

<b>Taxon:</b> Juniperus conferta	<b>Family:</b> Cupressaceae
<b>Common Name(s):</b> hai-nezu shore juniper	<b>Synonym(s):</b> Juniperus litoralis Maxim.

<b>Assessor:</b> Assessor	<b>Status:</b> Assessor Approved	<b>End Date:</b> 16 May 2014
<b>WRA Score:</b> 3.0	<b>Designation:</b> L	<b>Rating:</b> Low Risk

**Keywords:** Naturalized, Ground-Cover, Temperate, Vegetative, Fleshy-fruited

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)		
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	y
301	Naturalized beyond native range	y = 1*multiplier (see Appendix 2), n= question 205	y
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	n=0, y = 1*multiplier (see Appendix 2)	y
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	y=1, n=-1	y
405	Toxic to animals	y=1, n=0	n
406	Host for recognized pests and pathogens		
407	Causes allergies or is otherwise toxic to humans	y=1, n=0	n
408	Creates a fire hazard in natural ecosystems	y=1, n=0	y
409	Is a shade tolerant plant at some stage of its life cycle	y=1, n=0	n

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		
604	Self-compatible or apomictic	y=1, n=-1	n
605	Requires specialist pollinators	y=-1, n=0	n
606	Reproduction by vegetative fragmentation	y=1, n=-1	y
607	Minimum generative time (years)	1 year = 1, 2 or 3 years = 0, 4+ years = -1	2
701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)		
702	Propagules dispersed intentionally by people	y=1, n=-1	y
703	Propagules likely to disperse as a produce contaminant	y=1, n=-1	n
704	Propagules adapted to wind dispersal	y=1, n=-1	n
705	Propagules water dispersed		
706	Propagules bird dispersed	y=1, n=-1	y
707	Propagules dispersed by other animals (externally)	y=1, n=-1	n
708	Propagules survive passage through the gut	y=1, n=-1	y
801	Prolific seed production (>1000/m <sup>2</sup> )	y=1, n=-1	n
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	y=1, n=-1	n
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
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"Only a few cultivars have been selected..." [Assessment is of wild-type, although no evidence that cultivars have been selected for traits that would make them more, or less weedy]
102	Has the species become naturalized where grown?	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	NA
103	Does the species have weedy races?	
	Source(s)	Notes
	WRA Specialist. 2014. 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, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/">http://www.ars-grin.gov/</a> . [Accessed 15 May 2014]	"Native: ASIA-TEMPERATE Russian Far East: Russian Federation - Sakhalin Eastern Asia: Japan - Hokkaido [w.], Honshu [coastal], Kyushu"
202	Quality of climate match data	High
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/">http://www.ars-grin.gov/</a> . [Accessed ]	
203	Broad climate suitability (environmental versatility)	
	Source(s)	Notes
	Harrison, M. 2006. Groundcovers for the South. Pineapple Press Inc., Sarasota, FL	"Zones: 5-10" [Can be grown in >5 hardiness zones within temperate regions]

Qsn #	Question	Answer
204	Native or naturalized in regions with tropical or subtropical climates	n
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Native to and naturalized in regions with a temperate climate [See 2.01 & 3.01]

205	Does the species have a history of repeated introductions outside its natural range?	y
	Source(s)	Notes
	Salicicola. 2014. Japanese shore juniper ( <i>Juniperus conferta</i> Parl.) found naturalized in southeastern Massachusetts. <a href="http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/">http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/</a> . [Accessed 16 May 2014]	"Introduced to the US less than a hundred years ago, in 1915 (Rehder 1940), shore juniper is now widely cultivated in North America, available at many nurseries."

