatable to grazing animals	
	Source(s)	**Notes**
	Coker, C. H., Simonne, E. H., Merritt, L., Eakes, D. J., Causey, M. K., Owen, J., & Osborne, J. (2001). Reducing white-tailed deer damage to landscape plants with organic products. Journal of Environmental Horticulture, 19(3), 158-162	"Hostas were highly palatable to deer (Table 2). All the plants sustained some level of feeding damage within 5 and 4 days for batches 3 and 4, respectively. For batch 3, the rotten-egg based products offered a complete level of protection for 4 days (0% damage)." [Hosta fortune is palatable to deer]
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 25 Jan 2016]	"Members of this genus are rarely if ever troubled by browsing deer or rabbits[233]."

405	Toxic to animals	
	Source(s)	**Notes**
	Knight, A. 2007. A Guide to Poisonous House and Garden Plants. CRC Press, Boca Raton, FL	[Possibly Yes] "Little information is available on the toxicity of Hosta species. Some contain saponins that may produce vomiting, diarrhea, depression, and loss of appetite." ... "Considered potentially toxic, hostas are only likely to be a problem if consumed in quantity." ... "If hostas are consumed in quantity, the irritant effects of the saponins can be expected to cause vomiting and diarrhea."

Qsn #	Question	Answer
406	**Host for recognized pests and pathogens**	
	Source(s)	**Notes**
	Hortipedia. 2016. Hosta sieboldii. http://en.hortipedia.com/wiki/Hosta_sieboldii#Pests_and_Diseases. [Accessed 25 Jan 2016]	"Pests and Diseases: Gnaw marks and slime trails indicate a problem with slugs. Prevent infestation by improving hygiene and by regularly working the soil. In case of an infestation use slug pellets or nematodes to control pest. Handpicking the slug also helps, do this preferably in the evening hours. Small dark-coloured beetles feeding on the plants are very likely vine weevils. Their larvae feed on seedling, cuttings, roots and tubers. Handpick and destroy pests and improve hygiene. Additionaly use insecticide or biological control (nematodes). Disfigured and discoloured leaves and flowers indicate a viral infection. Remove affected plants and control insects that may spread the disease. "
	Ryu, K. H., Park, M. H., & Lee, J. S. (2002). Occurrence of mosaic disease of Hosta plants caused by Hosta virus X. Plant Pathology Journal, 18(6), 313-316	[A virus that may only affect Hosta species] "Systemic virus symptoms caused by a Potexvirus were observed on leaves of infected hosta (Hosta spp.) plants cultivated in Seoul, Korea." ... "Four out of the 22 species and cultivars of cultivated hostas, namely, H. minor, H. sieboldii 'Ginko Craig', Hosta 'Blue Cadet', and Hosta 'Geisha', showed visible virus symptoms."

407	**Causes allergies or is otherwise toxic to humans**	
	Source(s)	**Notes**
	Knight, A. 2007. A Guide to Poisonous House and Garden Plants. CRC Press, Boca Raton, FL	[Possibly Yes] "Little information is available on the toxicity of Hosta species. Some contain saponins that may produce vomiting, diarrhea, depression, and loss of appetite." ... "Considered potentially toxic, hostas are only likely to be a problem if consumed in quantity." ... "If hostas are consumed in quantity, the irritant effects of the saponins can be expected to cause vomiting and diarrhea."

408	**Creates a fire hazard in natural ecosystems**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Perennial herbs from a large, clumpy, horizontal rhizome with a thick fibrous covering; roots thickened, fleshy; leaves spiral, basal, numerous" [Unlikely]
	Schmid, W. G. 2010. The H. sieboldii Complex Part 1. Hosta Species Update. The Hosta Library. http://www.hostalibrary.org/. [Accessed 25 Jan 2016]	"The species is endemic in ecologies ranging from lower elevation wetlands and moors to subalpine meadows, as well as the lower vegetation belt on mountains and montane forest margins." [Unlikely. Does not occur in fire prone habitats]

409	**Is a shade tolerant plant at some stage of its life cycle**	**y**
	Source(s)	**Notes**
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 25 Jan 2016]	"Succeeds in full sun as well as in deep shade, growing well in the semi-shade of a woodland[200, 233]."

