

Assessment date 11 February 2016

<i>Wisteria floribunda</i> ALL ZONES		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 Florida's USDA climate zones (0-low; 1-intermediate; 2-high) North Zone: suited to Zones 8, 9 Central Zone: suited to Zones 9, 10 South Zone: suited to Zone 10	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 in habitats with periodic inundation North Zone: mean annual precipitation 50-70 inches Central Zone: mean annual precipitation 40-60 inches South Zone: mean annual precipitation 40-60 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	unk	
3.04	Environmental weed	y	4
3.05	Congeneric weed	y	2
4.01	Produces spines, thorns or burrs	n	0
4.02	Allelopathic	unk	0
4.03	Parasitic	n	0
4.04	Unpalatable to grazing animals	y	1
4.05	Toxic to animals	y	1
4.06	Host for recognised pests and pathogens	unk	0
4.07	Causes allergies or is otherwise toxic to humans	y	1
4.08	Creates a fire hazard in natural ecosystems	unk	0
4.09	Is a shade tolerant plant at some stage of its life cycle	unk	0
4.10	Grows on infertile soils (oligotrophic, limerock, or excessively draining soils). North & Central Zones: infertile soils; South Zone: shallow limerock or Histisols.	unk	0
4.11	Climbing or smothering growth habit	y	1
4.12	Forms dense thickets	y	1
5.01	Aquatic	n	0
5.02	Grass	n	0
5.03	Nitrogen fixing woody plant	y	1
5.04	Geophyte	n	0
6.01	Evidence of substantial reproductive failure in native habitat	n	0
6.02	Produces viable seed	y	1

6.03	Hybridizes naturally	y	1
6.04	Self-compatible or apomictic	unk	-1
6.05	Requires specialist pollinators	n	0
6.06	Reproduction by vegetative propagation	y	1
6.07	Minimum generative time (years)	>4	-1
7.01	Propagules likely to be dispersed unintentionally (plants growing in heavily trafficked areas)	unk	-1
7.02	Propagules dispersed intentionally by people	y	1
7.03	Propagules likely to disperse as a produce contaminant	unk	-1
7.04	Propagules adapted to wind dispersal	n	-1
7.05	Propagules water dispersed	y	1
7.06	Propagules bird dispersed	n	-1
7.07	Propagules dispersed by other animals (externally)	n	-1
7.08	Propagules dispersed by other animals (internally)	n	-1
8.01	Prolific seed production	n	-1
8.02	Evidence that a persistent propagule bank is formed (>1 yr)		
8.03	Well controlled by herbicides	y	-1
8.04	Tolerates, or benefits from, mutilation or cultivation	y	1
8.05		?	
Total Score			14
Implemented Pacific Second Screening			no
Risk Assessment Results			High

section	# questions answered	satisfy minimum?
A		10 yes
B		7 yes
C		18 yes
total		35 yes