301	Naturalized beyond native range	y
	Source(s)	Notes
	Barger, T. W., Horne, H. E., Spaulding, D. D., Holt, B. D., Cressler, A., Estes, L. D., & Hughes, B. M. 2012. Alabama: New and Noteworthy Records for the Flora of Alabama. <i>Castanea</i> , 77(3): 257-269	"Significance. STATE RECORD. First known collections of this species either naturalizing or escaping outside of cultivation in Alabama. While the exact origin of these populations is unknown, they could have been spread by bird/wildlife. This species, unlike <i>Juniperus horizontalis</i> Moench, is not utilized in any local greenway or interchange plantings by Alabama Department of Transportation (T.W. Barger, pers. obs.) and should be watched for as an escape in other areas."
	AVH. 2014. Australia's Virtual Herbarium, Council of Heads of Australasian Herbaria. <a href="http://avh.chah.org.au">http://avh.chah.org.au</a> . [Accessed 15 May 2014]	"Single naturalised groundcover shrub to 70 cm high and about 2 m across. Possibly the same as other <i>Juniperus</i> sp. naturalised in the Blue Mountains. Young stems green, older stems tan and oldest stems with flaky tan bark. Leaves in whorls of 3 around the stem, lower surface and upper margins green, longitudinal silver band above, leaf tips opaque and pungent. Male cones tan"
	Salicicola. 2014. Japanese shore juniper ( <i>Juniperus conferta</i> Parl.) found naturalized in southeastern Massachusetts. <a href="http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/">http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/</a> . [Accessed 15 May 2014]	"The recent general decline of the native common juniper ( <i>Juniperus communis</i> var. <i>depressa</i> Pursh), which we have been observing in eastern Massachusetts, can be readily explained by the plant's light requirements. A rapid process of reforestation of post-agricultural and other man-made forest openings has resulted in decline of many sun-loving native species including junipers. Fertile, healthy common-juniper clones in eastern Massachusetts have become exceedingly rare. One patch of common juniper growing along Ponkapoag Trail in the Blue Hills Reservation has literally disappeared within five-six years in front of our eyes. That's why our attention was attracted to a large, healthy, fertile population of a prostrate juniper on slopes of a road/ramp crossing a highway and aggressively spreading down into sparse pine forest. " ... "A closer examination of samples has shown that the plant, even though much resembling the native common juniper, appears to be Japanese shore juniper, <i>J. conferta</i> Parl. "

302	Garden/amenity/disturbance weed	n
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Shore juniper shows no signs of weediness from natural establishment."
	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
	<b>Source(s)</b>	<b>Notes</b>
	Randall, R.P. 2012. A Global Compendium of Weeds. 2nd Edition. Department of Agriculture and Food, Western Australia	No evidence

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

305	Congeneric weed	y
	<b>Source(s)</b>	<b>Notes</b>
	Horncastle, V. J., Hellgren, E. C., Mayer, P. M., Engle, D. M., & Leslie Jr, D. M. 2004. Differential consumption of eastern red cedar ( <i>Juniperus virginiana</i> ) by avian and mammalian guilds: implications for tree invasion. <i>The American Midland Naturalist</i> , 152(2): 255-267	"Invasion by eastern red cedar impacts ecological and human health by homogenizing diversity, reducing wildlife habitat quality, increasing fire risk, altering hydrology and nutrient cycling and producing highly allergenic pollen (Engle et al., 1996; Norris et al., 2001)."
	Wingate, D.B., Adams, R & Gardner, M. 2011. <i>Juniperus bermudiana</i> . In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2. <a href="http://www.iucnredlist.org">www.iucnredlist.org</a>	"Perhaps the biggest planting is in St Helena and on Ascension Island where seed was introduced during the mid-19th century to establish timber tree plantations (Adams 2008). Ironically on these islands <i>J. bermudiana</i> is now becoming an invasive problem. <i>Juniperus virginiana</i> has also been introduced on St. Helena so there is the potential for hybridization (Adams 2008)."