Qsn #	Question	Answer
410	**Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)**	**y**
	Source(s)	**Notes**
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 25 Jan 2016]	"Thrives in most fertile soils if they are rich in humus[200]. Grows well in heavy clay soils and in sandy ones[208]. Very limy soils inhibit growth, but plants can thrive in such a situation if plenty of humus is added[208]. Prefers a pH between 6 and 7[200]. Requires a rich soil that does not dry out readily[1]. This species tolerates dryish conditions[121]."

411	**Climbing or smothering growth habit**	**n**
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Perennial herbs from a large, clumpy, horizontal rhizome with a thick fibrous covering; roots thickened, fleshy; leaves spiral, basal, numerous; leaf blades dorsiventral, strongly veined, linearlanceolate, or cordate-ovate, often petiolate."

412	**Forms dense thickets**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

501	**Aquatic**	**n**
	Source(s)	**Notes**
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 22 Jan 2016]	[Terrestrial herb] "Habitats: Woodland Garden Sunny Edge; Dappled Shade; Shady Edge; Ground Cover;"

502	**Grass**	**n**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	"Family: Asparagaceae Subfamily: Agavoideae"

503	**Nitrogen fixing woody plant**	**n**
	Source(s)	**Notes**
	USDA, ARS, Germplasm Resources Information Network, 2016. National Plant Germplasm System [Online Database]. http://www.ars-grin.gov/npgs/index.html. [Accessed 22 Jan 2016]	"Family: Asparagaceae Subfamily: Agavoideae"

504	**Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)**	**n**

Qsn #	Question	Answer
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Hosta has large, clumpy rhizomes with prominent leaf scars, which are often clothed with a thick fibrous covering representing the remains of old leaf bases. Fleshy roots form the root system."
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"This question relates to perennial plants with tubers, corms or bulbs. This question is specifically to deal with plants that have specialized organs and should not include plants merely with rhizomes/ stolons"

601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	**Notes**
	Schmid, W. G. 2010. The H. sieboldii Complex Part 1. Hosta Species Update. The Hosta Library. http://www.hostalibrary.org/. [Accessed 25 Jan 2016]	No evidence

602	Produces viable seed	y
	Source(s)	**Notes**
	Ushimaru, A., & Nakata, K. (2002). The evolution of flower allometry in selfing species. Evolutionary Ecology Research, 4(8), 1217-1227	"Hosta sieboldii (Paxton) J. Ingram (Liliaceae) is a self-compatible and herkogamous perennial and is mainly pollinated by bumblebees (Takahashi et al., 1994)."
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 25 Jan 2016]	"It is hardy to zone (UK) 4 and is not frost tender. It is in flower from Aug to September, and the seeds ripen from Sep to October."
	Practical Plants. 2016. Hosta sieboldii. http://practicalplants.org/wiki/Hosta_sieboldii. [Accessed 25 Jan 2016]	"Propagation: Seed - sow spring in a lightly shaded position in a greenhouse and only just cover the seed. Germination usually takes place within 1 - 3 months at 10°c."

603	Hybridizes naturally	y
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Not only artificial hybrids between Hosta species are commonly made by breeders attempting to develop new cultivars, also intersectional hybrids are known to occur under natural conditions (Takahashi et al. 1994)."
	Takahashi, H., Goto, Y., Kanematsu, S., Niwa, S., Mori, K. & Nozaki, K. (1994), Pollination Biology of Hosta sieboldiana (Lodd.) Engler and H. sieboldii (Paxton) J. Ingram (Liliaceae). Plant Species Biology, 9: 23–30	[Suspected natural hybrids between Hosta sieboldiana and H. sieboldii] "we recognize many plants which appear to be their hybrids in parts of northern Gifu Prefecture." ... "Although the pollination biology of these species has not been reported, the apparent hybrids suggest that both species have some common pollinators. Their floral biology will be helpful for understanding the mechanisms of natural hybridization between them."