	Reference	Source data
1.01		cultivated, but no evidence of selection for reduced weediness
1.02		Skip to Question 2.01
1.03		Skip to Question 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%20lgn.d.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 (12-07-2015). 3. GBIF http://www.gbif.org/species/2977323 (12-7-2015)	No computer analysis was performed. 1. Global hardiness zone: 4, 5, 6, 7, 8, 9; equivalent to USDA Hardiness zones: USDA Zone 4a: to -34.4 °C (-30 °F) USDA Zone 4b: to -31.6 °C (-25 °F) USDA Zone 5a: to -28.8 °C (-20 °F) USDA Zone 5b: to -26.1 °C (-15 °F) USDA Zone 6a: to -23.3 °C (-10 °F) USDA Zone 6b: to -20.5 °C (-5 °F) USDA Zone 7a: to -17.7 °C (0 °F) USDA Zone 7b: to -14.9 °C (5 °F) USDA Zone 8a: to -12.2 °C (10 °F) USDA Zone 8b: to -9.4 °C (15 °F) USDA Zone 9a: to -6.6 °C (20 °F) USDA Zone 9b: to -3.8 °C (25 °F). 2. Native to Eastern Asia: Japan - Honshu, - Kyushu, - Shikoku; Korea
2.02		
2.03	1. Köppen-Geiger climate map (http://www.hydrol-earth-syst-sci.net/11/1633/2007/hess-11-1633-2007.pdf). 2. GBIF http://www.gbif.org/species/2977323 (12-7-2015)	1. Distribution in the native/cultivated range occurs in Cfa, Cfb, Dfb
2.04	1. Climate Charts. World Climate Maps. http://www.climate-charts.com/World-Climate-Maps.html#rain (8-19-2015)	Distribution falls within regions receiving 18-97 inches per year
2.05	1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)	1. Japanese wisteria (<i>Wisteria floribunda</i> (Willd.) DC.) is similar to Chinese wisteria, and was introduced in 1830. It is also widely used in horticulture. 2. Japanese wisteria was introduced to the U.S. in 1830. It has been widely planted and cultivated and is still very popular in the nursery trade despite its weedy and destructive habits. 3. Japanese wisteria was introduced from Japan around 1830 as an ornamental. It was popular in the southern U.S. as a decorative addition to porches, gazebos, walls, and gardens. Wisteria is hardy enough to be found in New England, and a few areas farther north.
3.01	1. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 2. Trusty, J.L., Lockaby, B.G., Zipperer, W.C., Goertzen, L.R. 2008. Horticulture, hybrid cultivars and exotic plant invasion: a case study of <i>Wisteria</i> (Fabaceae). <i>Botanical Journal of the Linnean Society</i> . 158:593-601	1. Japanese wisteria is found invasive in the mid-Atlantic and southeastern U.S., from New York to Florida and west to Texas. 2. Naturalized in the southeastern United States.
3.02	1. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015) 2. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015) 3. Kaufman, S. R., and W. Kaufman. 2007. <i>Invasive Plants: Guide to Identification and the Impacts and Control of Common North American Species</i> . Stackpole Books, Mechanisburg, PA. 221 pp	1. Once established, wisteria can be difficult to eradicate and can persist for years strangling native trees and shrubs trying to colonize the site. They can also kill, or disfigure, desirable trees in the landscape. 2. Populations often spread from neglected gardens but are commonly found along forest edges, roadsides, ditches, and rights-of-way. 3. So far it has done more damage to homes than to natural environments.
3.03		no evidence

3.04	<p>1. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 2. Stone, Katharine R. 2009. <i>Wisteria floribunda</i>, <i>W. sinensis</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23] 3. Global Invasive Species Database http://www.issg.org/database/species/ecology.asp?si=286&fr=1&ts= (12-7-2015)</p>	<p>1. The hard woody vines twine tightly around host tree trunks and branches and cut through bark, causing death by girdling. On the ground, new vines germinating from seed or sprouting from rootstocks form dense thickets that smother and shade out native vegetation and impede natural plant community development. As girdled trees die, canopy gaps are created which increase the amount of sunlight reaching the forest floor. While this may temporarily favor some native species, it also stimulates vigorous growth and further spread of wisteria. 2. Information regarding the impacts of wisterias on invaded communities includes evidence that both species displace existing vegetation by strangling or shading out native plants and trees. The death of large trees from wisteria establishment results in breaks in closed canopy forest, which favors further growth and spread of wisteria 3. Native shrubs are overtaken by <i>W. floribunda</i> through strangling and shading. Even larger trees can be killed by this vine, causing large gaps in the canopy when they fall; this open canopy furthers the growth of <i>W. floribunda</i>. This aggressive vine may form dense thickets allowing little else to grow.</p>
3.05	<p>1. Kaufman, S. R., and W. Kaufman. 2007. <i>Invasive Plants: Guide to Identification and the Impacts and Control of Common North American Species</i>. Stackpole Books, Mechanicsburg, PA. 221 pp 2. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015)</p>	<p>1. <i>Wisteria sinensis</i> is an invasive plant. 2. Closely related to <i>Wisteria sinensis</i>, which is invasive.</p>
4.01	<p>1. Stone, Katharine R. 2009. <i>Wisteria floribunda</i>, <i>W. sinensis</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23]</p>	<p>These features are not in the species description</p>
4.02		<p>no evidence</p>
4.03		<p>Lack of evidence</p>
4.04	<p>Cornell University Department of Animal Science http://www.ansci.cornell.edu/plants/php/plants.php?action=indiv&byname=scientific&keynum=93 (3-25-2015)</p>	<p>This plant is poisonous to livestock</p>
4.05	<p>1. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015)</p>	<p>1. However, fruit are poisonous and most likely not dispersed frequently by wildlife.</p>
4.06		<p>lack of evidence</p>
4.07	<p>1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. Dave's Garden http://davesgarden.com/guides/pf/go/55391/#b (12-7-2015)</p>	<p>1. Both species have pods and seeds that are toxic if ingested causing such symptoms as nausea, vomiting, stomach pains and diarrhea 2. Seed is poisonous if ingested, All parts of plant are poisonous if ingested</p>
4.08	<p>1. Stone, Katharine R. 2009. <i>Wisteria floribunda</i>, <i>W. sinensis</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23].</p>	<p>1. Specifically, invasive vines could increase fuel loading and continuity, and contribute to the likelihood of crown fire by acting as a ladder fuel. The density, spatial extent, and climbing nature of wisteria populations suggest that they may alter fuel characteristics in invaded communities.</p>

