

Species Dataform and Scoresheet for *Nandina domestica* Thunb. (Nandina, Heavenly bamboo)

Species Dataform and Scoresheet		
<i>Nandina domestica</i> Thunb. (Nandina, Heavenly bamboo)		
Native range: China		
Date evaluated: April 6, 2009		
	Answer Choices	Response
Introductory Questions		
1. Current federal and state regulations	Y/N	N
Comments: Appears on several invasive species lists (not laws) in the Southeastern U.S., including Georgia (Important), South Carolina (Significant threat), Florida (Category I altering plant community), Tennessee (Rank 2, Significant threat), and the USFS Policy (Category 2, Species suspected to be invasive) (Invasive.org 2009).		
2. Occurrence in the horticultural trade	Y/N	Y
Comments: Widely planted in the Piedmont and Coastal Plain of North Carolina (Weakley 2008). Planted in traffic islands and many kinds of landscape and commercial applications (Scheper 2008).		
3. North Carolina nativity	Y/N	N
Comments: Native to China (Weakley 2008).		
4. Presence in natural areas	Y/N	Y
Comments: Increasingly escaping and naturalizing in North Carolina (Weakley 2008).		
5. Non-invasive cultivars	Y/N	Y/N
Comments: Cultivars, including Nana, Harbour Dwarf, and Firepower, have been developed that produce little or no seed (Langeland and Craddock Burks 2008).		
	Maximum Point Value	Number of Points Assigned
Section 1. Ecological Impact		
1a. Impact on abiotic ecosystem processes	10	0
Comments: Unknown impact on abiotic ecosystem processes.		
1b. Impact on plant community structure	20	10
Comments: Shade tolerant and establishes under forest canopies and near forest edges (Miller 2003). Displaces native species and disrupts plant communities (USDA Forest Service 2006). Forms dense thickets that displaces native vegetation (UF/IFAS 2008). Actively disrupts plant communities (Scheper 2008).		
1c. Impact on species of special concern	5	2
Comments: Displaces native vegetation, including endangered plant species, in Florida (Langeland and Craddock Burks 2008).		
1d. Impact on higher trophic levels	5	0
Comments: Unknown impact on higher trophic levels.		
Section 1. Subrank	40	12
Section 2. Current Distribution and Potential for Expansion		
2a. Local range expansion	7	4

Comments: Increasingly escaping and naturalizing in North Carolina (Weakley 2008).		
2b. Long-distance dispersal potential	13	13
Comments: Produces fleshy fruit, spread by animal-dispersed seeds (Miller 2003).		
2c. Reproductive characteristics	8	6
Comments: Produces fleshy fruit, spread by animal-dispersed seeds (Miller 2003). Colonizes vegetatively through root sprouts (Miller 2003). Spreads by root suckers and rhizomes (IF/IFAS 2008). Grows in both moist and dry areas (Langeland and Craddock Burks 2008) and shaded and open areas (USDA Forest Service 2006). Cut roots readily re-sprout (USDA Forest Service 2006).		
2d. Range of communities	6	2
Comments: Forests and woodlands in suburban areas in North Carolina (Weakley 2008). Natural communities of North Carolina (Shafale and Weakley 1990) = Low elevation mesic forests.		
2e. Similar habitats invaded elsewhere	6	2
Comments: Grows under forest canopies and near forest edges in full sun to shade, but does not grow well in sand (USDA Forest Service 2006). Invaded woodlands, floodplains, conservation areas, secondary woodlands in Florida (Langeland and Craddock Burks 2008). Natural communities of North Carolina (Shafale and Weakley 1990) = River floodplains.		
Section 2. Subrank	40	22
Section 3. Management Difficulty		
3a. Herbicidal control	5	0
Comments: Glyphosate and triclopyr herbicides provide effective control (Miller 2003).		
3b. Nonchemical control methods	2	2
Comments: Difficult to remove manually because small pieces of root may re-sprout (USDA Forest Service 2006). No known biological control agents (UF/IFAS 2008).		
3c. Necessity of individual treatments	2	2
Comments: Large stems should be cut and immediately treated (Miller 2003). Fruit should be collected from the treated area and destroyed (Miller 2003).		
3d. Average distribution	2	1
Comments: May form dense thickets (UF/IFAS 2008).		
3e. Likelihood for reestablishment	2	2
Comments: Retreatment may be necessary to reduce population densities (USDA Forest Service 2006). Fruits dispersed by animals and birds and root sprouts may recolonize an area (Miller 2003).		
3f. Accessibility of invaded areas	2	1
Comments: Mature plants found far from cultivation areas in the southeastern United States (Langeland and Craddock Burks 2008). Animals and birds disperse seeds (Miller 2003) which may be transported to areas not easily accessed for management.		
3g. Impact on native species and environment	5	2
Comments: Nontarget plants may be killed or injured by root uptake of herbicides (Miller 2003).		
Section 3. Subrank	20	10

Section 4. Benefits and Value		
4a. Estimated wholesale value	-7	-5
Comments: The annual estimated wholesale value attributed to this species is \$26,964,300 (Trueblood 2009).		
4b. Percentage of total sales	-5	-4
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 26-50% (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	-9
Overall Score	100	35
<p>Overall Recommendation: 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)</p>		
<p>Summary: <i>Nandina domestica</i> (Nandina, Heavenly bamboo) is moderately weedy in North Carolina and may be recommended for horticultural use with specific guidance by the North Carolina Nursery and Landscape Association. Nandina is increasingly escaping and naturalizing in North Carolina. The ecological impacts of <i>N. domestica</i> are largely unknown, but dense thickets of this species may shade out native herbs and displace native vegetation. There is potential for the additional invasion of Nandina to natural areas due to the high potential for natural dispersal from ornamental plantings. The difficulty of managing Nandina is 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>Nandina domestica</i> has extremely high economic value to the nursery industry.</p>		
<p>References:</p> <p>Invasive.org: The Bugwood Network, USDA Forest Service, and USDA APHIS PPQ. (2009) Invasive Plants of the Thirteen Southern States. (http://www.invasive.org/south/seweeds.cfm) Accessed: March 24, 2009.</p> <p>Langeland, K.A. and K. Craddock Burks. (2008) Identification and Biology of Non-Native Plants in Florida's Natural Areas. UF/IFAS (http://www.fleppc.org/ID_book.htm) Accessed: April 6, 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>		

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