



# Michigan Invasive Plant Council

## Michigan Plant Invasiveness Assessment System (MPIAS June 2008)

### Genus, Species, Species subset

Scientific Name:	Lonicera japonica		
Synonyms:			
Common Name(s):	Japanese Honeysuckle		
Plant Type:	<input type="checkbox"/> Annual	<input type="checkbox"/> Biennial	<input type="checkbox"/> Perennial

The information within this MPIAS assessment is specific to the plant listed and does not imply that cultivars, varieties, other species subsets and hybrids exhibit the same behavior or scoring.

### Author Information

Author:	Beth Hooley and Robert Schutzki
Author's affiliation:	Michigan State University
Mailing address:	Department of Horticulture, Michigan State University, East Lansing, MI 48824
Reviewed by:	Phyllis Higman, Michigan Natural Features Inventory; Chris Howe, Hortech, Inc.; Dave MacKenzie, Hortech, Inc.; Brian Majka, JFNEW; Doug Pearsall, The Nature Conservancy; Robert Schutzki, Michigan State University

USDA/APHIS – Federal Noxious Weed List	<a href="http://www.aphis.usda.gov/ppq/permits/fnwsbycat-e.PDF">http://www.aphis.usda.gov/ppq/permits/fnwsbycat-e.PDF</a>
Michigan Department of Agriculture – Noxious, Prohibited, and Restricted Plants	<a href="http://www.michigan.gov/mda/0,1607,7-125-1569_16993-11250--,00.html">http://www.michigan.gov/mda/0,1607,7-125-1569_16993-11250--,00.html</a>

### Federal and Michigan Noxious, Prohibited, or Restricted Plants

Is this species listed on the federal or Michigan noxious, prohibited, or restricted plant lists?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
If YES then do not proceed with assessment but indicate its federal and/or Michigan Department of Agriculture status on the front of the response form		
If NO then go to Section I		

## Section I: Biological Character

**Biological characteristics: Reproductive Ability and Dispersal.** Reproductive characteristics and dispersal ability strongly relate to the potential of a plant to become invasive. The results of this section will be used by MIPC to calculate a rank of Potential Invasiveness in Section VII. *Check those that apply to this plant and note any other weedy or invasive traits this plant possesses in the space for comments below:*

### I – A Reproductive Ability

Reproductive ability identifies a plant's invasive tendency in Michigan as high (H), medium (M), low (L), insignificant (I) or none (N) based on seed and vegetative reproductive characteristics.

<b>Plant Type:</b>	<input type="checkbox"/> Annual	<input type="checkbox"/> Biennial	<input checked="" type="checkbox"/> Perennial
--------------------	---------------------------------	-----------------------------------	---

#### I – A1. Reproduction by Seed

If the plant is sterile or unable to complete a reproductive cycle in Michigan, skip the following questions and enter an N in the Seed Subrank at the end of this section.

<input type="checkbox"/>	Reproduces readily by seed.
<input type="checkbox"/>	When it produces seed, produces over 1,000 seeds per square meter
<input checked="" type="checkbox"/>	Reproduces at least once per year
<input checked="" type="checkbox"/>	Can germinate in a wide range of conditions
<input checked="" type="checkbox"/>	Seeds remain viable in the soil for 2 years or more.

<b>Seed rating:</b>	1 box marked = I 2 boxes marked = L 3 boxes marked =M 4 - 5 boxes marked = H
---------------------	---

#### Seed Subrank

<b>Enter the Seed Subrank in the appropriate blank at the end of Section I – A.</b>	<b>Rank</b>
<b>I – A1. Reproduction by Seed:</b>	<b>M</b>

#### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input checked="" type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level: <b>Comments: Reproduces readily both vegetatively and by seed. . . (Nuzzo 1997). (<a href="http://www.natureserve.org">www.natureserve.org</a>) Also invades mature forests (dry and moist). . . (Langeland, KA and Burks, KC. 1998. Identification and</b>			

Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63.  
<http://aquat1.ifas.ufl.edu/identif.html>)

Fruits are produced September through November. Common in dry-mesic to wet-mesic upland forest. Able to grow in a wide variety of habitats (Leatherman 1955). Wide seed dispersal. Decreases flowering activity as light decreases; in 8% of full light no flowers are produced (Blair 1982, Roberson et al 1994). Relatively few studies have documented seed production, seed viability, germination requirements, or seedling establishment. May spread vegetatively but rarely produces flowers or fruits under low light (25% of full light; Robertson et al 1994). (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

Flowering and seed production are most prolific, and occur at an earlier age, when plants are in open habitats. In general, fruit production peaked when plants were 4 to 6 years old and declined considerably thereafter (in eastern Texas). Japanese honeysuckle occurs on a variety of soil types, but is "noticeably absent" on coarse sands and poor peat soils. Distribution may be limited on xeric sites with coarse, well-drained, infertile soils on the southeastern coastal plain. It is likely that extensive areas of poorly drained soils contribute to the absence of invasive Japanese honeysuckle in southern Florida. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/>)

Heavy fruit-bearing colonies can rapidly disperse seed throughout a wide area by attracting frugivorous birds [47]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Location: Indiana Dunes National Lakeshore. Almost never reproduces sexually in area. Number of seeds per plant: few (0-10). Requires open soil and disturbance to germinate. (Southwest Exotic Plant Information Clearinghouse. 2005.

<http://sbsc.wr.usgs.gov/research/projects/swepic/weedSpecies/unified.asp?Symbol=LOJA>)

The blooming period extends from. . . May to June in Illinois (Mohlenbrock 1986) and June in Michigan (Nuzzo 1997). (issg Database: Ecology of *Lonicera japonica*; 2005;  
<http://www.issg.org/database/species/ecology.asp?si=158&fr=1&sts=sss>)

In some areas of the U.S., fruit set of *L. japonica* may be limited by lack of pollinators. In a study conducted in central Arkansas, hand pollinated flowers produced fruit from 78.7% of their flowers, whereas the naturally pollinated control shoots produced fruit from only 17.4% of their flowers. Fruit set varied geographically, with sites in the southern part of the state having higher fruit set than the more northern sites. Fruit set was higher on the secondary shoots produced in June and July than on primary shoots produced in May. . . Fruit set ranged from 0% to 36% at different geographic sites in Arkansas

and Oklahoma. Only one other study has documented fruit set and that was at 56% in eastern Tennessee. (Larson, KC, Fowler, SP, and Walker, JC. 2002. Lack of pollinators limits fruit set in the exotic *Lonicera japonica*. *American Midland Naturalist* 148(1):54-60)

**I – A2. Reproduction by Vegetative Means**

If the plant does not reproduce vegetatively in Michigan, skip the following questions and enter an N in the Vegetative Subrank at the end of this section.

<input checked="" type="checkbox"/>	Reproduces readily <i>in situ</i> by vegetative means
<input checked="" type="checkbox"/>	Has spreading rhizomes that may root at nodes.
<input type="checkbox"/>	Fragments easily with fragments readily becoming re-established long distances from the parent plant by natural means (if checked, rating is automatically marked as high)
<input type="checkbox"/>	Other (*please discuss in comments and provide documentation)

<b>Vegetative rating:</b>	1 box marked = I 2 boxes marked = L 3 boxes marked =M 4 boxes marked = H
---------------------------	---

**Vegetative Subrank**

<b>Enter the Vegetative Subrank in the appropriate blank at the end of</b>	<b>Rank</b>
<b>Section I – A Vegetative:</b>	<b>L</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			
<b>16. Reproductive Characteristics:High significance</b>			
Comments: Reproduces readily both vegetatively and by seed, has quickly spreading rhizomes that may root at nodes, aboveground runners, and resprouts readily when cut, grazed or burned (Nuzzo 1997). ( <a href="http://www.natureserve.org">www.natureserve.org</a> )			
Spreads by seeds, underground rhizomes, and aboveground runners (USDA 1971). Removing above-ground stems by cutting pulling or burning will temporarily weaken, but not kill, <i>Lonicera japonica</i> as it will resprout from subterranean buds and roots, and from cut branchlets. Forms roots “ wherever the canes touch moist ground” (Hartmann and Kester 1968). Individual vines have numerous long vegetative runners. (Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)			

Resprout Ability: yes (USDA Plants Database, <http://plants.usda.gov>)

Trailing vines produce stolons which root when they contact soil. . . (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)

J. honeysuckle sprouts from the root crown and layers. Adventitious roots can occur at the nodes of trailing stems, or in response to stem cambium damage. Additionally, new individuals are established when plants put down roots at nodes along stems, forming new root crowns and spawning new plants. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/>)

Location: Indiana Dunes National Lakeshore. Reproduces almost entirely by vegetative means. Vegetative reproduction rate results in moderate increase in population size. No resprouting following removal of aboveground growth. (Southwest Exotic Plant Information Clearinghouse. 2005. <http://sbsc.wr.usgs.gov/research/projects/swepic/weedSpecies/unified.asp?Symbol=LOJA>)

### *I-A3. Growth Habit*

<b>Growth Habit</b>	Twining vine producing stolons which root when they contact soil.
---------------------	---

### **I – B. Dispersal:**

Dispersal identifies the vectors or agents of dispersal and the likelihood of long distance dispersal.

<b>Dispersal agents</b>	(E) Environmental Influences such as wind and water (W) Wildlife, both mammals and birds (DA) Domestic Animals, both mammals and birds (H).Human activity Dispersal distance refers to the potential for long distance dispersal.
-------------------------	---

Dispersal distance refers to the potential for long distance dispersal.

**I-B1. Vector categories**

<b>Identify the vector categories and individual agents involved with the dispersal of this plant. Check all that apply</b>	
<input type="checkbox"/> <b>Environmental Influences (E):</b>	<input type="checkbox"/> Wind <input type="checkbox"/> Water <input type="checkbox"/> Other (name)
<input checked="" type="checkbox"/> <b>Wildlife (W):</b>	<input type="checkbox"/> Mammals <input checked="" type="checkbox"/> Birds <input type="checkbox"/> Other (name)
<input type="checkbox"/> <b>Domestic Animals (DA):</b>	<input type="checkbox"/> Mammals <input type="checkbox"/> Birds <input type="checkbox"/> Other (name)
<input checked="" type="checkbox"/> <b>Human Activity (H):</b>	<input type="checkbox"/> New development (construction equipment) <input type="checkbox"/> Maintenance equipment <input type="checkbox"/> Borrow material (topsoil, gravel, stone) <input type="checkbox"/> Recreation (ATV, boats, RV) <input checked="" type="checkbox"/> Dumping <input checked="" type="checkbox"/> Other (name) <b>erosion control, ornamental, wildlife plantings</b>
<input type="checkbox"/> <b>Other (*please discuss in comments and provide documentation)</b>	

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p><b>Seed dispersed primarily by birds. (<a href="http://www.natureserve.org">www.natureserve.org</a>) (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <a href="http://aquat1.ifas.ufl.edu/identif.html">http://aquat1.ifas.ufl.edu/identif.html</a>)</b></p> <p><b>Introduced in 1806 for ornament. . . (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <a href="http://aquat1.ifas.ufl.edu/identif.html">http://aquat1.ifas.ufl.edu/identif.html</a>)</b></p> <p><b>L. japonica occupied an average of 25.9% of all edge types. . . It can now be found along edges of fields, streams, roads, and forests. . . In the North Carolina coastal plain, at agricultural/forest edges, it was found more abundantly and had penetrated the forests further than any other exotic plant at 22 of 23</b></p>			

study sites. Japanese honeysuckle. . . shows by far the greatest relative abundance in the piedmont where human population and industrial activity are greatest. (Merriam, RW. 2003. The abundance, distribution and edge associations of six non-indigenous, harmful plants across North Carolina. Journal of the Torrey Botanical Society 130(4):289-291)