401	Produces spines, thorns or burrs	n
	<b>Source(s)</b>	<b>Notes</b>
	Virginia Tech Department of Forest Resources & Environmental Conservation. 2014. Shore juniper. Cupressaceae. <i>Juniperus conferta</i> . <a href="http://dendro.cnre.vt.edu/dendrology/syllabus/factsheet.cfm?ID=293">http://dendro.cnre.vt.edu/dendrology/syllabus/factsheet.cfm?ID=293</a> . [Accessed 16 May 2014]	"Leaf: Evergreen, all leaves awl-shaped, sharp pointed, about 1/2 inch long, tips are well away from the stem, upper surface grooved with a bluish stomatal band, darker green below." [No spines, thorns, or burrs, but sharp pointed leaves may cause some discomfort]

402	Allelopathic	
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Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Takemura, T., Sakuno, E., Kamo, T., Hiradate, S., & Fujii, Y. 2013. Screening of the Growth-Inhibitory Effects of 168 Plant Species against Lettuce Seedlings. American Journal of Plant Sciences, 4(5): 1095-1104	"The methanol extracts of 168 plant species from 68 families were evaluated for their inhibitory activity against lettuce seedling elongation. Among the plant species tested, 12 species had EC50 values for radicle growth inhibition ranging from 0.01 to 5.00 mg fresh weight equivalent mL <sup>-1</sup> . Enterobium contortisiliquum, a traditionally used herbal medicine, exhibited the strongest inhibitory activity (estimated EC50: 0.28 fresh weight equivalent mL <sup>-1</sup> ). Among the 12 species, Pachysandra terminalis, Tamarindus indica, and Albizia guachapele required investigation, because only little has been reported about their chemical constituents to date. The data in the present study would be useful in finding new lead compounds for natural herbicides." [Juniperus conferta shows some inhibitory effect. Unknown from field conditions]

403	Parasitic	n
	<b>Source(s)</b>	<b>Notes</b>
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/">http://www.ars-grin.gov/</a> . [Accessed 16 May 2014]	Cupressaceae. No evidence

404	Unpalatable to grazing animals	y
	<b>Source(s)</b>	<b>Notes</b>
	gardenguides.com. 2010. Shore Juniper (Conferta). <a href="http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/">http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/</a> . [Accessed 16 May 2014]	"Palatability - Low" [Possibly unpalatable]
	Missouri Botanical Garden. 2014. Juniperus conferta 'Blue Pacific'. <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254</a> . [Accessed 17 May 2014]	"Tolerate: Deer, Drought, Erosion, Air Pollution" [Deer tolerance could mean the plant does not get browsed, and may be unpalatable, or does get browsed, but is able to recover]

405	Toxic to animals	n
	<b>Source(s)</b>	<b>Notes</b>
	Plants for a Future. 2014. Juniperus conferta. <a href="http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta">http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta</a> . [Accessed 16 May 2014]	"Known Hazards None known"
	gardenguides.com. 2010. Shore Juniper (Conferta). <a href="http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/">http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/</a> . [Accessed 16 May 2014]	"Toxic to Livestock No"
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

406	Host for recognized pests and pathogens	

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Missouri Botanical Garden. 2014. <i>Juniperus conferta</i> 'Blue Pacific'. <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254</a> . [Accessed 16 May 2014]	"No serious insect or disease problems. Junipers are generally susceptible to blights (dieback of stem tips), particularly in unusually rainy/wet springs. Phomopsis twig blight is of particular concern. Cedar-apple and related rust diseases spend part of their life cycle on junipers. Root rot may occur, particularly in wet, poorly drained soils. Occasional insect pests include aphids, bagworms, twig borers, webworms and scale. Watch for spider mites. Foliage on mature plants will sometimes die back in the center. Less susceptible to winter injury than the species."
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"This groundcover is relatively trouble-free in most situations, but mites occasionally can be troublesome."