604	Self-compatible or apomictic	y

Qsn #	Question	Answer
	Source(s)	**Notes**
	Takahashi, H., Goto, Y., Kanematsu, S., Niwa, S., Mori, K. & Nozaki, K. (1994), Pollination Biology of Hosta sieboldiana (Lodd.) Engler and H. sieboldii (Paxton) J. Ingram (Liliaceae). Plant Species Biology, 9: 23–30	"The abdomens of the bees touch the stigma on the extended style when they land on the anthers inside the herkogamous flower, and autogamy is effectively prevented. However, the flowers are fairly self-compatible, and geitonogamy may occur rather frequently because two or more flowers on a scape very often bloom at the same time and many ramets are contiguous."

605	Requires specialist pollinators	y
	Source(s)	**Notes**
	Takahashi, H., Goto, Y., Kanematsu, S., Niwa, S., Mori, K. & Nozaki, K. (1994), Pollination Biology of Hosta sieboldiana (Lodd.) Engler and H. sieboldii (Paxton) J. Ingram (Liliaceae). Plant Species Biology, 9: 23–30	"Abstract The pollination biology of Hosta sieboldiana and H. sieboldii is investigated comparatively in Central Japan. Both species have homogamous, one-day flowers pollinated by bumblebees. The abdomens of the bees touch the stigma on the extended style when they land on the anthers inside the herkogamous flower, and autogamy is effectively prevented. However, the flowers are fairly self-compatible, and geitonogamy may occur rather frequently because two or more flowers on a scape very often bloom at the same time and many ramets are contiguous. The pollen/ovule ratios suggest that these species are facultative outbreeders. The flower of H. sieboldii seems completely suited to bumblebee pollination. In H. sieboldiana the stigma of the flower, whose style strongly protrudes, is not always touched by bumblebees, but frequent visitation of bumblebees results in pollination of almost all the flowers. Both species have similar pollination systems but seem reproductively isolated by blooming times and habitats. Their common pollinators, however, may sometimes cause introgressive hybridization in contiguous populations."

606	Reproduction by vegetative fragmentation	y
	Source(s)	**Notes**
	Plants for a Future. 2016. Hosta sieboldii. http://pfaf.org/user/Plant.aspx?LatinName=Hosta+sieboldii. [Accessed 26 Jan 2016]	"Forming medium-sized clumps, the rhizome is short and creeping [200]." [Able to spread short distances vegetatively]
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"Hosta has large, clumpy rhizomes with prominent leaf scars, which are often clothed with a thick fibrous covering representing the remains of old leaf bases. Fleshy roots form the root system."

607	Minimum generative time (years)	
	Source(s)	**Notes**
	Shoot Gardening. 2016. Plants in the Genus Hosta. https://www.shootgardening.co.uk/plant/genus/list/hosta. [Accessed 26 Jan 2016]	Unknown for Hosta sieboldii, but most species listed are reported to reach maturity in 2-5 years.

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"capsules narrowly oblong to linear, pendent when mature, loculicidal; seeds black, flattened, winged; testa thin, papery, encrusted with phytomelan, endosperm fleshy; embryo applanate." [Presumably No. No means of external attachment. Genus description]

702	Propagules dispersed intentionally by people	y
	Source(s)	**Notes**
	The Hosta Helper. 2016. Hosta sieboldii. http://www.plantsgalore.com/Hostas/cultivars/species/Hosta_sieboldii.htm. [Accessed 26 Jan 2016]	"This is another Japanese species that has a long history and which has had several different names." [Species and cultivars are cultivated as ornamentals]

703	Propagules likely to disperse as a produce contaminant	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. No evidence, but may be possible for seeds to contaminate soil if grown with other ornamentals