Wildlife managers in some states actively promoted growth of this aggressive vine to provide winter forage for deer (Dyess et al 1994; Segelquist and Rogers 1975; Stransky 1984). Usually invades disturbed communities and rarely colonizes deeply shaded, mature forests unless canopy openings are created by human disturbances or natural processes. . . (Slezak 1976; Thomas 1980). L. japonica's climbing architecture is adapted to early successional forest (Carter and Teramura 1988a), which typically has small diameter trees and a dense understory. Spread primarily by birds, which consume the fruits and pass the seeds, carrying them from landscape plantings to natural areas and disseminating them in forest openings and disturbance zones. (Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

Often invades native plant communities after natural or human induced disturbance such as logging, road building. . . (Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. [www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html))

Seeds are frequently dispersed by frugivorous birds and small mammals. (Munger, Gregory T. 2002. Lonicera japonica. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/>)

Japanese honeysuckle was promoted for many years as a horticulture plant [96], and is still sold for this purpose in many areas. It has been used as a fast-growing plant for rehabilitation of disturbed, erodible ground [47,70]. (Munger, Gregory T. 2002. Lonicera japonica. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Location: Indiana Dunes National Lakeshore. Little potential for long-distance dispersal. (Southwest Exotic Plant Information Clearinghouse. 2005. <http://sbsc.wr.usgs.gov/research/projects/swepic/weedSpecies/unified.asp?Symbol=LOJA>)

Local dispersal methods: Seeds may be eaten by birds and then dispersed. Can be spread by dumping of garden waste. Spreads via above ground runners that root at nodes. Moving northward in the U.S., possibly because it is adjusting to colder temperatures. (issg Database: Ecology of Lonicera japonica; 2005; <http://www.issg.org/database/species/ecology.asp?si=158&fr=1&sts=sss>)

### ***I – B2. Dispersal Distance***

Little potential for long-distance dispersal (1 km in a single dispersal event)

☒	Great potential for long-distance dispersal
---	---

Please use this scale and your answers from Section I – B above to calculate a: Dispersal Subrank

<b>Dispersal Subrank</b>	I One or two vector categories; Little potential for long-distance dispersal L Three or four vector categories; Little potential for long-distance dispersal M One or two vector categories; Great potential for long-distance dispersal H Three or four vector categories; Great potential for long-distance dispersal
--------------------------	--

***Dispersal Subrank***

<b>Section I B. Dispersal Subrank:</b>	<b>M</b>
--	----------

***Biological Character Subrank***

Biological Character Subrank	Rank
<b>Section I A. Reproductive Ability: Reproduction by Seed</b>	<b>M</b>
<b>Section I A. Reproductive Ability: Reproduction by Vegetative Means</b>	<b>L</b>
<b>Section I B. Dispersal:</b>	<b>M</b>

## Section II: Impact

Impact: Impact identifies the plant's ecological, aesthetic, economic influence on each of the respective natural, managed, and/or constructed system. Questions on impact are tailored to the individual characteristics and composition of the system. Impact is classified as high (H), medium (M), low (L), or insignificant (I).

### II - A. Natural Systems

**Impacts on native species and natural systems: Terrestrial and Aquatic.** *Where possible, assess the cumulative (e.g., over a period of several decades) impact of the plant on the natural areas and other wildlands where it typically occurs. Impacts will be re-assessed as more is learned and as the plant moves into new areas.*

#### II - A1. Ability to invade natural systems

Choose one answer that best describes the ability of this plant to invade natural systems.	
<input type="checkbox"/>	Not known to spread into natural systems in the absence of disturbance (e.g. plant may persist from former cultivation) <b>(0 points)</b>
<input type="checkbox"/>	Establishes only in areas where major disturbance has occurred in the last 20 years (e.g., post-hurricane sites, highway corridors) <b>(3 points)</b>
<input checked="" type="checkbox"/>	Often establishes in mid-late-successional natural areas where minor disturbances may occur (e.g. tree falls, hiking trails, streambank erosion), but no major disturbance within the last 20-75 years <b>(7 points)</b>
<input type="checkbox"/>	Often establishes in intact or otherwise healthy natural systems with no major disturbance for at least 75 years <b>(15 points)</b>

#### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input checked="" type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			
<p><b>14. Inherent Ability to Invade Conservation Areas and Other Native Species Habitats: Moderate significance</b></p> <p>Comments: It is definitely an edge invader (Randall, pers. comm.). However, it will also spread and persist under a canopy, just a bit slower than in full sun (Lindblom, The Nature Conservancy, pers. comm.). Thrives in tree gaps created by natural or artificial disturbance and persisting in partially shaded areas (Langeland and Burks 1998).</p> <p>(<a href="http://www.natureserve.org">www.natureserve.org</a>)</p> <p>Early successional plant in old abandoned fields in Pennsylvania. (Keever, C. 1979. Mechanisms of plant succession on old fields of Lancaster County, Pennsylvania. Bulletin of the Torrey Botanical Club 106(4):299-308)</p>			

Occurs most densely in open woodlands, prairies, thickets, fence rows, and old fields, but also invades mature forests (dry and moist), thriving in tree gaps created by natural or artificial disturbance and persisting in partially shaded areas (Myster and Pickett 1992). Reported in the eastern U.S. as an important pest in . . . natural areas. (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <http://aquat1.ifas.ufl.edu/identif.html>)

Develops high frequency and cover in young forests while densely shaded, mature forests support fewer, and smaller, colonies (Robertson et al 1994). Usually invades disturbed communities and rarely colonizes deeply shaded, mature forests unless canopy openings are created by human disturbances or natural processes. . . (Slezak 1976; Thomas 1980). Can persist in low numbers in relatively undisturbed forest and then “ break out” following disturbances that open the canopy. . . (Myster and Pickett 1992). Rarely invades deeply shaded, mature forests unless the canopy is somehow opened (Robertson et al 1994). (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

The sequence of events that leads to forest destruction by *L. japonica* appears to be as follows. To begin with, some disturbance of the vertical structure of the forest must occur. . . The disturbance of the vertical structure allows more light to come into the forest. The more light, the heavier the growth of *L. japonica*. (Thomas, L. K. 1980a. The impact of three exotic plant species on a Potomac island. National Park Service scientific monograph series; No. 13. U.S. Department of the Interior, Washington, D.C.)

Habitats in New England: abandoned field, agricultural field, early successional forest, edge, floodplain forest, open disturbed area, pasture, planted forest, roadside, utility right-of-way, vacant lot, yard or garden. (Invasive Plant Atlas of New England (IPANE); [www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=65](http://www.lib.uconn.edu/webapps/ipane/browsing.cfm?descriptionid=65))

Readily invades open natural communities, often by seed spread by birds. An aggressive colonizer of successional fields, this vine also will invade mature forest and open woodlands such as post oak flatwoods and pin oak flatwoods. Forests with either natural or unnatural openings are often invaded by Japanese Honeysuckle when birds drop seeds into these light gap areas. Deep shading reduces the amount of invasion. (Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. [www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html))

Despite its relative affinity for open habitats, Japanese honeysuckle also has the ability to spread extensively within mature forest, persisting for many years in the understory until disturbance creates a gap in the canopy. It occurs in the understory of old-growth red river bottom forests in the Southeast [121]. In the New Jersey piedmont, it can be found within old-growth oak forest, thought to be unburned and uncut for >250 years. Japanese honeysuckle rapidly invades gaps following the natural fall of very large, mature trees [66]. If present at the time of gap formation, it can respond with vigorous growth,

potentially dominating understory strata [66,124].

(Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

In the mature forest, the number of plots containing *L. japonica* and the number of plots without *L. japonica* were virtually identical. In all four other seral stages, a large majority of the plots had been invaded by *L. japonica*. Three-quarters of the plots sampled in the thickets, old fields and riparian zones contained *L. japonica*. In the woodlands, fully 90% of the plots had been invaded. . . We did not observe significant differences in the frequency of colonization between the Mixed oak and Mixed mesophytic forest associations by *L. japonica*. . . Fully 70% of the Mixed Oak plots and 78% of the Mixed Mesophytic plots had been colonized by *L. japonica*. *L. japonica* grew most densely in old fields and thickets, and least densely in mature forest. Density in woodlands was between the two extremes. The density of riparian areas was low, only slightly greater than the density in the mature forest. (This study was conducted in a 324 ha natural preserve located in a southeastern Pennsylvania suburban landscape). (Robertson, DJ, Robertson, JC and Tague, T. 1994. Colonization dynamics of four exotic plants in a northern Piedmont natural area. *Bulletin of the Torrey Botanical Club* 121(2):107-118)

## II - A2. Impact on Ecosystem Processes

Plants that alter processes such as fire occurrence or frequency, erosion, and sedimentation rates, hydrological regimes, or nutrient regimes often have the greatest long-term impacts on ecosystems. Some invaders can completely transform natural systems so that they can no longer support native species.

Choose one answer that best describes the impact of this plant on ecological processes:	
<input checked="" type="checkbox"/>	Not known impact on ecosystem processes ( <b>0 points</b> )
<input type="checkbox"/>	Influences ecosystem processes (e.g., has perceivable but mild influence on soil nutrient availability) ( <b>5 points</b> )
<input type="checkbox"/>	Significant alteration in ecosystem processes (e.g., increases sedimentation rates along coastlines, reducing open water areas that are important for waterfowl) ( <b>10 points</b> )
<input type="checkbox"/>	Major, possibly irreversible, alteration or disruption of ecosystem processes (e.g., the plant reduces water level from open water or wetland systems through rapid transpiration, making these areas more fire prone and unable to support native wetland species; or plant fixes nitrogen in the soil making soil unlikely to support certain native plants) ( <b>15 points</b> )

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			
1. Impact on Ecosystem Processes and System-wide Parameters: Low significance/Insignificant			
Comments: Not reported to have ecosystem-level effects, therefore inferred to be low or insignificant. ( <a href="http://www.natureserve.org">www.natureserve.org</a> )			

## II - A3. Impact on Natural Community Structure

Choose one answer that best describes this plant's impact on community structure:	
<input type="checkbox"/>	No impact, establishes in an existing layer without influencing its structure ( <b>0 points</b> )
<input type="checkbox"/>	Influences structure in one layer (e.g., changes the density of a layer) ( <b>3 points</b> )
<input checked="" type="checkbox"/>	Significant impact on at least one layer (e.g., creation of a new layer, elimination of an existing layer) ( <b>7 points</b> )
<input type="checkbox"/>	Major alteration of structure (e.g., covers canopy, eradicating most or all layers below) ( <b>10 points</b> )

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input checked="" type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			

## 2. Impact on Ecological Community Structure: High significance

Comments: Changes forest structure, topples trees and shrubs due to weight alone, forms dense blanket that suppresses understory shrubs and herbs, results in a simplified increasingly open understory (Nuzzo 1997). It can disrupt understory structure in mature forest and plant succession in once-forested areas by overtopping and smothering young trees, preventing their recruitment to the overstory (Langeland and Burks 1998). Shades out herbaceous species (Lindblom, The Nature Conservancy, pers. comm.). The root system alone has been recorded as 3m across and 1m deep (Nuzzo 1997). ([www.natureserve.org](http://www.natureserve.org))

Interrupts plant succession in once-forested areas by overtopping and smothering young trees, preventing their recruitment to the overstory (Myster and Pickett 1992). Can disrupt understory structure in mature forests by eliminating smaller tree species important to birds (Sather 1987). (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <http://aquat1.ifas.ufl.edu/identif.html>)

Damages natural communities it invades by outcompeting native vegetation for both light (shoot competition [Thomas 1980, Bruner 1967]) and below-ground resources (root competition [Dillenburg et al 1993a, 1993b, Whigham 1984]), and by changing forest structure (Sasek and Strain 1990, 1991). The vines overtop adjacent vegetation by twining about, and completely covering small trees and shrubs (Williams 1994, McLemore 1981). As it becomes established in forest openings it forms a dense blanket that excludes most shrubs and herbs (Oosting 1956). This results in a simplified increasingly open understory. (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

In a forest which is less disturbed, the growth of *L. japonica* on the forest floor suppresses the normal ground layer and replaces it with another ground layer. The new ground layer is, in a sense, not a replacement but an additional layer formed at a lower height than the original. In a badly disturbed forest, the *L. japonica* becomes vigorous enough to stand at the same height as the original ground layer. Since plants of all forest layers must pass through this ground layer in their growth, suppression in this layer will promote far-reaching structural changes over a period of generations. (Thomas, L. K. 1980a. The impact of three exotic plant species on a Potomac island. National Park Service scientific monograph series; No. 13. U.S. Department of the Interior, Washington, D.C.)