4.09	1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 3. Royal Horticultural Society https://www.rhs.org.uk/advice/profile?PID=173 (12-7-2015)	1. Both wisteria species grow best in full sun but are shade-tolerant. 2. Wisteria prefers full sun, but established vines will persist and reproduce in partial shade. 3. Wisteria prefers a sunny position, but can be grown in slight shade.
4.10	1. Swearingen, J. Remaley, T. 2010 Plant Conservation Alliance@s Alien Plant Working Group http://www.nps.gov/plants/alien/fact/pdf/wisi1.pdf (3-20-2015) 2. Love To Know: Gardening http://garden.lovetoknow.com/wiki/Wisteria (3-25-2015) 3. USDA Natural Resource Conservation Service Soils, Global Soil Regions Map http://www.nrcs.usda.gov/Internet/FSE_MEDIA/nrcs142p2_050722.jpg (3-25-2015)	1. It is tolerant of a variety of soil and moisture regimes but prefers deep, loamy, well drained soils. 2. Wisteria flowers best in a location with full sun and relatively poor, infertile soil. It needs good drainage and is a great performer in dry, rocky places. 3. Wisteria is native areas with similar soil characteristics to all three zones in Florida.
4.11	1. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015) 2. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015) 3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)	1. A vigorous climbing plant, supporting itself by twining around shrubs and trees 2. Japanese wisterias are high climbing vines reaching upwards of 70 to 80 feet. 3. Wisteria can climb trees and shrubs to 20 m (65 ft).
4.12	1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015) 3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)	1. Chinese wisteria and Japanese wisteria both overtake natives and grow in dense thickets, excluding all other plants 2. It can form dense thickets, replacing the surrounding native vegetation. 3. It is hardy and aggressive, capable of forming thickets so dense that little else grows.
5.01		Family: Fabaceae
5.02		Family: Fabaceae
5.03	1. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015) 2. Liu, J., E.T. Wang, and W.X. Chen. 2005. Diverse rhizobia associated with woody legumes <i>Wisteria sinensis</i> , <i>Cercis racemosa</i> and <i>Amorpha fruticosa</i> grown in the temperate zone of China. <i>Systematic and Applied Microbiology</i> 28(5):465-477.	1. This species has a symbiotic relationship with certain soil bacteria, these bacteria form nodules on the roots and fix atmospheric nitrogen. Some of this nitrogen is utilized by the growing plant but some can also be used by other plants growing nearby 2. Wisterias produce root nodules that contain N-fixing bacteria
5.04		no evidence
6.01		no evidence
6.02	1. Stone, Katharine R. 2009. <i>Wisteria floribunda</i> , <i>W. sinensis</i> . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23]. 2. Trusty JL, Zipperer WC, Lockaby BG, Goertzen LR. Identity of naturalized exotic <i>Wisteria</i> in the Southeastern United States. <i>Weed Res</i> 2007. in press.	1. seeds are produced in favorable conditions 2. Both Chinese and Japanese wisteria produce viable seeds.
6.03	1. Trusty JL, Zipperer WC, Lockaby BG, Goertzen LR. Identity of naturalized exotic <i>Wisteria</i> in the Southeastern United States. <i>Weed Res</i> 2007. in press.	1. It is possible that hybridisation of the <i>floribunda</i> and <i>sinensis</i> genomes has occurred many times in different locations or, alternatively, that <i>Wisteria</i> hybrids are commonly propagated and spread through horticulture...Our study has found that nearly all naturalised <i>Wisteria</i> sampled are hybrids...Our data suggest that hybridisation may be playing a key role in its invasiveness.
6.04	1. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015)	The flowers are hermaphrodite (have both male and female organs)

