

Species Dataform and Scoresheet for *Ligustrum sinense* Lour. (Chinese privet)

Species Dataform and Scoresheet		
<i>Ligustrum sinense</i> Lour. (Chinese privet)		
Native range: China Date evaluated: March 3, 2009		
	Answer Choices	Response
Introductory Questions		
1. Current federal and state regulations	Y/N	N
Appears on several invasive species lists (not laws) in the Southeastern U.S., including Mississippi (General list), Georgia (Top ten listed), South Carolina (Rank a, Severe threat), Florida (Category 1, altering plant community), Tennessee (Rank a, Severe threat), Kentucky (Significant threat), Virginia (Rank c, Low invasiveness), and the National Forest Service (Category 1, species known to be invasive and persistent) (Invasive.org 2009).		
2. Occurrence in the horticultural trade	Y/N	Y
Introduced from China in 1852 for horticultural use and still used in landscaping (Merriam 2002).		
3. North Carolina nativity	Y/N	N
Native of China (Weakley 2008)		
4. Presence in natural areas	Y/N	Y
Invades both edge and interior of woodland habitats in the southeastern United States (Morris et al. 2002). Colonizes moist forests, especially alluvial bottomlands, in North Carolina (Weakley 2008). Over the past 70 years, Chinese privet has rapidly engulfed southern wetlands (Weakley 2008).		
5. Non-invasive cultivars	Y/N	N
Researchers at North Carolina State University are working on developing new, seedless, noninvasive cultivars for landscape applications.		
	Maximum Point Value	Number of Points Assigned
Section 1. Ecological Impact		
1a. Impact on abiotic ecosystem processes	10	7
The greatest threat posed by <i>L. sinense</i> is large-scale ecosystem modification by outcompeting (for light) and displacing native vegetation (Urbatsch 2000). May limit hardwood regeneration, wildlife habitat, and biodiversity (Harrington and Miller 2005).		
1b. Impact on plant community structure and composition	20	20
Suppresses native vegetation as one of the most serious weeds in North Carolina (Weakley 2008). Forms dense thickets (Morris et al. 2002, Urbatsch 2000). Provides additional layer of understory vegetation and dominates the understories of mesic forest habitat in southeastern U.S. (Harrington and Miller 2005). May displace shrub layer in woodlands (Batcher 2000).		
1c. Impact on species of special concern	5	5
Chinese privet is one exotic species that has threatened the Schweintz's sunflower (<i>Helianthus schweinitzii</i>) in the piedmont, an endangered species in North Carolina (Urbatsch 2000). Chinese privet is one aggressive weed species that when unmanaged, out		

shades Schweintz's sunflower (Weakley and Houk 1994). Outcompetes many kinds of native vegetation (Batcher, 2000).		
1d. Impact on higher trophic levels	5	0
Not known to impact higher trophic levels.		
Section 1. Subrank	40	32
Section 2. Current Distribution and Potential for Expansion		
2a. Local range expansion	7	4
Moderate rate of spread across North Carolina - 5.4% increase in counties reporting occurrences per year (Merriam 2003). Continues to invade bottomland and upland forests in the Southeast (Harrington and Miller 2005). Distribution across southeastern U.S. experienced exponential growth between 1950-1980 (Harrington and Miller 2005). Over the past 70 years, Chinese privet has rapidly engulfed southern wetlands (Weakley 2008).		
2b. Long-distance dispersal potential	13	13
Seeds spread by birds and animals (Harrington and Miller 2005, Batcher 2000). Flooding and water transport may be major seed-carrying mechanism, since the species is often distributed along rivers and streams (Merriam 2003).		
2c. Reproductive characteristics	8	6
Seeds germinate readily without cold stratification (Harrington and Miller 2005). Grows from seed, root and stump sprouts (Batcher 2000). Produces large number of viable seeds that are readily dispersed by birds and have high germination rates in a wide variety of environmental conditions (Batcher 2000). Plants mature rapidly and produce prolific amount of seeds, spreads vegetatively by root suckers (Urbatsch 2000).		
2d. Range of communities	6	6
Moist forests, alluvial bottomlands, southern wetlands in North Carolina (Weakley 2008). NC Primary Systems (Shafale and Weakley 1990) = Low elevation mesic forests, river floodplains, nonalluvial wetlands of the mountains and Piedmont		
2e. Similar habitats invaded elsewhere	6	2
Chinese privet grows in red cedar and hardwood forests around cedar glades in Tennessee (Morris et al. 2002) and has been reported in oak-hickory pine forest and longleaf pine forest habitats in Alabama (Batcher 2000). <i>Ligustrum spp.</i> colonize floodplains, woodlands, bogs, wetlands, old fields, calcareous glades and barrens, and mesic hardwood forests in North America (Batcher 2000). NC Primary Systems (Shafale and Weakley 1990) = Low elevation dry and dry-mesic forest and woodlands		
Section 2. Subrank	40	31
Section 3. Management Difficulty		
3a. Herbicidal control	5	0
Low rates of glyphosate effective when applied in spring or fall, lower control with summer application (Harrington and Miller 2005).		
3b. Nonchemical control methods	2	1
Manual uprooting of plants provides less control than glyphosate application (Harrington and Miller 2005). Mowing or cutting will control the spread of <i>L. sinense</i> but may not eradicate it (Batcher 2000). No known biological controls (Urbatsh).		
3c. Necessity of individual treatments	2	2