Alters or destroys the understory and herbaceous layers of the communities it invades. . .

(Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. [www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html))

Japanese honeysuckle can form dense mats of monospecific vegetation up to 5 feet (1.5 m) deep. Single plants may produce 30 feet (9 m) of stem per year. Japanese honeysuckle vines are unable to climb tree boles > 4 inches (10 cm) in diameter without the aid of trellises provided by bole-climbing vines such as

grape (*Vitis* spp.). (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/>)

**II – A4. Impact on Natural Community Composition**

<b>Choose one answer that best describes this plant's impact on community composition:</b>	
<input type="checkbox"/>	No impact, causes no known changes in native populations <b>(0 points)</b>
<input checked="" type="checkbox"/>	Influences community composition (e.g., reduces the number of individuals in one or more native populations by reducing recruitment) <b>(3 points)</b>
<input type="checkbox"/>	Significantly alters community composition (e.g., produces a significant reduction in the population size of one or more native species in the community) <b>(7 points)</b>
<input type="checkbox"/>	Causes major alteration in community composition (e.g., results in the extirpation of one or several native species, reducing biodiversity or changing the community composition towards species exotic to the natural community) <b>(10 points)</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p><b>3. Impact on Ecological Community Composition:High significance</b></p> <p>Comments: Outcompetes and eliminates native flora by strong below-ground competition and having a high photosynthesis rate year-round because of evergreen leaves (Nuzzo 1997; Langeland and Burks 1998). May inhibit spring ephemerals from completing life cycle because of dense shade (Nuzzo 1997). Can kill adult trees and prevent establishment of seedlings (Nuzzo 1997). (<a href="http://www.natureserve.org">www.natureserve.org</a>)</p> <p>Able to colonize various habitats and eliminate native flora (Sasek and Strain 1991). (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <a href="http://aquat1.ifas.ufl.edu/identif.html">http://aquat1.ifas.ufl.edu/identif.html</a>)</p> <p>As it becomes established in forest openings it forms a dense blanket that excludes most shrubs and herbs (Oosting 1956). This results in a simplified increasingly open understory. (Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p> <p>In mildly disturbed forests, L. japonica suppresses trees, particularly Prunus serotina, and other woody plants, especially Parthenocissus quinquefolia. When the forest is highly disturbed, suppression becomes more marked. Regardless of the degree of disturbance, L. japonica definitely suppresses trees. Liriodendron tulipifera and Ulmus americana were also documented as adversely affected by L. japonica by this author. Reports of L. japonica overwhelming vegetation are with less than usual-sized overstory trees. Honeysuckle is able to outcompete the native deciduous vegetation in the lower stratal layers apparently because it is evergreen in this area (Washington D.C.) and grows when the native vegetation is leafless. (Thomas, L. K. 1980a. The impact of three exotic plant species on a Potomac island.</p>			

National Park Service scientific monograph series; No. 13. U.S. Department of the Interior, Washington, D.C.)

Dense concentrations of Japanese honeysuckle can inhibit regeneration of woody forest species. This may lead to a "disturbance climax" where succession is altered and the community is maintained as a virtual Japanese honeysuckle monoculture [47]. Forest management activities that remove part or all of the overstory can enhance opportunities for Japanese honeysuckle, frequently at the expense of desirable native and/or commercial species. For example, Japanese honeysuckle production in southeastern forests is frequently stimulated by silvicultural thinning in mixed pine/hardwood stands [95]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Invasion of *L. japonica* causes a decline in species richness. Invasion inhibits species colonization without impacting species extinction rates. Differentially impacts common colonizing species. (Yurkonis, KA and Meiners, SJ. 2003. Invasion by *Lonicera japonica* impacts species turnover in a successional system. Dept. of Biological Sciences, Eastern Illinois University. [www.eiu.edu/~\\_data/posters/2003/poster\\_062.htm](http://www.eiu.edu/~_data/posters/2003/poster_062.htm))

#### ***II - A5. Conservation Significance of the Natural Systems and Native Species Threatened***

*Many invaders occur primarily in disturbed, low quality habitats that are dominated by other invasive plants. Invasive plants have a greater impact if they (a) directly or indirectly threaten native species or communities that are considered rare or vulnerable (e.g., Federally listed or ranked G1-G3 by The Nature Conservancy and Natural Heritage Network) or (b) threaten outstanding, high quality occurrences of common community types.*

Indicate below the natural communities (Michigan Natural Features Inventory, 1986) in which the plant has become invasive, and then list any rare species that are or are likely to become threatened by this plant. (Note: \* indicates a state rank of S1-S3; \*\* indicates global rank of G1-G3 and state rank of S1-S3)

**Natural Communities Affected**

<b>Wetland</b>		
<b>Marsh:</b>	<input type="checkbox"/> Submergent marsh <input type="checkbox"/> Emergent marsh <input type="checkbox"/> Great Lakes marsh* <input type="checkbox"/> Northern wet meadow <input type="checkbox"/> Southern wet meadow*	<input type="checkbox"/> Inland salt marsh ** <input type="checkbox"/> Intermittent wetland ** <input type="checkbox"/> Coastal plain marsh ** <input type="checkbox"/> Interdunal marsh **
<b>Prairie:</b>	<input type="checkbox"/> Lakeplain wet prairie ** <input type="checkbox"/> Lakeplain wet-mesic prairie **	<input type="checkbox"/> Wet prairie ** <input type="checkbox"/> Wet-mesic prairie **
<b>Fen:</b>	<input type="checkbox"/> Prairie fen ** <input type="checkbox"/> Northern fen *	<input type="checkbox"/> Patterned fen ** <input type="checkbox"/> Poor fen **
<b>Bog:</b>	<input type="checkbox"/> Bog	<input type="checkbox"/> Muskeg *
<b>Forest:</b>	<input type="checkbox"/> Poor conifer swamp <input type="checkbox"/> Rich conifer swamp * <input type="checkbox"/> Relict conifer swamp **	<input type="checkbox"/> Hardwood-conifer swamp ** <input type="checkbox"/> Southern swamp * <input type="checkbox"/> Southern floodplain forest **
<b>Shrub:</b>	<input type="checkbox"/> Northern shrub thicket <input type="checkbox"/> Southern shrub-carr	<input type="checkbox"/> Inundated shrub swamp *
<b>Forest/marsh:</b>	<input type="checkbox"/> Wooded dune and swale complex **	

<b>Upland:</b>		
<b>Forest:</b>	<input type="checkbox"/> Mesic southern forest (southern hardwood) ** <input type="checkbox"/> Dry-mesic northern forest (pine-hardwood)* <input type="checkbox"/> Dry-mesic southern forest (oak-hardwood) * <input type="checkbox"/> Dry northern forest (pine) *	<input type="checkbox"/> Dry southern forest (oak forest) * <input type="checkbox"/> Boreal forest * <input type="checkbox"/> Mesic northern forest (northern hardwood and hemlock-hardwood) *
<b>Savanna:</b>	<input type="checkbox"/> Lakeplain oak openings ** <input type="checkbox"/> Bur oak plains ** <input type="checkbox"/> Oak openings ** <input type="checkbox"/> Oak barrens **	<input type="checkbox"/> Pine barrens ** <input type="checkbox"/> Great lakes barrens ** <input type="checkbox"/> Northern bald (krummholz ridgetop) **
<b>Prairie:</b>	<input type="checkbox"/> Mesic prairie ** <input type="checkbox"/> Hillside prairie ** <input type="checkbox"/> Mesic sand prairie **	<input type="checkbox"/> Woodland prairie ** <input type="checkbox"/> Dry sand prairie **
<b>Primary:</b>	<input type="checkbox"/> Open dunes ** <input type="checkbox"/> Sand gravel beach ** <input type="checkbox"/> Cobble beach * <input type="checkbox"/> Bedrock beach * <input type="checkbox"/> Alvar ** <input type="checkbox"/> Bedrock glade **	<input type="checkbox"/> Dry non-acid cliff * <input type="checkbox"/> Moist non-acid cliff * <input type="checkbox"/> Dry acid cliff * <input type="checkbox"/> Moist acid cliff * <input type="checkbox"/> Sinkhole **

<b>Native Species affected:</b>	
<b>Global Heritage Status Rank:</b>	
<b>National Heritage Status Rank (U.S.):</b>	
<b>National Heritage Status Rank (Canada):</b>	
<b>Michigan Rank:</b>	
<b>Michigan wetland category:</b>	
<b>Physiognomy:</b>	
<b>Wetness coefficient:</b>	
<b>Other information:</b>	



### Conservation Significance

Based on this information, choose one answer that best describes the overall conservation significance of native species or communities affected by this plant:	
<input type="checkbox"/>	Found only in human-disturbed habitats and not known to impact any vulnerable or high quality native species or communities <b>(0 points)</b>
<input type="checkbox"/>	Usually inhabits common, unthreatened habitats and rarely impacts vulnerable or high quality species or communities <b>(3 points)</b>
<input checked="" type="checkbox"/>	Known to occasionally threaten vulnerable or high quality species or communities <b>(7 points)</b>
<input type="checkbox"/>	Known to often inhabit one or more vulnerable or high quality communities and/or often threatens rare native species <b>(15 points)</b>

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>4. Impact on Individual Native Plant or Animal Species: Moderate significance</p> <p>Comments: <i>Lonicera japonica</i> has been linked to a decline or alteration in native songbird populations and an overabundance of white-tailed deer due to good winter foliage (Nuzzo 1997). Eliminates portions of forest structure that are important to birds (Langeland and Burks 1998). Enters steepheads, threatening state-listed species such as <i>Xanthorhiza simplisissima</i> (Burks, Florida Department of Environmental Protection, pers. comm.). (<a href="http://www.natureserve.org">www.natureserve.org</a>)</p> <p>May inhibit ephemeral herbs (Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p> <p>Regeneration was suppressed in <i>Prunus serotina</i>, <i>Liriodendron tulipifera</i>, <i>Ulmus americana</i>, <i>Parthenocissus quinquefolia</i> (in Washington D.C.). (Thomas, L. K. 1980a. The impact of three exotic plant species on a Potomac island. National Park Service scientific monograph series; No. 13. U.S. Department of the Interior, Washington, D.C.)</p> <p>Japanese honeysuckle may threaten the rare <i>Trillium pusillum</i> in southern Tennessee, a state endangered plant. (Munger, Gregory T. 2002. <i>Lonicera japonica</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <a href="http://www.fs.fed.us/database/feis/">http://www.fs.fed.us/database/feis/</a> [2007, May 25].)</p> <p>5. Conservation Significance of the Communities and Native Species Threatened: Moderate significance</p> <p>Comments: Can invade rare habitats like rocky glades (Merriam, The Nature Conservancy, pers. comm.).</p>			

Threatens Hawaiian forests (Flynn and Lorence, pers. comm.). ([www.natureserve.org](http://www.natureserve.org))

9. Diversity of Habitats or Ecological Systems Invaded in Nation: Moderate significance

Comments: Occurs most densely in open woodlands and prairies, but also invades mature forests (Langeland and Burks 1998), invades floodplains in eastern North America (Nuzzo 1997), common in dry-mesic to wet-mesic upland forest, floodplain forest, and southern pine stands (Randall, pers. comm.).