407	Causes allergies or is otherwise toxic to humans	n
	<b>Source(s)</b>	<b>Notes</b>
	Asthma Foundation WA. 2014. About Asthma - Low Allergen Plants. <a href="http://www.asthmawa.org.au/About-Asthma/Asthma-Factsheets/Low-Allergen-Plants/">http://www.asthmawa.org.au/About-Asthma/Asthma-Factsheets/Low-Allergen-Plants/</a> . [Accessed 16 May 2014]	Juniperus conferta listed as a low allergy plant
	Wagstaff, D.J. 2008. International poisonous plants checklist: an evidence-based reference. CRC Press, Boca Raton, FL	No evidence

408	Creates a fire hazard in natural ecosystems	y
	<b>Source(s)</b>	<b>Notes</b>
	Virginia Cooperative Extension. 2009. Virginia Firescapes: Firewise Landscaping for Woodland Homes. Virginia Polytechnic Institute and State University, Blacksburg, VA. <a href="http://pubs.ext.vt.edu/430/430-300/430-300_pdf">pubs.ext.vt.edu/430/430-300/430-300_pdf</a> .	"Lists of More or Less Forest Fire-Prone Trees, Shrubs and Ground Covers" [ <i>Juniperus conferta</i> - Flammability Rating = H (High. Dense, mat-forming habit and high flammability would likely increase fire risk in fire prone areas)]

409	Is a shade tolerant plant at some stage of its life cycle	n
	<b>Source(s)</b>	<b>Notes</b>
	Harrison, M. 2006. Groundcovers for the South. Pineapple Press Inc., Sarasota, FL	"Choose a place with full sun and sandy, well-drained soil."
	Floridata. 2014. <i>Juniperus conferta</i> . <a href="http://www.floridata.com/ref/j/juni_con.cfm">http://www.floridata.com/ref/j/juni_con.cfm</a> . [Accessed 16 May 2014]	"Light: Full sun. Shore juniper will not be as dense if grown in partial shade. "
	gardenguides.com. 2010. Shore Juniper ( <i>Conferta</i> ). <a href="http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/">http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/</a> . [Accessed 16 May 2014]	"Shade Tolerance -Intolerant"
	Black, R. J. 1999. Selected shrubs for North Florida. University of Florida Cooperative Extension Service, Institute of Food and Agriculture Sciences, EDIS. Gainesville, FL	"Table 1. Selected list of small shrubs to use in north Florida (from Pensacola to Jacksonville, south to Ocala)." ... " <i>Juniperus conferta</i> - Light Requirement = Full sun]

Qsn #	Question	Answer
410	Tolerates a wide range of soil conditions (or limestone conditions if not a volcanic island)	y
	Source(s)	Notes
	Floridata. 2014. <i>Juniperus conferta</i> . <a href="http://www.floridata.com/ref/j/juni_con.cfm">http://www.floridata.com/ref/j/juni_con.cfm</a> . [Accessed 16 May 2014]	"It thrives in alkaline to acidic soils. It is very drought tolerant. Shore juniper is very salt tolerant, and does well in dry, sandy soils, and is thus a good choice for seaside gardens and coastal communities."
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Shore juniper will grow well under a wide range of site conditions, from loams to very sandy soils."
	Harrison, M. 2006. Groundcovers for the South. Pineapple Press Inc., Sarasota, FL	"Soil: Alkaline to acidic, dry, sandy"

411	Climbing or smothering growth habit	n
	Source(s)	Notes
	Wilson, E.H. 1916. The Conifers and Taxads of Japan. The University Press, Cambridge, MA	"The habit is always prostrate; the leaves, which are very densely crowded, are straight, pungent and are concave and often sulcate above with one median stomatic line; the under side is pale green and keeled."

412	Forms dense thickets	
	Source(s)	Notes
	Barger, T. W., Horne, H. E., Spaulding, D. D., Holt, B. D., Cressler, A., Estes, L. D., & Hughes, B. M. 2012. Alabama: New and Noteworthy Records for the Flora of Alabama. <i>Castanea</i> , 77(3): 257-269	" <i>Juniperus conferta</i> Parl.—SHORE JUNIPER Macon County. Plants numerous. Dense mat-forming population extending over 250 m along slope of eastbound Interstate-85 mile marker #36. No plantings observed in vicinity. Plants in fruit and likely sexually reproducing. January 31, 2012. T. Wayne Barger and Brian D. Holt SP#356. Lee County. Plants numerous. Dense mat-forming population extending over 100 m along slope just west of the westbound Interstate-85 mile marker #58. No plantings observed in vicinity. Plants in fruit and likely sexually reproducing. January 31, 2012. T. Wayne Barger and Brian D. Holt SP#357" [Unknown if dense mats exclude other vegetation]

501	Aquatic	n
	Source(s)	Notes
	Wilson, E.H. 1916. The Conifers and Taxads of Japan. The University Press, Cambridge, MA	"This is a littoral species and is widely spread on sandy shores where it forms dense, broad mats."



