

Species Dataform and Scoresheet for *Elaeagnus pungens* Thunb. and *Elaeagnus x ebbingei* (Thorny elaeagnus)

<b>Species Dataform and Scoresheet</b>		
<b><i>Elaeagnus pungens</i> Thunb. and <i>Elaeagnus x ebbingei</i> (Thorny elaeagnus)</b>		
Native range: Japan		
Date evaluated: March 19, 2009		
	<b>Answer Choices</b>	<b>Response</b>
<b>Introductory Questions</b>		
<b>1. Current federal and state regulations</b>	Y/N	N
Comments: Appears on several invasive species lists (not laws) in the Southeastern U.S., including South Carolina (Rank a, Significant threat), Florida (Category II,, increased frequency but not altering plant community), and Tennessee (Rank 1, Severe threat), Virginia (Rank c, Low invasiveness), and the National Forest Service (Category 2, species suspected to be invasive) (Invasive.org 2009).		
<b>2. Occurrence in the horticultural trade</b>	Y/N	Y
Comments: Used as a landscape plant, often grown as an evergreen hedge and barrier (IFAS 2008).		
<b>3. North Carolina nativity</b>	Y/N	N
Comments: Native to Japan (Weakley 2008).		
<b>4. Presence in natural areas</b>	Y/N	Y
Comments: Forests and woodlands in suburban areas (Weakley 2008). Invades natural areas throughout the southeastern United States (Invasive.org 2009). May move into natural areas and outcompete native plants for light (Walther 2005).		
<b>5. Non-invasive cultivars</b>	Y/N	Y
Comments: Researchers at North Carolina State University are working on developing new, seedless, noninvasive cultivars for landscape applications.		
	Maximum Point Value	Number of Points Assigned
<b>Section 1. Ecological Impact</b>		
<b>1a. Impact on abiotic ecosystem processes</b>	10	0
Comments: Not known to impact ecosystem processes.		
<b>1b. Impact on plant community structure</b>	20	5
Comments: Has potential to displace native species and change community structure by growing over and shading out other plants (IFAS 2008). May move into natural areas and outcompete native plants for light (Walther 2005).		
<b>1c. Impact on species of special concern</b>	5	0
Comments: No known impacts on species of special concern.		
<b>1d. Impact on higher trophic levels</b>	5	0
Comments: No known impacts on higher trophic levels.		
<b>Section 1. Subrank</b>	<b>40</b>	<b>5</b>
<b>Section 2. Current Distribution and Potential for Expansion</b>		

