

<b>NAME OF SPECIES:</b> <i>Wisteria floribunda</i> (Willd.) DC.	
<b>Synonyms:</b> <i>Kraunhia floribunda</i> (Willd.) Taubert; <i>Rehsonia floribunda</i> (Willd.) Stritch; <i>Glycine floribunda</i> Willd.	
<b>Common Name:</b> Japanese wisteria; fuji; noda-fuji; Chinese wisteria;	<b>Cultivars?</b> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
<b>A. CURRENT STATUS AND DISTRIBUTION</b>	
I. In Wisconsin?	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
	2. <u>Abundance:</u> 1 population ~ 10,000 sq ft.
	3. <u>Geographic Range:</u> Juneau County (Zone 4)
	4. <u>Habitat Invaded:</u> upland wooded site, fairly dense, did not observe flowering in 2011 Disturbed Areas <input checked="" type="checkbox"/> Undisturbed Areas <input type="checkbox"/>
	5. <u>Historical Status and Rate of Spread in Wisconsin:</u>
	6. <u>Proportion of potential range occupied:</u> This species is in a minimal portion of a potential range.
II. Invasive in Similar Climate Zones	1. YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> <u>Where (include trends):</u> Mid-Atlantic States and Southeast from Tennessee to S. Carolina North to New Jersey. Range may be greater, as it is often misidentified as Chinese Wisteria (6). Pennsylvania, Connecticut, and New Jersey. Known in Illinois, Kentucky and Ohio. (1)
III. Invasive in Which Habitat Types	1. Upland <input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Dune <input type="checkbox"/> Prairie <input type="checkbox"/> Aquatic <input type="checkbox"/> Forest <input checked="" type="checkbox"/> Grassland <input checked="" type="checkbox"/> Bog <input type="checkbox"/> Fen <input type="checkbox"/> Swamp <input type="checkbox"/> Marsh <input type="checkbox"/> Lake <input type="checkbox"/> Stream <input checked="" type="checkbox"/> Other: forest edges, roadsides, ditches, ROW (6)
IV. Habitat Affected	1. <u>Soil types favored or tolerated:</u> soil pH adaptable and tolerant of many soil types though prefer moist, deep, fertile soils(4, 6)
	2. <u>Conservation significance of threatened habitats:</u>
V. Native Range and Habitat	1. <u>List countries and native habitat types:</u> Eastern Asia: Japan (2, 6). Damp habitats by streams in thickets and woods in hill and mountains in all areas of Japan south of Hokkaido (7).
VI. Legal Classification	1. <u>Listed by government entities?</u> N/A
	2. <u>Illegal to sell?</u> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
<b>B. ESTABLISHMENT POTENTIAL AND LIFE HISTORY TRAITS</b>	
I. Life History	1. <u>Type of plant:</u> Annual <input type="checkbox"/> Biennial <input type="checkbox"/> Monocarpic Perennial <input type="checkbox"/> Herbaceous Perennial <input type="checkbox"/> Vine <input checked="" type="checkbox"/> Shrub <input type="checkbox"/> Tree <input type="checkbox"/>
	2. <u>Time to Maturity:</u> Can vary based on density of shade.
	3. <u>Length of Seed Viability:</u>
	4. <u>Methods of Reproduction:</u> Asexual <input checked="" type="checkbox"/> Sexual <input checked="" type="checkbox"/> <u>Notes:</u> seed, cutting, grafting (4) Rooting of vines and stolons are main method of spread. Canopy gaps form when Wisteria vines topple large trees and favor Wisteria seedlings and existing plants (6). Racemes may have up to 170 flowers and seeds can be produced in favorable conditions – unusual for more than one or two flowers to produce pods (12).