Qsn #	Question	Answer
502	Grass	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/">http://www.ars-grin.gov/</a> . [Accessed 16 May 2014]	Cupressaceae
503	Nitrogen fixing woody plant	n
	Source(s)	Notes
	USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/">http://www.ars-grin.gov/</a> . [Accessed 16 May 2014]	Cupressaceae
504	Geophyte (herbaceous with underground storage organs -- bulbs, corms, or tubers)	n
	Source(s)	Notes
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed ]	"Shore juniper consists of upright layered stems, growing to one foot tall, that emerge from low growing runner-like stems."
601	Evidence of substantial reproductive failure in native habitat	n
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	No evidence
602	Produces viable seed	y
	Source(s)	Notes
	Wilson, E.H. 1916. The Conifers and Taxads of Japan. The University Press, Cambridge, MA	"I secured a plentiful supply of seeds of this species and many young plants raised from them are now growing in this Arboretum. These plants are now a year old and all are strictly erect in habit. about 80 cm. high and very glaucous; in another garden here and raised from my seeds there are plants both upright and prostrate in habit."
603	Hybridizes naturally	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown. Other <i>Juniperus</i> species are able to hybridize
604	Self-compatible or apomictic	n

Qsn #	Question	Answer
	<b>Source(s)</b>	<b>Notes</b>
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"Dioecious"

605	Requires specialist pollinators	n
	<b>Source(s)</b>	<b>Notes</b>
	Williams, C.G. 2009. Conifer Reproductive Biology. Springer, New York	"All conifers rely on wind to move pollen to ovule but form matters as much as chance; pollination is more akin to coordination and synchrony than it resembles a stochastic process."
	Plants for a Future. 2014. <i>Juniperus conferta</i> . <a href="http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta">http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta</a> . [Accessed 16 May 2014]	"The flowers are dioecious (individual flowers are either male or female, but only one sex is to be found on any one plant so both male and female plants must be grown if seed is required) and are pollinated by Wind. The plant is not self-fertile."

606	Reproduction by vegetative fragmentation	y
	<b>Source(s)</b>	<b>Notes</b>
	Salicicola. 2014. Japanese shore juniper ( <i>Juniperus conferta</i> Parl.) found naturalized in southeastern Massachusetts. <a href="http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/">http://www.salicicola.com/plants/invasive/notes/juniperus_conferta/</a> . [Accessed 15 May 2014]	"Over the years the juniper has descended to the pitch pine forest at a lower elevation, away from the road. It appears to be spreading vegetatively—despite the presence of abundant cones—or at least we cannot report any findings of seedlings. Separate small patches appeared to be connected with other parts of the population under the forest litter. A similar spreading planting of <i>J. conferta</i> (planted together with <i>J. horizontalis</i> ) is found at the next bridge across the same highway, about 2 miles west."
	Harrison, M. 2006. Groundcovers for the South. Pineapple Press Inc., Sarasota, FL	"Propagation: Branches can be layered where they touch the soil or tip cuttings can be taken."
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed ]	"Shore juniper consists of upright layered stems, growing to one foot tall, that emerge from low growing runner-like stems. Where these stems contact soil adventitious roots will form. Vegetative mats typically form due to this layering process."

607	Minimum generative time (years)	2
	<b>Source(s)</b>	<b>Notes</b>
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Aromatic, round, blue-green fruit are produced annually. These fruits are produced on second year growth, and are about 1/2 inch in diameter."
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"In appropriate sites, this is one of the fastest evergreen groundcovers to become established."