704	Propagules adapted to wind dispersal	y
	Source(s)	**Notes**
	Chung, M. Y., Suh, Y., Lopez-Pujol, J., Nason, J. D., & Chung, M. G. (2005). Clonal and fine-scale genetic structure in populations of a restricted Korean endemic, Hosta jonesii (Liliaceae) and the implications for conservation. Annals of Botany, 96(2), 279-288	"Although Hosta seeds are adapted for wind dispersal, most seeds fall around maternal plants at <1 m radius (Park and Chung, 1997)."
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"capsules narrowly oblong to linear, pendent when mature, loculicidal; seeds black, flattened, winged; testa thin, papery, encrusted with phytomelan, endosperm fleshy; embryo applanate." [Genus description. WInged seeds]

705	Propagules water dispersed	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. Seeds are adapted to wind dispersal but might be moved by water if growing in or near riparian habitats

706	Propagules bird dispersed	n
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"capsules narrowly oblong to linear, pendent when mature, loculicidal; seeds black, flattened, winged; testa thin, papery, encrusted with phytomelan, endosperm fleshy; embryo applanate." [Not fleshy-fruited]

707	Propagules dispersed by other animals (externally)	n

Qsn #	Question	Answer
	Source(s)	**Notes**
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"capsules narrowly oblong to linear, pendent when mature, loculicidal; seeds black, flattened, winged; testa thin, papery, encrusted with phytomelan, endosperm fleshy; embryo applanate." [No means of external attachment]

708	Propagules survive passage through the gut	n
	Source(s)	**Notes**
	Gordon, D. R., Mitterdorfer, B., Pheloung, P. C., Ansari, S., Buddenhagen, C., Chimera, C., ... & Williams, P. A. 2010). Guidance for addressing the Australian Weed Risk Assessment questions. Plant Protection Quarterly, 25(2): 56-74	"Answer 'no' where the taxon is unlikely to be eaten by animals or if seeds are not viable following passage through the gut"
	Kubitzki, K. (ed.). 1998. The Families and genera of vascular plants. Volume III. Flowering plants, Monocotyledons: Lilianae (except Orchidaceae). Springer-Verlag, Berlin, Heidelberg, New York	"capsules narrowly oblong to linear, pendent when mature, loculicidal; seeds black, flattened, winged; testa thin, papery, encrusted with phytomelan, endosperm fleshy; embryo applanate." [Unlikely to be consumed. Adapted for wind dispersal]

801	Prolific seed production (>1000/m2)	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

802	Evidence that a persistent propagule bank is formed (>1 yr)	
	Source(s)	**Notes**
	Royal Botanic Gardens Kew. (2016) Seed Information Database (SID). Version 7.1. http://data.kew.org/sid/. [Accessed 26 Jan 2016]	"Storage Behaviour: Orthodox Storage Conditions: Dry seeds (mc not reported) survive overnight in liquid nitrogen (Pence, 1991a)" [Generic description. Unknown if H. sieboldii seeds form a persistent seed bank in field conditions]

803	Well controlled by herbicides	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown. No information on herbicide efficacy or chemical control of this species

804	Tolerates, or benefits from, mutilation, cultivation, or fire	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

Qsn #	Question	Answer
805	**Effective natural enemies present locally (e.g. introduced biocontrol agents)**	
	Source(s)	**Notes**
	WRA Specialist. 2016. Personal Communication	Unknown

Summary of Risk Traits:

High Risk / Undesirable Traits
• Broad climate suitability
• Possibly toxic if ingested
• Shade tolerant
• Tolerates many soil types
• Reproduces by seeds or vegetatively by rhizomes
• Hybridizes naturally with other Hosta species
• Self-compatible
• Seeds dispersed by wind & propagated intentionally by people
• Limited ecological information reduces accuracy of risk prediction

Low Risk Traits
• No reports of invasiveness or naturalization
• Unarmed (no spines, thorns or burrs)
• Ornamental

Second Screening Results for herbs or low stature shrubby life forms

(A) Reported as a weed of cultivated lands?> No
Outcome = Accept (Low Risk)