

Species Dataform and Scoresheet for *Ulmus parvifolia* Jacq (Chinese elm, Lacebark elm)

Species Dataform and Scoresheet		
<i>Ulmus parvifolia</i> Jacq (Chinese elm, Lacebark elm)		
Native range: China and Japan		
Date evaluated: April 14, 2009		
	Answer Choices	Response
Introductory Questions		
1. Current federal and state regulations	Y/N	N
Comments:		
2. Occurrence in the horticultural trade	Y/N	Y
Comments:		
3. North Carolina nativity	Y/N	N
Comments: Native to China and Japan (Weakley 2008).		
4. Presence in natural areas	Y/N	Y
Comments: Chinese elm escapes from plantings and invades native plant communities (USDA Forest Service 2005).		
5. Non-invasive cultivars	Y/N	N
Comments:		
	Maximum Point Value	Number of Points Assigned
Section 1. Ecological Impact		
1a. Impact on abiotic ecosystem processes	10	4
Comments: Aggressive root systems consume water, nutrients, and space in native plant communities (USDA Forest Service 2005).		
1b. Impact on plant community structure	20	10
Comments: Invades native plant communities (USDA Forest Service 2005). Seedlings are especially aggressive and invasive (SD/ASLA and CNPS 2008).		
1c. Impact on species of special concern	5	0
Comments: Unknown impact on species of special concern.		
1d. Impact on higher trophic levels	5	0
Comments: Unknown impact on higher trophic levels.		
Section 1. Subrank	40	14
Section 2. Current Distribution and Potential for Expansion		
2a. Local range expansion	7	0
Comments:		
2b. Long-distance dispersal potential	13	8
Comments: Fruit does not attract wildlife (Gilman and Watson 1994). Seeds are winged and wind-dispersed (USDA Forest Service 2005).		
2c. Reproductive characteristics	8	6
Comments: Propagated from seed and cuttings (Christman 2006). Grows in most soil types, full sun, and partial shade (Christman 2006). Produces an abundance of seeds (SD/ASLA and CNPS 2008). May resprout from rootsuckers (Gilman and Watson 1994).		

2d. Range of communities	6	0
Comments:		
2e. Similar habitats invaded elsewhere	6	2
Comments: May invade wetlands and riparian areas (SD/ASLA and CNPS 2008). Natural communities of North Carolina (Shafale and Weakley 1990) = River floodplains.		
Section 2. Subrank	40	16
Section 3. Management Difficulty		
3a. Herbicidal control	5	0
Comments: Effectively controlled with triclopyr and imazapyr herbicides (USDA Forest Service 2005).		
3b. Nonchemical control methods	2	2
Comments: Small plants may be hand-pulled, but all roots must be removed (USDA Forest Service 2005). Rootsuckers may emerge and would need to be pruned (Gilman and Watson 1994). Large trees are difficult and expensive to remove.		
3c. Necessity of individual treatments	2	2
Comments: Trees may reach heights of 80 feet, but is often seen at 40 to 50 feet (Gilman and Watson 1994). Trees should be treated using stem injections or cut-treat methods (USDA Forest Service 2005). Seedlings and saplings may be treated with basal and foliar sprays (USDA Forest Service 2005).		
3d. Average distribution	2	1
Comments: There is variability in the distribution of this species.		
3e. Likelihood for reestablishment	2	1
Comments: The root system includes several large-diameter roots that may grow great distances from the trunk (Gilman and Watson 1994). Rootsuckers may emerge and would need to be pruned (Gilman and Watson 1994). Seeds are wind-dispersed (USDA Forest Service 2005) and may allow an invasive population to reestablish in a treated area.		
3f. Accessibility of invaded areas	2	0
Comments:		
3g. Impact on native species and environment	5	2
Comments: Herbicide applications may affect non-target species.		
Section 3. Subrank	20	8
Section 4. Benefits and Value		
4a. Estimated wholesale value	-7	-4
Comments: The annual estimated wholesale value attributed to this species is \$13,336,500 (Trueblood 2009).		
4b. Percentage of total sales	-5	-3
Comments: Among the producers that sell this species, the highest percentage of total sales attributed to this species from any one grower is estimated to be 11-25% (Trueblood 2009).		
4d. Ecosystem services	-1	0
Comments:		
4e. Wildlife habitat	-1	0
Comments:		
4f. Cultural and social benefits	-1	0

Comments:		
Section 4. Subrank	-15	-7
Overall Score	100	31
<p>Overall Recommendation: Noninvasive and recommended for use – These species have limited ecological impact, distribution and invasive potential, and management difficulty in relation to economic value. They may be locally problematic but their reproductive biology and other traits limit their rate of invasion to natural areas. (Overall Score: 0 – 33)</p>		
<p>Summary: <i>Ulmus parvifolia</i> (Chinese elm, Lacebark elm) is noninvasive in North Carolina and may be recommended for horticultural use by the North Carolina Nursery and Landscape Association. The ecological impacts of <i>Ulmus parvifolia</i> are largely unknown, but seedlings are especially aggressive and invasive in native plant communities. There is potential for the additional invasion of <i>U. parvifolia</i> to natural areas due to the wind-dispersal of seeds from ornamental plantings. The difficulty of managing <i>U. parvifolia</i> is low to moderate considering the availability of control methods, but management may be costly considering the time and labor required to effectively treat stands of this species. <i>Ulmus parvifolia</i> is economically valuable to the nursery industry.</p>		
<p>References:</p> <p>Christman, S. (2006) <i>Ulmus parvifolia</i>. FloriData. Tallahassee, Florida. (http://www.floridata.com/ref/U/ulmu_par.cfm) Accessed: April 14, 2009.</p> <p>Gilman, E.F. and D.G. Watson. (1994) <i>Ulmus parvifolia</i>, Chinese elm. Fact Sheet ST-652. Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. (http://hort.ufl.edu/trees/ULMPARA.pdf) Accessed: April 14, 2009.</p> <p>San Diego Chapter of the American Society of the Landscape Architects (SD/ASLA) and the San Diego Chapter of the California Native Plant Society (CNPS). (2008) San Diego County Invasive Ornamental Plant Guide. (http://www.asla-sandiego.org/Download/PG_08_mod.pdf) Accessed: April 14, 2009.</p> <p>Shafale, M.P. and A.S. Weakley. (1990) Classification of the Natural Communities of North Carolina. 3rd Approximation. North Carolina Natural Heritage Program. Raleigh, NC.</p> <p>Trueblood, C.E. (2009) Chapter 3. An estimate of the commercial value of potentially invasive ornamental nursery crops grown in North Carolina. In An Invasive Species Assessment System for the North Carolina Horticultural Industry, a thesis submitted to the Graduate Faculty of North Carolina State University. North Carolina State University, Raleigh, NC.</p> <p>USDA Forest Service. (2005) Weed of the Week - Chinese Elm, <i>Ulmus parvifolia</i>. WOW 04-18-05. Forest Health Staff, Newtown Square, Pennsylvania. (http://www.na.fs.fed.us/fhp/invasive_plants/weeds/chinese-elm.pdf) Accessed: April 14, 2009.</p>		

Weakley, A.S. "Flora of the Carolinas, Virginia, Georgia, northern Florida, and surrounding areas." University of North Carolina. Working draft. 7 April 2008.

Trueblood, C.E. 2009. Results of the North Carolina Invasive Species Assessment System and Individual Species Evaluations. In An Invasive Species Assessment System for the North Carolina Horticultural Industry. MS Thesis. North Carolina State University, Raleigh, pp. 167-170.