701	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	
	<b>Source(s)</b>	<b>Notes</b>

Qsn #	Question	Answer
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Due to the poor production of desirable seed, shore juniper is propagated vegetatively." [Limited seed production would make inadvertent seed dispersal unlikely]
	Hosking, J. R., Conn, B. J., Lepschi, B. J., & Barker, C. H. 2007. Plant species first recognised as naturalised for New South Wales in 2002 and 2003, with additional comments on species recognized as naturalised in 2000–2001. <i>Cunninghamia</i> , 10(1): 139-166	"Notes: There appears to be only one plant (with male cones) at the collection site occupying a circular area about 2 m diameter. This plant appears to have originated from dumped garden waste." [Improper disposal of garden waste may result in dispersal of this species]

702	Propagules dispersed intentionally by people	y
	Source(s)	Notes
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Shore juniper is an ornamental, low growing shrub from Japan that has good salt tolerance. It is especially adapted for use on back dune seashore landscapes. When planted on banks and terraces, the dense vegetative mats provide good soil erosion protection."

703	Propagules likely to disperse as a produce contaminant	n
	Source(s)	Notes
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Due to the poor production of desirable seed, shore juniper is propagated vegetatively." [No evidence of produce contamination, and limited seed production would make this improbable]

704	Propagules adapted to wind dispersal	n
	Source(s)	Notes
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"Fruits: Black with a waxy bloom, to 1.2 cm/0.5 in. across." [Fleshy-fruited. Not adapted for wind dispersal]

705	Propagules water dispersed	
	Source(s)	Notes
	Missouri Botanical Garden. 2014. <i>Juniperus conferta</i> 'Blue Pacific'. <a href="http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254">http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=c254</a> . [Accessed 16 May 2014]	"...a decumbent evergreen shrub that is native to certain sandy coastal areas of Japan and Sakhalin Island (Russia)." [Habitat suggests water may aid in movement of seeds, but limited seed production in introduced range may make this vector unlikely]

706	Propagules bird dispersed	y
	Source(s)	Notes
	Barger, T. W., Horne, H. E., Spaulding, D. D., Holt, B. D., Cressler, A., Estes, L. D., & Hughes, B. M. 2012. Alabama: New and Noteworthy Records for the Flora of Alabama. <i>Castanea</i> , 77(3): 257-269	"First known collections of this species either naturalizing or escaping outside of cultivation in Alabama. While the exact origin of these populations is unknown, they could have been spread by bird/wildlife."

Qsn #	Question	Answer
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"Fruits: Black with a waxy bloom, to 1.2 cm/0.5 in. across." [Fleshy-fruited. Presumably adapted for bird dispersal]

707	Propagules dispersed by other animals (externally)	n
Source(s)		Notes
	Flint, H.L. & Lyverse, J.M. 1997. Landscape plants for eastern North America: exclusive of Florida and the immediate Gulf Coast. John Wiley and Sons, New York, NY	"Fruits: Black with a waxy bloom, to 1.2 cm/0.5 in. across." [Fruit & seeds lack means of external attachment, Presumably adapted for consumption and internal dispersal]

708	Propagules survive passage through the gut	y
Source(s)		Notes
	Barger, T. W., Horne, H. E., Spaulding, D. D., Holt, B. D., Cressler, A., Estes, L. D., & Hughes, B. M. 2012. Alabama: New and Noteworthy Records for the Flora of Alabama. <i>Castanea</i> , 77(3): 257-269	"First known collections of this species either naturalizing or escaping outside of cultivation in Alabama. While the exact origin of these populations is unknown, they could have been spread by bird/wildlife." [Fleshy-fruited, and presumably adapted for internal dispersal. Seed production outside native range may be limited]

801	Prolific seed production (>1000/m2)	n
Source(s)		Notes
	USDA NRCS. 2002. Plant Fact Sheet - Shore juniper - <i>Juniperus conferta</i> . <a href="http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf">http://plants.usda.gov/factsheet/pdf/fs_juco12.pdf</a> . [Accessed 16 May 2014]	"Due to the poor production of desirable seed, shore juniper is propagated vegetatively."
	Wilson, E.H. 1916. <i>The Conifers and Taxads of Japan</i> . The University Press, Cambridge, MA	"The fruit is three-seeded and is produced in great profusion; it is globose and bloomy black when ripe and is very variable in size."