Communities it invades: prairies, barrens, glades, flatwoods, savannas, floodplain and upland forests.

(Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. [www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html))

5. Conservation Significance of the Communities and Native Species Threatened: Moderate significance

Comments: Can invade rare habitats like rocky glades (Merriam, The Nature Conservancy, pers. comm.). Threatens Hawaiian forests (Flynn and Lorence, pers. comm.). ([www.natureserve.org](http://www.natureserve.org))

In North America, *L. japonica* primarily occurs in disturbed habitat, including successional fields, roadsides, forest edges, and fencerows (Williams 1994). It is common in dry-mesic to wet-mesic upland forest, floodplain forest, and southern pine stands, and particularly common in forest openings created by disturbance, such as treefall, logging, or disease. (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

Occurs most densely in open woodlands, prairies, thickets, fence rows, and old fields, but also invades mature forests (dry and moist), thriving in tree gaps created by natural or artificial disturbance and persisting in partially shaded areas (Myster and Pickett 1992). Reported in the eastern U.S. as an important pest in . . . natural areas. (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <http://aquat1.ifas.ufl.edu/identif.html>)

Develops high frequency and cover in young forests while densely shaded, mature forests support fewer, and smaller, colonies (Robertson et al 1994). Usually invades disturbed communities and rarely colonizes deeply shaded, mature forests unless canopy openings are created by human disturbances or natural processes. . . (Slezak 1976; Thomas 1980). Can persist in low numbers in relatively undisturbed forest and then “break out” following disturbances that open the canopy. . . (Myster and Pickett 1992). Rarely invades deeply shaded, mature forests unless the canopy is somehow opened (Robertson et al 1994). (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

Despite its relative affinity for open habitats, Japanese honeysuckle also has the ability to spread extensively within mature forest, persisting for many years in the understory until disturbance creates a gap in the canopy. It occurs in the understory of old-growth red river bottom forests in the Southeast

[121]. In the New Jersey piedmont, it can be found within old-growth oak forest, thought to be unburned and uncut for >250 years. Japanese honeysuckle rapidly invades gaps following the natural fall of very large, mature trees [66]. If present at the time of gap formation, it can respond with vigorous growth, potentially dominating understory strata [66,124].

(Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

***Impact Subrank: Section II: Natural Systems***

<b>Total Points from questions II – A1 to II – A5</b>	<b>24</b>
<b>Natural Systems Impact Subrank:</b>	<b>L</b>
<b>Determine a Subrank using this scale: 0 – 12 points = I; 13 – 28 = L; 29 – 45 = M; 46 – 65 = H</b>	<b>L</b>

**II - B. Production/Managed Forests, Christmas Tree Plantations**

Definition: Forests managed for wood and fiber production and/or wildlife or other values such as pine plantations, aspen, northern hardwoods, and Christmas tree plantations.

**Desirable or Weed Plant**

<b>Is the plant in question:</b>		
An intended crop or desirable plant	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Considered a weed plant	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
If the answer is yes to crop/desirable plant than proceed to section II-C. If the plant is identified as a weed plant continue		

**Extensiveness**

<b>How extensive is this plant?</b>	
<input type="checkbox"/>	It is not known to occur <b>(0 points)</b>
<input type="checkbox"/>	Scattered individuals or present in small isolated patches <b>(3 points)</b>
<input checked="" type="checkbox"/>	Establishes along forest edges or in areas disturbed by forest management activities- i.e. roads, landings, clearing or skid trails <b>(7 points)</b>
<input type="checkbox"/>	Ubiquitous throughout, spreading or dominant in the understory <b>(15 points)</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p><a href="#">Reported in the eastern U.S. as an important pest in managed forests (Dillenburg et al 1993). . . (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <a href="http://aquat1.ifas.ufl.edu/identif.html">http://aquat1.ifas.ufl.edu/identif.html</a>)</a></p> <p><a href="#">A common vine in pine plantation and bottomland forest in mid-region (referring to southeastern U.S.). Occurs as dense infestation along forest margins and rights-of-way. Forms ground cover or high-climbing in various stand types. Persists via rootstocks and rhizomes, and spreads by rooting at node and by animal-dispersed seed. (Miller, JH. 1999. USDA Forest Service, Region 8, Protection Report R8-PR 036 July 1999, Southern Research Station Headquarter – Asheville, NC. <a href="http://www.srs.fs.usda.gov/pubs/5240">www.srs.fs.usda.gov/pubs/5240</a>)</a></p> <p><a href="#">Foresters have hesitated to harvest trees in certain areas because of concern that honeysuckle will inhibit reforestation (Little and Somes 1967). (Carter, GA and Teramura, AH. 1987. Nonsummer stomatal</a></p>			

conductance for the invasive vines kudzu and Japanese honeysuckle. *Canadian Journal of Botany* 66:2392-2395)

**Production Impact**

Is it impacting production?	
<input type="checkbox"/>	No impact to tree regeneration <b>(0 points)</b>
<input type="checkbox"/>	Regeneration somewhat impacted <b>(5 points)</b>
<input checked="" type="checkbox"/>	Regeneration moderately impacted <b>(7 points)</b>
<input type="checkbox"/>	Tree regeneration is not occurring because of this plant. <b>(15 points)</b>

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Foresters have hesitated to harvest trees in certain areas because of concern that honeysuckle will inhibit reforestation (Little and Somes 1967). (Carter, GA and Teramura, AH. 1987. Nonsummer stomatal conductance for the invasive vines kudzu and Japanese honeysuckle. Canadian Journal of Botony 66:2392-2395)</p> <p>This forest weed has become established throughout the southeastern United States and poses a serious problem in forest regeneration efforts because of its formation of dense mats of vegetation that interfere with the growth of shrubs, seedlings, and saplings. Results indicate that allelopathy plays at least a partial role in Japanese honeysuckle interference with loblolly and shortleaf pine.</p> <p>For pine seeds falling on ground with nearby established J. Honeysuckle, the data would support a multiphase scenario. First, pine seeds in soil with a covering of debris, whether from Japanese honeysuckle or other plant material, would have significantly reduced germination or seedling emergence rates than seeds in soil with no surface litter. Second, allelochemicals may be released from Japanese honeysuckle leaf tissue, through leaching or decomposition, which would retard and weaken the initial growth and establishment of young pine seedlings. Finally, the very thick and heavy root system that is established by Japanese honeysuckle could act competitively by removing available space, nutrients, and water for young pine seedlings that germinate and start to grow.</p> <p>(Skulman, BW, Mattice, JD, Cain, MD and Gbur, EE. 2004. Evidence for allelopathic interference of Japanese honeysuckle (<i>Lonicera japonica</i>) to loblolly and shortleaf pine regeneration. Weed Science 52:433-439)</p>			

### Production/Management Stages

<b>At what production/management stages does this plant have a negative impact? Check all that apply:</b>			
<input type="checkbox"/>	None (0 points)	<input checked="" type="checkbox"/>	Sapling stage (10 points)
<input type="checkbox"/>	Planting (5 points)	<input type="checkbox"/>	Pole stage or mature stand (15 points)
<input checked="" type="checkbox"/>	Seedling establishment (5 points)		

### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal

Comments, supportive evidence, and explanation of documentation level:

Compared to controls, trees competing belowground with *L. japonica* grew 43, 36, and 53% less in diameter, height, and total stem length, respectively. Growth reduction for trees competing both below- and aboveground with *L. japonica* were only slightly greater diameter (56%), height (61%), and total stem length (59%). By the end of the second growing season, total leaf area (60% reduction) and leaf biomass (48% reduction) were significantly reduced in trees competing with *L. japonica* belowground, compared to controls. Total leaf area (60% reduction) and leaf biomass (57% reduction) were also significantly reduced for trees competing both below and aboveground with *L. japonica*. The ability of *L. japonica* to heavily cover other plants (Leatherman 1955; Little 1961; Bruner 1967; Slezak 1976; Thomas 1980; Friedland and Smith 1982) suggests that aboveground competition should be very effective. The results of this study, however, indicated that belowground competition is more important than aboveground competition during early stages of vine-tree interactions. (Dillenburg, LR, Whigham, DF, Teramura, AH and Forseth, IN. 1993. Effects of below- and aboveground competition from the vines *Lonicera japonica* and *Parthenocissus quinquefolia* on the growth of the tree host *Liquidambar styraciflua*. *Oecologia* 93:48-54)

Poses a serious problem in forest regeneration efforts because of its formation of dense mats of vegetation that interfere with the growth of shrubs, seedlings, and saplings. (Skulman, BW, Mattice, JD, Cain, MD and Gbur, EE. 2004. Evidence for allelopathic interference of Japanese honeysuckle (*Lonicera japonica*) to loblolly and shortleaf pine regeneration. *Weed Science* 52:433-439)

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action.

### Silvicultural Treatments

<b>What silvicultural treatments associated with the crop species may influence the presence of this plant. Check all that apply:</b>	
<input type="checkbox"/>	Natural regeneration
<input checked="" type="checkbox"/>	Site prep

<input type="checkbox"/>	Planting
<input type="checkbox"/>	Selection cut
<input checked="" type="checkbox"/>	Thinning
<input checked="" type="checkbox"/>	Clear cut
<input checked="" type="checkbox"/>	Whole tree
<input type="checkbox"/>	Shortwood

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Forest management activities that remove part or all of the overstory can enhance opportunities for Japanese honeysuckle, frequently at the expense of desirable native and/or commercial species. For example, Japanese honeysuckle production in southeastern forests is frequently stimulated by silvicultural thinning in mixed pine/hardwood stands [95]. (Munger, Gregory T. 2002. <i>Lonicera japonica</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <a href="http://www.fs.fed.us/database/feis/">http://www.fs.fed.us/database/feis/</a> [2007, May 25].)</p>			

**Introduction sources**

<b>Introduction sources. Check all that apply:</b>	
<input type="checkbox"/>	Corridors (roads, utility, trails, streams, and rivers)
<input type="checkbox"/>	Seed mixes-re-vegetation practices
<input type="checkbox"/>	Seed bank
<input type="checkbox"/>	Equipment- logging, recreational, road building (skidders, harvesters, ATV's, road graders)
<input type="checkbox"/>	Borrow material (gravel, sand, topsoil)
<input checked="" type="checkbox"/>	Wildlife (mammals, birds)
<input type="checkbox"/>	People (recreational user, cars, boats)
<input checked="" type="checkbox"/>	Unauthorized dumping
<input checked="" type="checkbox"/>	Plants on adjacent sites

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Seeds are frequently dispersed by frugivorous birds and small mammals. Although there are no published studies examining Japanese honeysuckle seed banks, indirect evidence suggests a low potential for formation of persistent seed banks. Germination of most seeds appears to occur during the spring immediately following dispersal.</p> <p>(Munger, Gregory T. 2002. <i>Lonicera japonica</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <a href="http://www.fs.fed.us/database/feis/">http://www.fs.fed.us/database/feis/</a>)</p> <p>Once established, <i>L. japonica</i> can develop a large seed bank that germinates when the soil is disturbed. (Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p>			

**Impact Subrank: Section II-B. Production/Managed Forests, Christmas Tree Plantations**

<b>Add total points</b>		<b>29</b>
<b>Rating:</b>	$\leq 5$ = Insignificant (I) $>5 \leq 13$ = Low (L) $>13 \leq 34$ = Medium (M) $>34$ = High (H)	
<b>Production/Managed Forests, Christmas Tree Plantations Subrank:</b>		<b>M</b>

### ***II-C. Impacts on Managed Landscapes within Suburban and Urban Ecosystems***

Definition: Public and private areas within suburban and urban communities managed for green belts, linear parks, parks, and other recreational uses as well as urban forests and open space integrated throughout residential and commercial centers. Commercial centers include retail centers, corporate campuses and industrial areas. These areas are typically managed with various degrees of input by individual property owners, public agencies and/or commercial contractors and include unmanaged peripheral areas.