6.05	Stone, Katharine R. 2009. <i>Wisteria floribunda</i> , <i>W. sinensis</i> . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23].	1. Visited by hummingbirds and insects.
6.06	1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)	1. Although seeds are produced in favorable conditions, vegetative growth is the main method of wisteria spread. 2. spreads vegetatively by producing stolons (above-ground stems) that produce shoots and roots at short intervals. 3. Vegetative reproduction is the primary means of expansion
6.07	1. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015)	Plants are very slow from seed and can take up to 20 years to come into flower
7.01	1. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 2. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015) 3. Global Invasive Species Database http://www.issg.org/database/species/ecology.asp?si=286&fr=1&ts= (12-7-2015)	1. Infestations are commonly found along forest edges, roadsides, ditches, and rights-of-way. 2. Populations often spread from neglected gardens but are commonly found along forest edges, roadsides, ditches, and rights-of-way. 3. <i>W. floribunda</i> reproduces vegetatively so garden wastes should be disposed of carefully
7.02	1. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015) 2. North Carolina Forest Service Invasive Species Leaflet http://www.ncforestservation.gov/publications/Forestry%20Leaflets/S20.pdf (12-7-2015)	1. Their use for ornament has most likely lead to invasions in most areas of the United States. <i>Wisteria</i> is spread primarily by human activity, such as landscape planting, and vegetative growth of vines. 2. Most infestations of exotic wisteria in natural areas have escaped from landscape plantings around old home sites.
7.03		no evidence
7.04	Stone, Katharine R. 2009. <i>Wisteria floribunda</i> , <i>W. sinensis</i> . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23].	<i>Wisteria</i> pods and seeds are large and heavy
7.05	1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015) 2. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015) 3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)	1. Rivers can carry seeds downstream to further the spread of this invasive vine 2. Spreads: by seed which, in riparian areas, is transported by water 3. In riparian habitats, seeds may be dispersed downstream in water for great distances.
7.06	Stone, Katharine R. 2009. <i>Wisteria floribunda</i> , <i>W. sinensis</i> . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23].	<i>Wisteria</i> pods and seeds are large and heavy, which limits dispersal by birds and mammals
7.07	Stone, Katharine R. 2009. <i>Wisteria floribunda</i> , <i>W. sinensis</i> . In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23].	<i>Wisteria</i> pods and seeds are large and heavy, which limits dispersal by birds and mammals
7.08	1. Mississippi State University Invasive Plant Atlas of the Mid-South https://www.gri.msstate.edu/ipams/species.php?SName=Wisteria%20floribunda (12-7-2015)	1. However, fruit are poisonous and most likely not dispersed frequently by wildlife.