802	Evidence that a persistent propagule bank is formed (>1 yr)	
Source(s)		Notes
	Plants for a Future. 2014. <i>Juniperus conferta</i> . <a href="http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta">http://www.pfaf.org/user/plant.aspx?latinname=Juniperus+conferta</a> . [Accessed 16 May 2014]	"The seed requires a period of cold stratification. The seed has a hard seedcoat and can be very slow to germinate, requiring a cold period followed by a warm period and then another cold spell, each of 2 - 3 months duration [78, 81]. Soaking the seed for 3 - 6 seconds in boiling water may speed up the germination process [11]. The seed is best sown as soon as it is ripe in a cold frame. Some might germinate in the following spring, though most will take another year. Another possibility is to harvest the seed 'green' (when the embryo has fully formed but before the seedcoat has hardened)." ... "When stored dry, the seed can remain viable for several years" [May form a persistent seed bank in colder climates]

803	Well controlled by herbicides	
Source(s)		Notes

Qsn #	Question	Answer
	Czarnota, M. A. 2008. Tolerance of three juniper species to glyphosate. HortTechnology, 18(2): 239-242	"The objective of this research was to determine the tolerance levels of three juniper species ['Blue Pacific' shore juniper ( <i>Juniperus conferta</i> ), 'Blue Star' juniper ( <i>Juniperus squamata</i> ), and 'Parsoni' juniper ( <i>Juniperus davurica</i> )] to various rates of glyphosate. Research conducted in 2004 and 2005 indicated that injury to three juniper species did not exceed 23% with glyphosate rates up to 2.5 lb/acre." ... "From this research, it appears that the three juniper species tested in this study were tolerant to glyphosate rates as high as 2.5 lb/acre. Glyphosate rates above 2.5 lb/acre caused unacceptable damage." [Tolerant of glyphosate. Suggest species may be difficult to control with herbicides]

804	Tolerates, or benefits from, mutilation, cultivation, or fire	n
	Source(s)	Notes
	gardenguides.com. 2010. Shore Juniper (Conferta). <a href="http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/">http://www.gardenguides.com/taxonomy/shore-juniper-juniperus-conferta/</a> . [Accessed 16 May 2014]	"Responds to Coppicing - No" ... "Fire Resistant - No"

805	Effective natural enemies present locally (e.g. introduced biocontrol agents)	
	Source(s)	Notes
	WRA Specialist. 2014. Personal Communication	Unknown

**Summary of Risk Traits:**

## High Risk / Undesirable Traits

- Possible broad elevation range
- Naturalized in Alabama, Massachusetts, and SE Australia
- Other *Juniperus* species have become invasive
- May contain allelopathic chemicals
- Unpalatable to browsing & grazing animals
- High flammability could increase fire risk
- Tolerates many soil types
- Dense, mat-forming habit may exclude other vegetation
- Produces fleshy-fruits. May aid in seed dispersal by birds and other frugivorous animals
- Can reproduce vegetatively
- Reaches maturity in 2 years
- Tolerates glyphosate & may be resistant to certain other herbicides

## Low Risk Traits

- Grows in temperate climates. May only threaten higher elevation of tropical island ecosystems
- No reports of invasiveness or detrimental impacts
- Non-toxic
- Ornamental value
- Shade intolerant
- Dioecious (& therefore self-incompatible)
- Seed production limited in introduced range
- Seeds require cold stratification
- Does not tolerate cutting or fires

## Second Screening Results for Hers or low stature shrubby life form

(A) Reported as a weed of cultivated lands? No

Outcome = Accept (Low Risk)