**Desirable or weed plant**

<b>Is the plant in question:</b>		
<b>An intended or desirable plant:</b>	<input checked="" type="checkbox"/> <b>YES</b>	<input type="checkbox"/> <b>NO</b>
<b>Considered a weed plant:</b>	<input checked="" type="checkbox"/> <b>YES</b>	<input type="checkbox"/> <b>NO</b>
If the answer is yes to desirable plant than proceed to section II-D. If the plant is identified as a weed plant continue		

**Extensiveness**

<b>How extensive is this plant in suburban and urban ecosystems?</b>	
<input type="checkbox"/>	Not present <b>(0 points)</b>
<input checked="" type="checkbox"/>	Present in scattered areas and isolated patches <b>(3 points)</b>
<input type="checkbox"/>	Present in areas not receiving routine or regular management practices <b>(5 points)</b>
<input type="checkbox"/>	Persistent throughout suburban and urban ecosystems. <b>(15 points)</b>

**Level of Documentation**

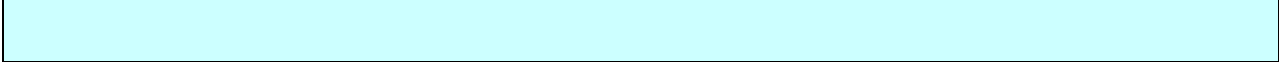
<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level: Has been found on Michigan sand dunes (Wagner 1986), and persists near abandoned homesites in the Chicago region (Swink and Wilhelm 1994). In Indiana, Lonicera japonica is abundant in urban forest preserves, but is absent from woodlots isolated by agricultural fields and distant from urban areas (Brothers and Springarn 1992). (Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)			

**Impact on visual appeal**

<b>Impact on visual appeal of landscape compositions:</b>	
<input type="checkbox"/>	Does not alter visual appeal <b>(0 points)</b>
<input checked="" type="checkbox"/>	Visual appeal compromised during limited periods or season <b>(3 points)</b>
<input type="checkbox"/>	Requires periodic attention to maintain visual appeal <b>(7 points)</b>
<input type="checkbox"/>	Requires regular attention to maintain visual appeal <b>(15 points)</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input checked="" type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			



### Impact on Desirable Plant Composition

Impact on Desirable Plant Composition:	
<input type="checkbox"/>	No impact on surrounding desirable plants <b>(0 points)</b>
<input checked="" type="checkbox"/>	Minor competition for light, water and nutrients without a direct influence on desirable plant quality <b>(3 points)</b>
<input type="checkbox"/>	Competes and causes minor impacts on desirable plants' quality <b>(7 points)</b>
<input type="checkbox"/>	Major influences on desirable plant quality caused by competition and changes in environmental conditions. <b>(15 points)</b>

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level: <b>No information specifically related to this, unless it is inferred from documentation previously referenced.</b>			

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action .

### Introduction Sources

Introduction Sources. Check all that apply:			
<input checked="" type="checkbox"/>	Seed bank	<input type="checkbox"/>	Equipment
<input checked="" type="checkbox"/>	Off site plants	<input type="checkbox"/>	Topsoil/mulch/compost materials
<input checked="" type="checkbox"/>	On site plant	<input checked="" type="checkbox"/>	Unauthorized dumping
<input type="checkbox"/>	Seed mixes	<input checked="" type="checkbox"/>	Wildlife

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level: <b>Once established, <i>L. japonica</i> can develop a large seed bank that germinates when the soil is disturbed. (Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</b>  <b>Seeds are frequently dispersed by frugivorous birds and small mammals. Although there are no published studies examining Japanese honeysuckle seed banks, indirect evidence suggests a low potential for formation of persistent seed banks. Germination of most seeds appears to occur during the spring immediately following dispersal.</b>			

(Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/>)

**Where found**

Where is it found in the landscape?			
<input type="checkbox"/>	Ornamental beds	<input checked="" type="checkbox"/>	Open space
<input type="checkbox"/>	Boulevards and common areas	<input checked="" type="checkbox"/>	Corridors
<input checked="" type="checkbox"/>	Edges of landscaped areas	<input checked="" type="checkbox"/>	Vacant land
<input checked="" type="checkbox"/>	Woodlots		

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level: <a href="#">Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA</a>			

**Impact Subrank: Section II-C. Managed Landscapes**

Add total points		9
Rating:	$\leq 6 = \text{Insignificant (I)}$ $>6 \leq 9 = \text{Low (L)}$ $>9 \leq 36 = \text{Medium (M)}$ $>36 = \text{High (H)}$	
Managed Landscapes within Suburban and Urban Ecosystems Subrank:		L

**II - D. Impact on Agricultural, Horticultural and Turf Production Systems**

Definition: Production areas for agronomic, horticultural, and other commodity crops. These include fields, orchards, and plantations.

**Desirable or Weed**

Is the plant in question:		
An intended crop:	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Considered a weed plant:	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
If the answer is yes to crop than proceed to section III. If the plant is identified as a weed plant continue		

### Ability to invade

Ability to invade agricultural, horticultural, and turf production systems:	
<input checked="" type="checkbox"/>	Not known to be present <b>(0 points)</b>
<input type="checkbox"/>	Present in scattered areas and isolated patches <b>(3 points)</b>
<input type="checkbox"/>	Occurs on a regular basis in production systems <b>(7 points)</b>
<input type="checkbox"/>	Spreads throughout production systems and beyond into adjacent areas <b>(15 points)</b>

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level: <a href="#">found Lonicera japonica ' Halliana' for sale at a couple of websites: www.WaysideGardens.com, www.NatureHills.com</a> <a href="#">Michigan Nursery and Landscape Association buyers guide</a>			

### Impact on production

Is it impacting plant/crop production?	
<input checked="" type="checkbox"/>	No impact to production <b>(0 points)</b>
<input type="checkbox"/>	Somewhat impacted <b>(5 points)</b>
<input type="checkbox"/>	Moderately impacted <b>(7 points)</b>
<input type="checkbox"/>	Severely impacted <b>(15 points)</b>

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input checked="" type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			

### Impact throughout production cycle

Does the plant have a negative impact throughout production cycle? Check all that apply:	
<input type="checkbox"/>	Planting <b>(5 points)</b>
<input type="checkbox"/>	Seedling/plant establishment <b>(5 points)</b>
<input type="checkbox"/>	Crop maturation <b>(7 points)</b>
<input type="checkbox"/>	Harvest <b>(7 points)</b>
<input type="checkbox"/>	Processing <b>(10 points)</b>

<input type="checkbox"/>	Fallow fields (3 points)
--------------------------	--------------------------

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action .

**Introduction sources**

Introduction sources. Check all that apply:	
<input type="checkbox"/>	Seed bank
<input type="checkbox"/>	Off site plants
<input type="checkbox"/>	On site plant
<input type="checkbox"/>	Seed mixes
<input type="checkbox"/>	Equipment
<input type="checkbox"/>	Topsoil/mulch/compost materials
<input checked="" type="checkbox"/>	Unauthorized dumping
<input type="checkbox"/>	Domestic animals
<input checked="" type="checkbox"/>	Wildlife

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input type="checkbox"/>	Other published material	<input checked="" type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			

**Impact Subrank: Section II-D. Agricultural, Horticultural, and Turf Production Systems**

<b>Add total points</b>		<b>0</b>
<b>Rating:</b>	$\leq 5$ = Insignificant (I) $>5 \leq 10$ = Low (L) $>10 \leq 36$ = Medium (M) $>36$ = High (H)	
<b>Agricultural, Horticultural and Turf Production Systems Subrank:</b>		<b>1</b>

## II – E. Impact on Constructed Habitat Systems

Definition: Constructed Habitat in disturbed areas. These include woodland, prairie, and wetland construction and/or restoration.

### Desired or Weed

<b>Is the plant in question:</b>		
<b>A desired plant:</b>	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
<b>Considered a weed plant:</b>	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
If the answer is yes to desired plant than proceed to section III. If the plant is identified as a weed plant continue		

### Ability to invade

<b>Ability to invade constructed habitats:</b>	
<input checked="" type="checkbox"/>	Not known to be present <b>(0 points)</b>
<input type="checkbox"/>	Present in scattered areas and isolated patches <b>(3 points)</b>
<input type="checkbox"/>	Occurs on a regular basis in habitat systems <b>(7 points)</b>
<input type="checkbox"/>	Spreads throughout the habitat and beyond into adjacent areas <b>(15 points)</b>

### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

### Impact on Habitat

<b>Impact on Habitat Composition:</b>	
<input checked="" type="checkbox"/>	No impact on habitat plant composition <b>(0 points)</b>
<input type="checkbox"/>	Minor competition for light, water, and nutrients without a direct influence on desirable plant compositions <b>(3 points)</b>
<input type="checkbox"/>	Competes and causes minor impacts on desirable plant compositions <b>(7 points)</b>
<input type="checkbox"/>	Major influences on habitat composition caused by competition and changes in environmental conditions. <b>(15 points)</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

**Impact throughout habitat**

<b>Does the plant have a negative impact throughout the habitat? Check all that apply:</b>	
<input type="checkbox"/>	Planting <b>(3 points)</b>
<input type="checkbox"/>	Seedling/plant establishment <b>(5 points)</b>
<input type="checkbox"/>	Habitat maturation <b>(10 points)</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action .

**Introduction sources**

<b>Introduction sources. Check all that apply:</b>	
<input type="checkbox"/>	Seed bank
<input checked="" type="checkbox"/>	Off site plants
<input type="checkbox"/>	On site plant
<input type="checkbox"/>	Seed mixes
<input type="checkbox"/>	Equipment
<input type="checkbox"/>	Topsoil/mulch/compost materials
<input type="checkbox"/>	Domestic animals
<input checked="" type="checkbox"/>	Wildlife

**Impact Subrank:: Section II-E. Constructed Habitat**

Add total points		0
Rating:	$\leq 3$ = Insignificant (I) $>3 \leq 10$ = Low (L) $> 10 \leq 31$ = Medium (M) $>32$ = High (H)	
Constructed Habitat Subrank:		1

### Section III. Distribution In Michigan And The United States

Document the known distribution of this plant. Indicate the area of origin for the species (Original Range) and the earliest documented occurrence in North America. Then, for Michigan, identify the extent of its occurrence in each of four ecological regions (Albert 1995). The four ecological regions of Michigan, as pictured below, have been delineated based on broad climatic, geologic, edaphic, and vegetation patterns, and provide a more meaningful framework for assessing invasiveness than geopolitical boundaries.