Shrub or small trees, grows to about 9 m tall, multiple stems, abundant production of root sprouts (Harrington and Miller 2005). Plants may be cut back for cut-stem application, or herbicides may be applied using a backpack sprayer (Harrington and Miller 2005). Herbicides may be applied using a foliar spray method where risk to desirable species is limited, or using cut stump control methods when individual shrubs must be treated to limit nontarget impacts (Batcher 2000).		
3d. Average distribution	2	1
Variability of stands, either isolated or stand-grown (Harrington and Miller, 2005).		
3e. Likelihood of reestablishment	2	2
Abundant regeneration possible from root sprouts (Harrington and Miller 2005). High likelihood of continued dispersal of seeds into treated area (Batcher 2000). Eradication is difficult due to high reproductive capacity by seed and vegetative propagation (Urbatsch 2000).		
3f. Accessibility of invaded areas	2	2
Seeds spread by birds, shade tolerant and able to spread under dense forest canopies (Harrington and Miller 2005, Batcher 2000).		
3g. Impact on native species and environment	5	2
Herbicide applications may impact non-target species (Batcher 2000). Glyphosate and triclopyr have no soil activity at registered rates and if applied as a directed foliar application, present little risk to associated vegetation (Harrington and Miller 2005).		
Section 3. Subrank	20	10
Section 4. Benefits and Value		
4a. Estimated Wholesale Value in North Carolina	-7	-3
The estimated annual wholesale value attributed to Chinese privet is \$8,740,700 in North Carolina (Trueblood 2009).		
4b. Percentage of total sales	-5	-3
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).		
4c. Ecosystem services	-1	0
4d. Wildlife habitat	-1	-1
Important component of winter deer forage (Stromayer et al., 1998)		
4e. Cultural and social benefits	-1	0
Section 4. Subrank	-15	-7
Overall Score and Recommendation	100	66
Overall Recommendation: (Medium) Moderately weedy and recommended for use with specific guidance – These species have less than high ecological impact, distribution and invasive potential, and management difficulty in relation to economic value. These plants should not be grown in close proximity to natural areas that have communities similar to those where this plant has been found to naturalize or near natural areas that have sensitive or threatened plants and/or natural communities. (Overall Score: 34 – 66)		
Summary: <i>Ligustrum sinense</i> (Chinese privet) ranks highly in the assessment system, and may be categorized as moderately weedy to highly invasive in North Carolina. In the		

assessment, Chinese privet scores one point below the highly invasive category. Chinese privet has high ecological impact and distribution and invasive potential, along with high economic value in the horticultural industry. Chinese privet impacts ecosystems by displacing and outcompeting native vegetation. There is great potential for the additional invasion of Chinese privet within natural areas. The difficulty of managing Chinese privet is moderate considering the availability of control methods, but management may be costly considering the time and labor required to effectively treat stands of Chinese privet. Chinese privet is economically valuable to the nursery industry and benefits wildlife habitat. Researchers at North Carolina State University are working on developing new, seedless, noninvasive cultivars for landscape applications. Use of seedless cultivars would be desirable when they become available.

References:

Batcher, M.S. (2000) Element stewardship abstract for *Ligustrum* spp. Privet. The Nature Conservancy. Arlington, Virginia.

Harrington, T.B. and J.H. Miller. (2005) Effects of application rate, timing, and formulation of glyphosate and triclopyr on control of Chinese privet (*Ligustrum sinense*). *Weed Technology*. 19:47-54.

Invasive.org: The Bugwood Network, USDA Forest Service, and USDA APHIS PPQ. (2009a) Invasive Plants of the Thirteen Southern States. (<http://www.invasive.org/south/seeweeds.cfm>) Accessed: March 3, 2009.

Merriam, R.W. (2003) The abundance, distribution, and edge associations of six non-indigenous, harmful plants across North Carolina 130: 283-291.

Morris, L.L., Walck, J.L., and S.N. Hidayati. (2002) Growth and reproduction of the invasive *Ligustrum sinense* and native *Forestiera ligustrina* (Oleaceae): Implications for the invasion and persistence of a nonnative shrub. *International Journal of Plant Science*. 163: 1001-1010.

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.

Stromayer, K.A., Warren, R.J., Johnson, A.S., Hale, P.E., Rogers, C.L., and C.L. Tucker. (1998) Chinese privet and the feeding ecology of white-tailed deer: The role of an exotic plant. *Journal of Wildlife Management*. 62: 1321-1329.

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.

Urbatsch, L. (2000) Plant Guide: Chinese Privet. United States Department of Agriculture Natural Resources Conservation Service. (http://plants.usda.gov/plantguide/pdf/pg_lisi.pdf) Accessed: March 3, 2009.

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

Weakley, A.S. and R.D. Houk. (1994) Recovery Plan for Schweintz's sunflower (*Helianthus schweintzii*). U.S. Fish and Wildlife Service, Southeast Region, Atlanta, Georgia. (http://ecos.fws.gov/docs/recovery_plan/940422.pdf) Accessed: March 3, 2009.

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. 128-132.