	<p>5. <u>Hybridization potential</u>: Genetic analysis shows that most plants in the field are hybrids of Chinese and Japanese wisteria (11). Two studies in southeastern U.S. found 82-96% of wisteria collections were hybrids of <i>W. sinensis</i> and <i>W. floribunda</i> (<i>W. x formosa</i> Rehder) (12).</p>
II. Climate	<p>1. <u>Climate restrictions</u>: Hardy enough for New England and few areas north (8). Hardy to zone 5; cold can injure flower buds (4).</p> <p>2. <u>Effects of potential climate change</u>: Could easily move North with climate change increasing its ability to produce flowers/seeds.</p>
III. Dispersal Potential	<p>1. <u>Pathways - Please check all that apply</u>:</p> <p><u>Unintentional</u>: Bird <input type="checkbox"/> Animal <input type="checkbox"/> Vehicles/Human <input checked="" type="checkbox"/>  Wind <input type="checkbox"/> Water <input checked="" type="checkbox"/> Other:</p> <p><u>Intentional</u>: Ornamental <input checked="" type="checkbox"/> Forage/Erosion control <input type="checkbox"/>  Medicine/Food: Other:</p> <p>2. <u>Distinguishing characteristics that aid in its survival and/or inhibit its control</u>: Vines can topple large trees and create canopy gaps which favor seedlings and existing plants. Vegetative reproduction is main means of spread and will also resprout after mechanical damage (5, 6).</p>
IV. Ability to go Undetected	<p>1. HIGH <input type="checkbox"/> MEDIUM <input checked="" type="checkbox"/> LOW <input type="checkbox"/></p>
<b>C. DAMAGE POTENTIAL</b>	
I. Competitive Ability	<p>1. <u>Presence of Natural Enemies</u>:</p> <p>2. <u>Competition with native species</u>: Can grow to 35-60' or higher, twining around and toppling trees while also sprawling along understory shading out native plants (4, 6).</p> <p>2. <u>Rate of Spread</u>:</p> <p>-changes in relative dominance over time:  -change in acreage over time:  HIGH(1-3 yrs) <input type="checkbox"/> MEDIUM (4-6 yrs) <input checked="" type="checkbox"/> LOW (7-10 yrs) <input type="checkbox"/>  Notes:</p>
II. Environmental Effects	<p>1. <u>Alteration of ecosystem/community composition?</u>  YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>  Notes: Can climb into canopy, girdling and pulling down trees and smothers understory vegetation by creating dense thickets. (5)</p> <p>2. <u>Alteration of ecosystem/community structure?</u>  YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>  Notes: Can pull down and girdle established trees. (5)</p> <p>3. <u>Alteration of ecosystem/community functions and processes?</u>  YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>  Notes: Regeneration of trees and understory vegetation is decreased by smothering and shading out (5). Roots form symbiotic relationship with nitrogen-fixing bacterium <i>Rhizobium</i> – large infestations may increase nitrogen fixation of soil; can decrease light availability when growing on and over trees, but increase light when it kills trees (12)</p>

	4. Allelopathic properties? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> Notes:
<b>D. SOCIO-ECONOMIC EFFECTS</b>	
I. Positive aspects of the species to the economy/society:	Notes: Sold ornamentally with numerous cultivars (4). Edible leaves, flowers, and seeds although it must be used with caution as there are toxicity issues. Used for fiber, bark used for making ropes and sandals (7).
II. Potential Socio-Economic Effects of Requiring Controls:	Positive: Protect the forested lands of WI from invasion of this vine. Negative:
III. Direct and indirect Socio-Economic Effects of Plant :	Notes: Invasive wisterias currently occupy over 57,000 acres of forest in the southern U.S. with a possibility of increasing to almost 78,000 acres in the next 50 years if concerted control methods are not taken (11). Forested I and in WI could be severely impacted by the girdling, disfiguring, and toppling of trees from wisteria.
IV. Increased Costs to Sectors Caused by the Plant::	Notes:
V. Effects on human health:	Notes: All plant parts are poisonous to humans (3).
VI. Potential socio-economic effects of restricting use:	Positive: Protect the forested lands of WI from invasion of this vine. Negative: Nursery industry would not be allowed to sell plant in WI.
<b>E. CONTROL AND PREVENTION</b>	
I. Costs of Prevention (please be as specific as possible):	Notes: Loss of sales to the nursery trade.
II. Responsiveness to prevention efforts:	Notes: Likely a great deal of push back.
III. Effective Control tactics: (provide only basic info)	Mechanical <input checked="" type="checkbox"/> Biological <input type="checkbox"/> Chemical <input type="checkbox"/> Times and uses: Mechanical: Cutting should begin early in the growing season and be repeated at two week intervals until autumn, so frequently as to exhaust its root stores. Grubbing is appropriate for small initial populations or environmentally sensitive areas. Remove entire plant, any portions of root system not removed may resprout. Chemical: Cut stump treatment uses glyphosate or triclopyr as long as the ground is not frozen. Cut stem 2: above ground level, immediately apply a 2.5% solution of glyphosate or triclopyr and water; apply to the cross section of the stem. A subsequent foliar application may be necessary to control new seedlings. Foliar spray method – apply a 2% solution of glyphosate or triclopyr and water plus a 0.5% non-ionic surfactant to thoroughly wet all foliage. Ambient air temperatures should be above 65 deg F (6, 8)
IV. Costs of Control:	Notes: Cost of herbicide, labor, hand tools or power tools.
V. Cost of prevention or control vs. Cost of allowing invasion to occur:	Notes: Since only one known population in WI, cost of prevention is very much worth not allowing an invasion to occur.
VI. Non-Target Effects of Control:	Notes:
VII. Efficacy of monitoring:	Notes:

VIII. Legal and landowner issues:	Notes:
<b>F. HYBRIDS AND CULTIVARS AND VARIETIES</b>	
I. Known hybrids? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	Name of hybrid: Hybrid wisteria ( <i>Wisteria formosa</i> Rehder) ( <i>floribunda</i> x <i>sinensis</i> ) (10) Boos conversation (12/2011) with Larry Stritch (USFS) said that 95 % of what he sees in the field as escaped is the hybrid. Names of hybrid cultivars: 'Issai'; 'Domino';
II. Species cultivars and varieties	Names of cultivars, varieties and any information about the invasive behaviors of each: 'Alba', 'Ivory Tower', 'Longissima Alba', 'Snow Showers', 'Carnea', 'Kuchibeni', 'Issai', 'Macrobotrys', 'Rosea', 'White Blue Eye', 'Variegata', 'Mon Nishiki', 'Violacea Plena' 'Lawrence'(4)

#### G. REFERENCES USED:

- UW Herbarium (Madison or Stevens Point)
- WI DNR
- Bugwood (Element Stewardship Abstracts)
- Native Plant Conservation Alliance
- IPANE
- USDA Plants

Number	Reference
1	USDA, NRCS. 2007. The PLANTS Database. National Plant Data Center, Baton Rouge, LA 70874 USA. Accessed 9-21-2011. <a href="http://www.plants.usda.gov">http://www.plants.usda.gov</a>
2	USDA, ARS, National Genetic Resources Program. <i>Germplasm Resources Information Network - (GRIN)</i> [Online Database]. National Germplasm Resources Laboratory, Beltsville, Maryland. URL: <a href="http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?42047">http://www.ars-grin.gov/cgi-bin/npgs/html/taxon.pl?42047</a> (21 September 2011)
3	Cornell University, Department of Animal Science [Online website] URL: <a href="http://www.ansci.cornell.edu/plants/php/plants.php?action=indiv&amp;byname=scientific&amp;keynum=93">http://www.ansci.cornell.edu/plants/php/plants.php?action=indiv&amp;byname=scientific&amp;keynum=93</a> . Accessed 9-21-2011
4	University of Connecticut, Plant Database (UConn Plant Database of trees, shrubs, and vines by Mark H. Brand)[Online Database]. URL: <a href="http://www.hort.uconn.edu/plants/w/wisflo/wisflo1.html">http://www.hort.uconn.edu/plants/w/wisflo/wisflo1.html</a> Accessed 9-21-2011
5	Pennsylvania DCNR Invasive Exotic Plant Tutorial for Natural Lands Mangers. URL: <a href="http://www.dcnr.state.pa.us/forestry/invasivetutorial/wisteria.htm">http://www.dcnr.state.pa.us/forestry/invasivetutorial/wisteria.htm</a> . Accessed 9-21-2011
6	Plant Conservation Alliance, Alien Plant Working Group – Japanese Wisteria ( <i>Wisteria floribunda</i> ) last updated: 4/19/2010. <a href="http://www.nps.gov/plants/alien/fact/wifl1.htm">http://www.nps.gov/plants/alien/fact/wifl1.htm</a> Accessed 9-21-2011
7	Plants for a Future. URL: <a href="http://pfaf.org">http://pfaf.org</a> . Accessed 9-3-2011
8	URL: <a href="http://www.se-eppc.org/manual/japwisteria.html">http://www.se-eppc.org/manual/japwisteria.html</a>
9	Identity of naturalized exotic Wisteria (Fabaceae) in South-Eastern United States. JL Trusty*, BG Lockaby*, WC Zipperer & LR Goeterzen. 2007. <i>Weed Research</i> 27, 479-487. 9-16-2011. URL: <a href="http://www.foliusconsulting.com/images/wre_587.pdf">http://www.foliusconsulting.com/images/wre_587.pdf</a> .
10	Invasive Plant Atlas of the MidSouth (IPAMS); Mississippi State University [Online Database]. URL: <a href="http://www.gri.msstate.edu/research/ipams/species.php?SName=Wisteria%20formosa">http://www.gri.msstate.edu/research/ipams/species.php?SName=Wisteria%20formosa</a> Accessed 9.28.2011
11	USDA-FS Southern Forest Futures Project Chapter 15: The Invasion of Southern Forests by Nonnative Plants: Current and Future Occupation with Impacts, Management Strategies, and Mitigation Approaches. URL: <a href="http://www.srs.fs.usda.gov/futures/reports/draft/Frame.htm">http://www.srs.fs.usda.gov/futures/reports/draft/Frame.htm</a> Accessed 9.28.2011
12	Jordan, M.J., G. Moore and T.W. Weldy. 2008. Invasiveness ranking system for non-native plants of New York. Unpublished. The Nature Conservancy, Cold Spring Harbor, NY; Brooklyn Botanic Garden, Brooklyn, NY; The Nature Conservancy, Albany, NY. <a href="http://www.newyorkinvasivespecies.org/PlantAssessments/Wisteria.sinensis.NYS.pdf">http://www.newyorkinvasivespecies.org/PlantAssessments/Wisteria.sinensis.NYS.pdf</a>

**Author(s), Draft number, and date completed:** Julianne Smith, Courtney LeClair 1; 9.28.2011  
**Reviewer(s) and date reviewed:** Tom Boos; 10/19/11  
**Approved and Completed Date:** 12/19/2011