#### Known distribution

<b>Original Range (world wide)</b>	Japan, China, Manchuria, Korea (Dirr, MA. 1998. <i>Manual of Woody Landscape Plants.</i> p.579)
<b>Earliest possible documentation in North America</b>	1806 (Dirr)

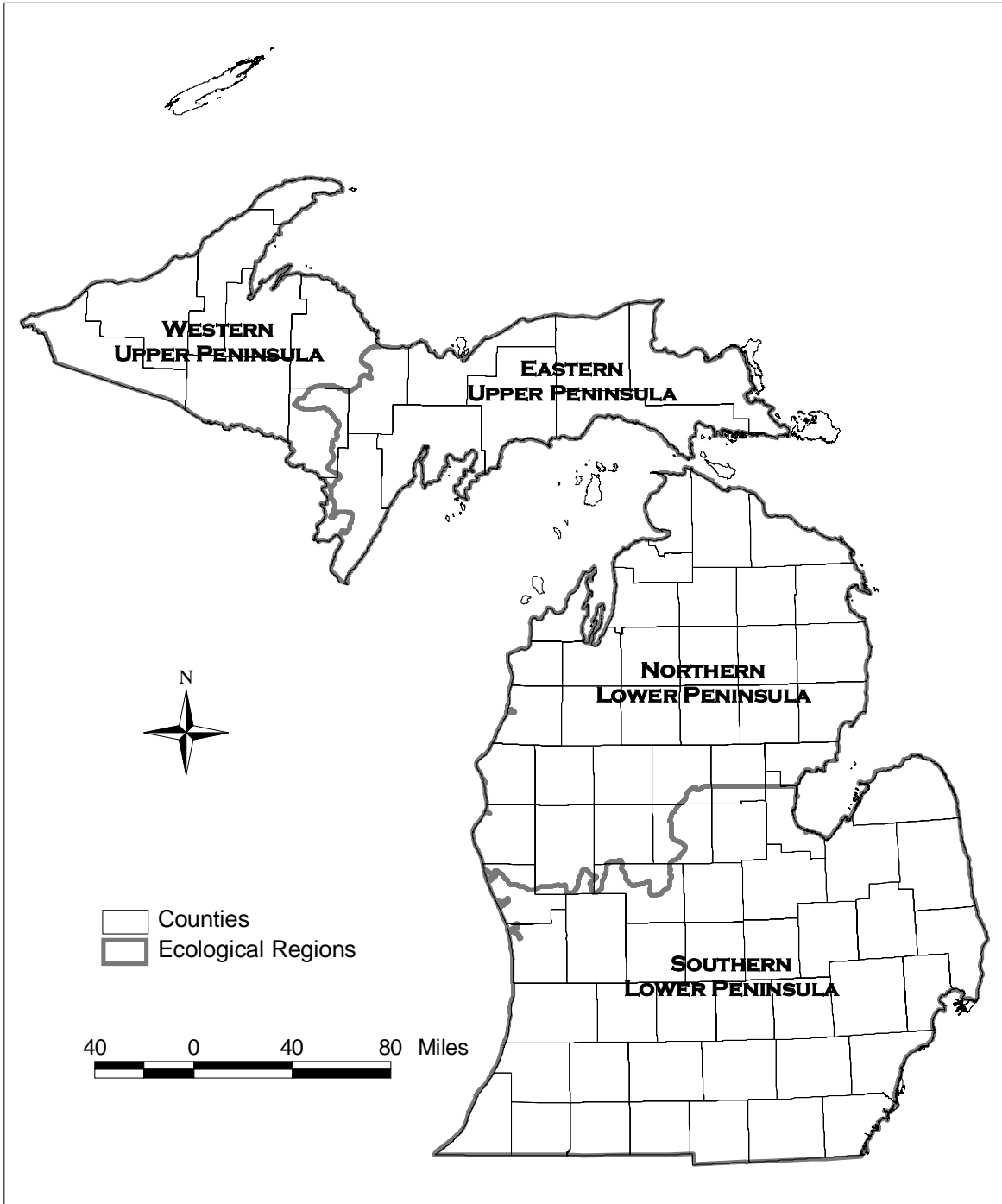
#### Regional Importance in Michigan

For each of the four ecological regions within Michigan, indicate the extent to which this plant has been identified as a problem.

Within each region identify whether the plant is:  (see glossary for definitions).	N (naturalized) W (widespread) L (localized) I (isolated occurrences) A (absent)
--	--

For ratings of N or W, please enter the date of earliest reported occurrence in that region. Transfer the rating for each ecological region to the Distribution Subrank at the end of this section. If the date identified as a problem is unknown place (Unk) in the appropriate place.

Ecological Regions	Rating	Date
<b>Western Upper Peninsula (WUP)</b>	A	Unk
<b>Eastern Upper Peninsula (EUP)</b>	A	Unk
<b>Northern Lower Peninsula (NLP)</b>	A	Unk
<b>Southern Lower Peninsula (SLP)</b>	L	Unk



List the Michigan counties with known infestations (if there are many counties covering large areas, those areas may be identified. For example, “all counties in the Lower Peninsula” is acceptable in lieu of listing out all those counties):

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level: <b>SLP: Kent, Berrien, Van Buren, Kalamazoo, Monroe, Washtenaw, Wayne, Macomb</b> <b>USDA Plants Database, <a href="http://plants.usda.gov">http://plants.usda.gov</a></b>			

The following information is not scored in the assessment system however it is used to aid in determining the presence of this plant in surrounding states or provinces.

**Problem in nearby states**

Has this plant has been identified by land managers within Indiana, Illinois, Wisconsin, Ohio, and Ontario as a problem.

Please check the states/provinces and provide the appropriate documentation	
<input checked="" type="checkbox"/>	Indiana
<input checked="" type="checkbox"/>	Illinois
<input checked="" type="checkbox"/>	Wisconsin
<input checked="" type="checkbox"/>	Ohio
<input checked="" type="checkbox"/>	Ontario

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level: <b>USDA Plants Database, <a href="http://plants.usda.gov">http://plants.usda.gov</a></b> <b><a href="http://www.natureserve.org">www.natureserve.org</a></b> <b>Occurs as far north as Illinois and Michigan (1990). It has not been found to be a serious pest north of Peoria, although it is recorded from 10 northern Illinois counties. Bitter cold winter temperatures appear to limit this species somewhat. (Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. <a href="http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html">www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html</a>)</b> <b>Occurs most abundantly in an area extending north to Long island, West to central Illinois, and south to Florida. J. Honeysuckle is naturalized throughout Ohio with the exception of a few northwestern counties. (Ohio Perennial and Biennial Weed Guide; <a href="http://www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830">www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830</a>)</b>			

**Identify other areas in the U.S. in which it has been identified as a problem by land managers.**

Some plants are not invasive everywhere they occur in the U.S., but only in certain regions or habitats. For instance, Tamarisks are severe riparian and wetland pests from California to Texas and north at least to Kansas, but while they escape occasionally in the eastern U.S., they have not been reported as a problem.

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal

Comments, supportive evidence, and explanation of documentation level:

Entire eastern and southern U.S., central midwest, southwest U.S., including California.

Connecticut: invasive, banned

Massachusetts: prohibited

New Hampshire: prohibited invasive species

Vermont: class B noxious weed (USDA Plants Database, <http://plants.usda.gov>)

7. Proportion of Current Range Where the Species is Negatively Impacting Biodiversity: High significance

Comments: FL (Langland and Burks 1998), NC, occupying c. 26% of edge habitat (Merriam 2003). A severe threat in southeastern and eastern states (Nuzzo 1997). ([www.natureserve.org](http://www.natureserve.org))

Ranges in the U.S. from southern New England to Florida, west to Texas, Kansas, and Missouri, and north to Indiana, Illinois, and Michigan (Godfrey 1988). (Langland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <http://aquat1.ifas.ufl.edu/identif.html>)

Illinois: sale and distribution of *L. japonica* is prohibited under the Illinois Exotic Weed Act (1988). (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

The northern range limit coincides with maximum 30-year winter temperatures of – 25 degrees C (Sasek and Strain).

(Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

Japanese honeysuckle becomes less invasive in northern portions of its eastern North American range due to a shorter growing season and frequent winter kill of accumulated stem growth [40,57,70]. In the

arid western United States, Japanese honeysuckle is not likely to become widely invasive due to drought intolerance, especially of seedlings. However, it may persist in irrigated or riparian areas, becoming a localized pest [70].

(Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

USDA Plants Database, <http://plants.usda.gov>

[www.natureserve.org](http://www.natureserve.org)

**Current trends in total range within the United States.**

<b>Choose one answer that best describes the current trend:</b>	
<input type="checkbox"/>	Declining or Historical
<input type="checkbox"/>	Stable
<input checked="" type="checkbox"/>	Increasing
<input type="checkbox"/>	Unknown

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>

Comments, supportive evidence, and explanation of documentation level:

10. Current Trend in Total Range within Nation: Moderate significance

Comments: First record of sale occurred in 1823, since then it has naturalized in regions having greater than 100 cm annual rainfall and average daily January temperature above 0 degrees C (Merriam 2003) - likely to already occur in all habitats in US, however, this species thrives on habitat fragmentation, and it will expand to new edge habitats as they are made. The species is also spreading slowly northward (Nuzzo 1997). It has also recently escaped cultivation in HI and CA (Nuzzo 1997). ([www.natureserve.org](http://www.natureserve.org))

Expanding its range. . . The extent of its coverage in the state (NC) suggests that Japanese honeysuckle has probably spread at the highest rate. (Merriam, RW. 2003. The abundance, distribution and edge associations of six non-indigenous, harmful plants across North Carolina. *Journal of the Torrey Botanical Society* 130(4):289-291)

**Michigan Distribution Subrank: Section III Distribution In Michigan**

<b>Western Upper Peninsula (WUP)</b>	<b>A</b>
--------------------------------------	----------

<b>Eastern Upper Peninsula (EUP)</b>	<b>A</b>
<b>Northern Lower Peninsula (NLP)</b>	<b>A</b>
<b>Southern Lower Peninsula (SLP)</b>	<b>L</b>

## Section IV. Control Methods

Control Methods document the availability of mechanical, chemical, biological, and fire as a resource in managing or eradicating the plant in question. Control Methods are reported as available (A), not available (NA), or under development (UD).

### Control methods available

<b>IV-A. Are Control Methods currently available for this plant?</b>	<input type="checkbox"/> YES	<input type="checkbox"/> NO
If yes proceed to IV –B, No = NA (non available) in all the control categories.		