<b>2a. Local range expansion</b>	7	0
Comments:		
<b>2b. Long-distance dispersal potential</b>	13	13
Comments: Fruits are round drupes (IFAS 2008) spread by birds (Weakley 2008). Seeds dispersed by birds and animals long distances into forests (Miller 2003).		
<b>2c. Reproductive characteristics</b>	8	6
Comments: Fast growing, able to thrive in a variety of environmental conditions (IFAS 2008). Reproduction by seed and stem sprouts (IFAS 2008).		
<b>2d. Range of communities</b>	6	4
Comments: Can tolerate a variety of environmental conditions, including shade, drought, and salt (IFAS 2008).		
<b>2e. Similar habitats invaded elsewhere</b>	6	0
Comments:		
<b>Section 2. Subrank</b>	<b>40</b>	<b>23</b>
<b>Section 3. Management Difficulty</b>		
<b>3a. Herbicidal control</b>	5	0
Comments: Chemical treatment options include glyphosate and triclopyr (IFAS 2008). Can be controlled with herbicides (Walther 2005).		
<b>3b. Nonchemical control methods</b>	2	1
Comments: Aggressive tillage or mowing are nonchemical control options (IFAS 2008). No known biological control agents (IFAS 2008).		
<b>3c. Necessity of individual treatments</b>	2	2
Comments: Large stems may require cut-stem applications of herbicides (IFAS 2008).		
<b>3d. Average distribution</b>	2	2
Comments: Primarily a shrub but may also take on a climbing growth form (IFAS 2008). Often found as escaped single plants or scattered individuals both in open and under forest shade (Miller 2003).		
<b>3e. Likelihood for reestablishment</b>	2	1
Comments: Spread by birds (Weakley 2008), which may facilitate reestablishment in treated areas.		
<b>3f. Accessibility of invaded areas</b>	2	1
Comments: Often found as escaped single plants or scattered individuals both in open and under forest shade (Miller 2003).		
<b>3g. Impact on native species and environment</b>	5	2
Comments: Nontarget plants may be killed or injured by root uptake of herbicides (Miller 2003).		
<b>Section 3. Subrank</b>	<b>20</b>	<b>9</b>
<b>Section 4. Benefits and Value</b>		
<b>4a. Estimated wholesale value</b>	-7	-2
Comments: The annual estimated wholesale value attributed to this species is \$1,938,4500 (Trueblood 2009).		
<b>4b. Percentage of total sales</b>	-5	-1
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 1-5% (Trueblood 2009).		
<b>4d. Ecosystem services</b>	-1	-1
Comments: Salt tolerant and used for erosion control in coastal areas.		
<b>4e. Wildlife habitat</b>	-1	0
Comments:		
<b>4f. Cultural and social benefits</b>	-1	0
Comments:		
<b>Section 4. Subrank</b>	<b>-15</b>	<b>-4</b>
<b>Overall Score</b>	<b>100</b>	<b>33</b>
<p><b>Overall Recommendation:</b> 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><b>Summary:</b> <i>Elaeagnus pungens</i> Thunb. and closely related <i>Elaeagnus x ebbingei</i> (Thorny elaeagnus) is noninvasive in North Carolina and may be recommended for horticultural use by the North Carolina Nursery and Landscape Association. The potential ecological impacts associated with thorny elaeagnus are largely unknown, and additional information is required to complete a more conclusive assessment of this species. There is potential for the natural dispersion of thorny elaeagnus. The difficulty of managing thorny elaeagnus 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. Thorny elaeagnus is economically valuable to the nursery industry. 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.</p>		
<p><b>References:</b></p> <p>Invasive.org: Center for Invasive Species and Ecosystem Health (2009) <i>Elaeagnus pungens</i> Thunb. (Thorny olive) The University of Georgia</p> <p>Invasive.org: The Bugwood Network, USDA Forest Service, and USDA APHIS PPQ. (2009a) Invasive Plants of the Thirteen Southern States. (<a href="http://www.invasive.org/south/seweeds.cfm">http://www.invasive.org/south/seweeds.cfm</a>) Accessed: March 24, 2009.</p> <p>Miller, J.H. (2003) Nonnative invasive plants of southern forests: a field guide for identification and control. Gen. Tech. Rep. SRS-62. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 93 p</p> <p>Robbins, J. Thorny elaeagnus - <i>Elaeagnus pungens</i>, Shrub profile. University of Arkansas Division of Agriculture, Cooperative Extension Service (<a href="http://www.aragriculture.org/horticulture/ornamentals/plant_database/shrubs/profiles/thorny_elaegagnus.pdf">http://www.aragriculture.org/horticulture/ornamentals/plant_database/shrubs/profiles/thorny_elaegagnus.pdf</a>) Accessed: March 19, 2009.</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.

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.

University of Florida, IFAS Extension, Center for Aquatic and Invasive Plants. (2008) *Elaeagnus pungens*. (<http://aquat1.ifas.ufl.edu/>) Accessed: March 19, 2009.

Walther, G. (reviewer) (2005) Global Invasive Species Database. *Elaeagnus pungens* (shrub). (<http://www.issg.org/database/species/ecology.asp?si=273&fr=1&sts=sss&lang=EN>) Accessed: March 19, 2009.

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. 98-102.