8.01	<p>1. Stone, Katharine R. 2009. <i>Wisteria floribunda</i>, <i>W. sinensis</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23]</p> <p>2. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015)</p>	<p>1. <i>Wisteria</i> fruits are velvety brown seed pods, 4 to 6 inches (10-15 cm) long, narrowed toward the base, with constrictions in the pods that separate the seeds [34]. Each pod contains 1 to 8 flat, round, brown seeds, each 0.5 to 1 inch (1.2-2.5 cm) in diameter [Unlikley, given relatively large seeds. Sources indicate reproduction via seed is secondary to vegetative reproduction.]</p>
8.02		no evidence
8.03	<p>1. Martin, Tunyalee. Weed Notes. Wildland Invasive Species Team/The Nature Conservancy http://www.invasive.org/gist/moredocs/wisspp01.pdf (3-23-2015)</p> <p>2. National Park Service and U.S. Fish and Wildlife Service Plant Invaders of Mid-Atlantic Natural Areas, 4th ed. (2010) http://www.nps.gov/plants/alien/pubs/midatlantic/wifl.htm (12-7-2015)</p> <p>3. Southeast Exotic Pest Plant Council Invasive Plant Manual University of Georgia http://www.se-eppc.org/manual/japwisteria.html (12-7-2015)</p>	<p>1. Triclopyr (2% with 0.5% non-ionic surfactant) is specific for the control of broadleaved plants – as such, it may be particularly appropriate in situations where valuable native grasses are near the <i>wisteria</i> plants to be treated. Glyphosate (2% solution with 0.5% non-ionic surfactant) is non-selective. Chlopyralid (0.5% solution) targets aster, buckwheat, and the pea family. However, chlopyralid can leach into groundwater in sandy and limestone soil types (2). Picloram (4.731 L/ha or 0.5 gal/acre with 0.5% non-ionic surfactant) may provide control in areas where desirable vegetation is not present</p> <p>2. For small infestations, cut vines to relieve trees of the weight and girdling; treat cut stems with a systemic herbicide containing glyphosate or triclopyr; new plants will grow from seed; long term management is needed</p> <p>3. Cut Stump Treatment: Use this method in areas where vines are established within or around non-target plants or where vines have grown into the canopy. This treatment is effective as long as the ground is not frozen. Glyphosate: Cut the stem 5 cm (2 in) above ground level. Immediately apply a 25% solution of glyphosate and water to the cross-section of the stem. This procedure may require a subsequent foliar application of glyphosate. Triclopyr: Cut the stem 5 cm (2 in) above ground level. Immediately apply a 25% solution of triclopyr and water to the cross-section of the stem. A subsequent foliar application may be necessary to control new seedlings. Foliar Spray Method: Use this method to control large populations. It may be necessary to precede foliar applications with stump treatments to reduce the risk of damaging non-target species. Glyphosate: Apply a 2% concentration of glyphosate and water plus a 0.5% non-ionic surfactant to thoroughly wet all foliage. Do not apply so heavily that herbicide will drip off leaves. Glyphosate is a non-selective systemic herbicide that may kill non-target partially-sprayed plants. Ambient air temperature should be above 65°F. Triclopyr: Apply a 2% concentration of triclopyr and water to thoroughly wet all foliage. Do not apply so heavily that herbicide will drip off leaves. A 0.5% concentration of a non-ionic surfactant is</p>
8.04	<p>1. Stone, Katharine R. 2009. <i>Wisteria floribunda</i>, <i>W. sinensis</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: http://www.fs.fed.us/database/feis/ [2015, March 23]</p> <p>2. Plants for a Future http://www.pfaf.org/user/Plant.aspx?LatinName=Wisteria+floribunda (11-30-2015)</p> <p>3. Missouri Botanical Garden http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=265643&isprofile=0& (3-20-2015)</p>	<p>1. <i>Wisteria</i> can sprout numerous times after cutting, so the treatment must be repeated until root stores are exhausted. 2. some form of root restriction can be beneficial 3. Root pruning in late fall may also stimulate flowering for the following spring. Improper pruning may overly stimulate vegetative growth at the expense of flowers.</p>
8.05		no evidence