### IV- B. Control Methods Currently Available

<b>Mechanical: (Check all that apply)</b>			
<input checked="" type="checkbox"/>	Hand pulling	<input checked="" type="checkbox"/>	Pulling using tools
<input checked="" type="checkbox"/>	Mowing/Cutting	<input type="checkbox"/>	Stabbing
<input type="checkbox"/>	Girdling	<input type="checkbox"/>	Tilling
<input type="checkbox"/>	Soil Solarization	<input type="checkbox"/>	Flooding
<input type="checkbox"/>	Grazing	<input type="checkbox"/>	Other
<p>None marked = NA in the Control Method Subrank            ≥ 1 marked = A in the Control Method Subrank            If you did not mark any methods and are aware of methods under development please include the information in the comments section below and mark UD in the Control Method Subrank</p>			

### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Mowing may slow vegetative spread but increase stem density (Williams 1994). (Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p> <p>Other: Discing. (Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p> <p>Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. Plant Invaders of Mid-Atlantic Natural Areas. National Park Service and U.S. Fish &amp; Wildlife Service.  <a href="http://www.invasive.org/eastern/midatlantic/loja.html">www.invasive.org/eastern/midatlantic/loja.html</a></p> <p>Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation.  <a href="http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html">www.inhs.uiuc.edu/chf/outreach/VMG/jhnysockl.html</a></p>			

Small populations can be controlled by careful hand-pulling, grubbing with a hoe or a shovel, and removal of trailing vines. (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)

PCA Fact Sheet: Japanese Honeysuckle; [www.nps.gov/plants/alien/](http://www.nps.gov/plants/alien/)

Mechanical treatments can suppress invasive Japanese honeysuckle, but plants will sprout in response to cambium damage. Mechanical control is likely to be effective only if it is perpetuated for a relatively long time, or if temporary suppression is the goal. In open areas, Japanese honeysuckle may be controlled by repeated mowing [30]. Mowing reduces the spread of vegetative stems but may not completely eradicate entire populations. Mowing reduces average stem length, but increases numbers of genets [90]. At an Arkansas timber harvest site where invasive vines were present prior to harvest, disking provided suppression of Japanese honeysuckle sufficient to ensure natural regeneration of loblolly pine seedlings. "Bushhogging" was not an effective site preparation for natural pine regeneration, but planted seedlings were able to establish and compete after 2 years [75]. Combining mechanical treatments with 1 or more additional methods such as prescribed burning or herbicides may enhance effectiveness, but there are no published accounts of such efforts.

Hand-pulling mature plants is difficult due to extensive root systems, but seedlings (< 2 years old) can be eradicated in this manner [30]. Hand-pulling at an old field site in southwestern Indiana resulted in good control of Japanese honeysuckle and release of many native forbs and grasses, but was very labor-intensive [93]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Does not survive repeated cultivation and it generally fails to establish or is less invasive under shaded conditions such as beneath a grass or forest canopy. (Ohio Perennial and Biennial Weed Guide; [www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830](http://www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830))

This resource gives a summary of manual and mechanical control methods given by various organizations and agencies. (DCNR Invasive Exotic Plant Tutorial for Natural Lands Mangers; [www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese\\_honeysuckle\\_M\\_C.htm](http://www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese_honeysuckle_M_C.htm))

### Biological Control Agents:

	Control Method Subrank
Released/available biological control agents	A
Biological control agent currently being researched Please include information in the comments section below	UD
No known biological control agents available	NA

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level: <a href="#">Nuzzo, V. 1997. Element stewardship abstract for Lonicera japonica – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA</a> <a href="#">PCA Fact Sheet: Japanese Honeysuckle; www.nps.gov/plants/alien/</a>			

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action.

**Biological Control testing**

<b>Identify the crops/plants that the biological control agents have been tested on.</b>	
<b>Is the biological control agent known to have a negative impact on non-target species?</b>	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>If yes, identify the impacts species:</b>	

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

**Chemical herbicides**

<b>Chemical Herbicides: (Check all that apply)</b>			
<input type="checkbox"/>	<b>Pre-emergence herbicides available</b>	<input checked="" type="checkbox"/>	<b>Contact herbicides</b>
<input checked="" type="checkbox"/>	<b>Post emergence herbicides available</b>		
<b>None marked = NA in the Control Method Subrank</b> <b>≥ 1 marked = A in the Control Method Subrank</b>			

If you did not mark any methods and are aware of methods under development please include the information in the comments section below and mark UD in the Control Method Subrank

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>

Comments, supportive evidence, and explanation of documentation level:

Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA

Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. Plant Invaders of Mid-Atlantic Natural Areas. National Park Service and U.S. Fish & Wildlife Service.  
[www.invasive.org/eastern/midatlantic/loja.html](http://www.invasive.org/eastern/midatlantic/loja.html)

Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation.  
[www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html)

PCA Fact Sheet: Japanese Honeysuckle; [www.nps.gov/plants/alien/](http://www.nps.gov/plants/alien/)

Where prescribed burning or mowing is difficult or undesirable, may be treated with a glyphosate herbicide. (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)

Herbicides may control Japanese honeysuckle, especially when used in combination with other methods. It is unlikely that Japanese honeysuckle can be eliminated with a single herbicide treatment [22,99,100]. Spot application of herbicides may be effective as a follow-up to prescribed burning, which can substantially reduce aboveground biomass (see Fire Management Considerations) [90].

Some research indicates that herbicide application prior to the first hard freeze (25 degrees Fahrenheit (-3.9 °C)) is most effective [90], while other studies indicate delaying treatment until early winter may still be effective with some chemicals [104]. Because Japanese honeysuckle retains its leaves during the dormant season of most native deciduous plants, spraying foliar-absorbed herbicides during this period reduces off-target effects [90]. Care should be taken when using chemicals that may harm nontarget plants, since these plants will be important in recolonizing the site after Japanese honeysuckle is controlled [90,93]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Can be controlled by foliar application of herbicides in late fall after frost when other deciduous species have dropped their leaves. (Ohio Perennial and Biennial Weed Guide; [www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830](http://www.oardc.ohio-state.edu/weedguide/singlerecord.asp?id=830))

This resource gives a summary of chemical control methods given by various organizations and agencies. (DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers; [www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese\\_honeysuckle\\_M\\_C.htm](http://www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese_honeysuckle_M_C.htm))

## Fire

Fire can control the spread of invasive species into or within natural areas.

<b>Response to fire.</b>			
<input checked="" type="checkbox"/>	<b>Prescribed burns*</b>	<input type="checkbox"/>	<b>Spot burning*</b>
None marked = NA in the Control Method Subrank ≥ 1 marked = A in the Control Method Subrank			

If you did not mark any methods and are aware of methods under development please include the information in the comments section below and mark UD in the Control Method Subrank

\*Refer to IV-C to determine whether a plant's response to fire requires consideration in planning for or using this method.

### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Fire removes above-ground vegetation and reduces new growth but does not kill most roots. Combining fire and herbicides may prove to be more effective than either method by itself. . . (Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)</p> <p>Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. <a href="http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html">www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html</a></p> <p>Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)</p> <p>In fire-adapted communities, prescribed burning may be an effective means of controlling Japanese honeysuckle [65,90]. A combination of prescribed fire and herbicide application may be effective for Japanese honeysuckle control. Spot application of herbicides to postfire sprouts often enhances control [90]. Combining herbicide treatment with late fall or winter prescribed fire, when most native species are dormant and potential off-target effects can be minimized, may be particularly useful [88]. (Munger, Gregory T. 2002. <i>Lonicera japonica</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <a href="http://www.fs.fed.us/database/feis/">http://www.fs.fed.us/database/feis/</a> [2007, May 25].)</p> <p>This resource gives a summary of fire control methods given by various organizations and agencies. (DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers; <a href="http://www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese_honeysuckle_M_C.htm">www.dcnr.state.pa.us/FORESTRY/invasivetutorial/Japanese_honeysuckle_M_C.htm</a>)</p> <p>To determine the response of honeysuckle, forbs, grasses, and shrubs of a piedmont pine forest to fire, prescribed burns were conducted in April of 1978 and 1979 in an experimental forest of the Ecological Reserve at the University of North Carolina at Charlotte, North Carolina. The fires had no significant</p>			

effect on the basal area of trees. The low intensity of the fires is indicated by the absence of significant change in basal area of trees 1 to 5 cm dbh. The two fires reduced the coverage and crown volume of shrubs, while forbs and grasses increased. The crown volume of honeysuckle was reduced by 80% after two fires, but ground coverage was reduced by only 35%. (Barden, LS and Matthews, JF. 1980. Change in abundance of honeysuckle (*Lonicera japonica*) and other ground flora after prescribed burning of a piedmont pine forest. *Castanea* 45:257-260)

The following information will not be scored in the assessment however it is useful in determining MIPC Plan of Action .

**Response to fire**

Many invasive species have the potential to invade burned areas. Since plants respond differently to varying levels of fire intensity, it is important from a managerial standpoint to determine which plants will survive and/or invade burned areas as well as determining which invasive plants are controlled by fire.

Response to fire: (Check all that apply)			
<input type="checkbox"/>	well adapted to fire	<input checked="" type="checkbox"/>	numbers decline after fire
<input checked="" type="checkbox"/>	top killed	<input type="checkbox"/>	numbers increase after fire
<input checked="" type="checkbox"/>	sprouts readily from rhizomes	<input type="checkbox"/>	seeds survive in seed bed
<input type="checkbox"/>	killed by high intensity fires	<input type="checkbox"/>	seeds are dispersed easily in a burned area
<input checked="" type="checkbox"/>	killed by low intensity fires	<input type="checkbox"/>	seed dormancy broken by fire
<input type="checkbox"/>	the presence of this plant can contribute to increased fire potential and/or intensity		

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input type="checkbox"/>	Anecdotal
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Nuzzo, V. 1997. Element stewardship abstract for <i>Lonicera japonica</i> – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA</p> <p>In pine plantations or in fire-dependent natural communities, . . .can be controlled by prescribed burning. (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)</p> <p>Japanese honeysuckle survives fire by sprouting and rooting from stem tissue surviving within litter or upper soil layers [11,33]. Specific information about postfire regeneration is lacking, but published sources indicate that in general, Japanese honeysuckle sprouts from root crowns and roots from trailing stems [40,47,70,70].</p> <p>Invasive populations of Japanese honeysuckle do not occur in communities with frequent, low-severity fire regimes such as in longleaf pine. Small scattered populations of Japanese honeysuckle may persist</p>			

with frequent fire, presumably due to small fire refugia or continued recruitment from bird-dispersed seed.

Japanese honeysuckle is top-killed by fire [3,11,33]. There are no published accounts of fire destroying entire plants.

Damage to Japanese honeysuckle may be increased by fires coinciding with bud burst [3]. Although Japanese honeysuckle can sprout following fire, repeated burning may reduce its invasiveness [1,3].

(Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

The low intensity of the fires is indicated by the absence of significant change in basal area of trees 1 to 5 cm dbh. The two fires reduced the coverage and crown volume of shrubs, while forbs and grasses increased. The crown volume of honeysuckle was reduced by 80% after two fires, but ground coverage was reduced by only 35%. (Barden, LS and Matthews, JF. 1980. Change in abundance of honeysuckle (*Lonicera japonica*) and other ground flora after prescribed burning of a piedmont pine forest. *Castanea* 45:257-260)

**Control Method Subrank: Section IV: Control Method Subrank**

<b>Method</b>	<b>Score</b>	<b>Method</b>	<b>Score</b>
<b>Mechanical</b>	<b>A</b>	<b>Chemical</b>	<b>A</b>
<b>Biological</b>	<b>NA</b>	<b>Fire</b>	<b>A</b>

## Section V. Management Effort

Management effort identifies management potential (investment in human and financial resources) and management activity (programs being presently conducted). For most statements, no particular control methods are specified but responses should relate to the methods that are most likely to be used (refer to section IV). Management potential considers feasibility, costs, and unavoidable non-target damage. Management activity identifies current programs being employed to suppress or eradicate this plant in public and private arenas.

### V-A Management Potential

**Documentation must be provided. Add all points from statements which are true for this plant and record the point at the bottom of this section.**

Statement	Options	Points
Despite investigation, no legally permissible and effective herbicide treatments are available and cutting or mowing alone are not sufficient to eliminate this plant.	<input type="checkbox"/> YES 15 points	
This plant is difficult to control without significant damage to native species because: it is widely dispersed throughout the sites (i.e., does not occur within discrete clumps nor monocultures); it is attached to native species (e.g., vine, epiphytes or parasite); or there is a native plant which is easily mistaken for this invader.	<input checked="" type="checkbox"/> YES 10 points	10
Total contractual costs of known control method per acre in first year, including access, personnel, equipment, and materials (any needed re-vegetation is not included) exceeds \$2,000/acre (2002 estimated control costs are for acres with a 50% infestation).	<input type="checkbox"/> YES 5 points	
Further site restoration is necessary following plant control to reverse ecosystem impacts and to restore the original habitat-type or to prevent immediate re-colonization of the invader.	<input checked="" type="checkbox"/> YES 5 points	5
Following the first year of control of this species, it would be expected that individual sites would require re-survey or re-treatment, due to recruitment from persistent seeds, spores, or vegetative structures, or by dispersal from outside the site: (choose one)	<input type="checkbox"/> multiple times per year (15 points) <input type="checkbox"/> once a year for the next 5 years; (10 points) <input checked="" type="checkbox"/> one to 4 times over the next 5 years; (6 points) <input type="checkbox"/> regrowth not known. (2 points)	6
<b>Total Points</b>		<b>21</b>

**Level of Documentation**

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>

Comments, supportive evidence, and explanation of documentation level:

17. General Management Difficulty:High significance

Comments: Removing above-ground stems by cutting pulling or burning will temporarily weaken, but not kill this species as it will resprout from subterranean buds and roots, and from cut branchlets once established (Nuzzo 1997). Hand pull when shrubs are small, but remove all rooting stems; a foliar herbicidal application after the first frost will effectively control established plants (Nuzzo 1997; Weber 2003).

18. Minimum Time Commitment:Medium/Low significance

Comments: Mowing twice a year can slow vegetative spread, however due to recurrent resprouting, stem density may increase (Swearingen et al. 2002). Extremely difficult to remove after it's been established (Nuzzo 1997).

19. Impacts of Management on Native Species:Medium/Low significance

Comments: In Florida, it is extremely difficult to control without nontarget damage to natives (Burks, Florida Department of Environmental Protection, pers. comm.). However, applying herbicide after first frost or during winter months when it is one of the few evergreen shrubs, decreases nontarget damage (Nuzzo 1997).

20. Accessibility of Invaded Areas:High/Low significance

Comments: Present in many relatively remote areas in the eastern US (Morse, pers. comm.). ([www.natureserve.org](http://www.natureserve.org))

Because Japanese honeysuckle is so difficult to control once established, an appropriate control program goal is 100% kill of all plants in the target area. Removing above-ground stems by cutting, pulling or burning will temporarily weaken, but not kill, *L. japonica* as it will resprout from subterranean buds and roots and from cut branchlets. (Nuzzo, V. 1997. Element stewardship abstract for *Lonicera japonica* – Japanese Honeysuckle. The Nature Conservancy. Arlington, VA)

In fire-adapted communities, periodic spring burning should control this species. (Nyboer, R. 1990. Illinois Nature Preserves Commission, Illinois Dept. of Conservation. [www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html](http://www.inhs.uiuc.edu/chf/outreach/VMG/jhnysckl.html))

Monitor frequently and remove any new plants. (PCA Fact Sheet: Japanese Honeysuckle; [www.nps.gov/plants/alien/](http://www.nps.gov/plants/alien/))

Use of prescribed fire to control Japanese honeysuckle, while potentially effective, requires long-term commitment. Cessation of prescribed fire treatments, even after multiple consecutive or near-consecutive years of burning, often leads to reinvasion. Fire was excluded from a southern Illinois barren remnant for 11 years following spring prescribed burns in 4 of 5 prior years. Despite a decrease in frequency following the fires, and increasing shade during fire suppression years, Japanese honeysuckle frequency was nearly 4 times preburn levels by postfire year 11 [114]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

In areas where invasive Japanese honeysuckle suppresses populations of rare native plant species, control efforts may require careful consideration. While control efforts may be motivated by conservation objectives, treatments such as herbicide application or prescribed burning could have adverse effects on threatened or endangered species [30]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

**Management Potential Subrank: Section V-A Management Potential**

<b>Add the total points:</b>	<b>Value</b>
< 15 = High potential for control >=15 = Low potential for control	21
<b>Transfer information to the Management Effort Subrank</b>	

**V-B MANAGEMENT ACTIVITY**

Given the current state of knowledge regarding control methods, are activities being employed to suppress or eradicate this plant in Michigan.		<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
If yes please provide documentation on management efforts being used: method(s); agency(ies); location(s).			
<b>Public Lands</b>		<b>Private Lands</b>	
<input type="checkbox"/>	Federal (F):	<input type="checkbox"/>	Non-profit organizations (O):
<input type="checkbox"/>	State (S):	<input type="checkbox"/>	Commercial (C):
<input type="checkbox"/>	Municipal (M):	<input type="checkbox"/>	Individual (I)

**Level of Documentation**

**Place a check next to the most accurate category and briefly explain**

<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input checked="" type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

**Management Activity Subrank: Section V-B Management Activity**

Indicate whether management activities are being employed by a letter indicating the sector involved: federal (F), state (S), municipal (M), non-profit organization (O), commercial (C), individual (I).	Value
Transfer information to the Management Effort Subrank	None

**Section V. Management Effort Subrank**

	Value
Management Potential	L
Management Activity	None

## Section VI. Value within Michigan

Value within Michigan indicates economic, aesthetic, erosion control, and wildlife habitat value. Value is designated either as high (H), low (L), or none (N) in each of the respective categories.

Does this plant have any value?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
If response is <b>NO</b> then VI = N in the value subrank table If response is <b>YES</b> then go to Section VI-B		

### VI-A. Factors that Indicate a Economic, Aesthetic, Erosion Control or Wildlife Habitat

Add the points from statements that are true for this plant. Please provide documentation on the size, scope, and extent of the use of the designated plant. Please provide state and federal statistics where applicable. Record the score in the table following this section.

Agriculture: Crops and Forage		
This plant constituents more than 10% of the crop on commercial farms producing and/or using this plant within the State.	<input type="checkbox"/> YES 5 points	<input checked="" type="checkbox"/> NO 0 points
This plant has provided a crop, forage, or seed source (e.g., forage, nectar) that has been or resulted in a source of commercial income within the state.	<input type="checkbox"/> YES 5 points	<input checked="" type="checkbox"/> NO 0 points
This plant has provided a crop, forage, or seed source (e.g., forage, nectar) that is used by the general public within the state	<input type="checkbox"/> YES 3 points	<input checked="" type="checkbox"/> NO 0 points

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input type="checkbox"/>	Observational
<input type="checkbox"/>	Other published material	<input checked="" type="checkbox"/>	Anecdotal
Comments, supportive evidence, and explanation of documentation level:			

<b>Horticulture (Fruit, Vegetable, Herbs, and Ornamentals)</b>		
This plant constitutes more than 10% of the crop produced or sold by commercial growers within the State	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has provided a crop, forage, and/or seed source that has been or resulted in a source of commercial income within the state	<input checked="" type="checkbox"/> <b>YES</b> <b>5 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has provided a crop, forage, or seed source (e.g., forage, nectar) that is used by the general public within the state	<input checked="" type="checkbox"/> <b>YES</b> <b>3 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			
<a href="#">Michigan Nursery and Landscape Association Buyers Guide</a>			

<b>Turf (Sod, Golf Course, Commercial Turf (sport fields, schools, etc))</b>		
This plant constitutes more than 10% of the crop produced or sold by commercial growers within the state	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has provided turf, forage, and/or seed source that has been, or resulted in a source of commercial income within the state	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant contribute significantly to recreation and leisure activities	<input type="checkbox"/> <b>YES</b> <b>3 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant is used in land development (public and private property)	<input type="checkbox"/> <b>YES</b> <b>3 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>

### Level of Documentation

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

<b>Forestry (Wood, Pulp, Christmas Trees)</b>		
This plant constitutes more than 10% of the crop produced, managed, or sold by commercial forest/Christmas tree operations within the state	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has provided timber, pulp, plantations, seedlings/transplants, and/or seed orchards that has been or resulted in a source of commercial income for public and private forestry	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has value added wildlife and environmental benefits during production cycles within forest operations	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant has provided timber, plantations, seed orchard, or recreational uses by non-commercial property owners within the state	<input type="checkbox"/> <b>YES</b> <b>3 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>

**Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input type="checkbox"/>	<b>Other published material</b>	<input checked="" type="checkbox"/>	<b>Anecdotal</b>
Comments, supportive evidence, and explanation of documentation level:			

<b>Landscape (Public and Private)</b>		
This plant is currently sold in national or regional retail stores, Michigan garden centers, horticultural distribution centers or by landscape contractors	<input checked="" type="checkbox"/> <b>YES</b> <b>5 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant is used in residential and commercial landscapes	<input checked="" type="checkbox"/> <b>YES</b> <b>5 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant is use in public landscapes	<input checked="" type="checkbox"/> <b>YES</b> <b>5 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>

### **Level of Documentation**

<b>Place a check next to the most accurate category and briefly explain</b>			
<input type="checkbox"/>	<b>Reviewed scientific publication</b>	<input checked="" type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>The most recent information found was for Indiana dated 2/25/03: at least 3 cultivars were available and sold: Halliana, Aureo-reticulata, and Purpurea. Not a major seller, though readily available. Some L. japonica was still being planted for landscaping in residential and public gardens. INDOT, NRCS, IDEM, Federal landholders and Plant Material Centers were not using or recommending L. japonica. The DNR was not currently recommending or planting it, but there was no policy in place. (<a href="http://www.in.gov/dnr/invasivespecies/japanesehoneysucklerecommendations.html">http://www.in.gov/dnr/invasivespecies/japanesehoneysucklerecommendations.html</a>)</p>			

<b>Erosion: Soil and Water Erosion</b>		
This plant has been and/or is currently used in erosion control practices such as soil erosion, storm water management, phyto-remediation, bank stabilization, etc.	<input checked="" type="checkbox"/> <b>YES</b> <b>5 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant is specified and used by federal and state agencies in erosion control practices	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant is specified and used by private contractors in erosion control and/or habitat restoration	<input type="checkbox"/> <b>YES</b> <b>5 points</b>	<input checked="" type="checkbox"/> <b>NO</b> <b>0 points</b>
This plant provides value added benefits in wildlife conservation	<input checked="" type="checkbox"/> <b>YES</b> <b>3 points</b>	<input type="checkbox"/> <b>NO</b> <b>0 points</b>

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input type="checkbox"/>	Reviewed scientific publication	<input checked="" type="checkbox"/>	Observational
<input checked="" type="checkbox"/>	Other published material	<input checked="" type="checkbox"/>	Anecdotal
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p><b>Introduced in 1806 for ornament and later for erosion control. . . (Langeland, KA and Burks, KC. 1998. Identification and Biology of Non-Native Plants in Florida's Natural Areas. University of Florida. p. 62-63. <a href="http://aquat1.ifas.ufl.edu/identif.html">http://aquat1.ifas.ufl.edu/identif.html</a>)</b></p> <p><b>Introduced during the 1800's as an ornamental, for erosion control and for wildlife cover and food. (Swearingen, J., K. Reshetiloff, B. Slattery, and S. Zwicker. 2002. Plant Invaders of Mid-Atlantic Natural Areas. National Park Service and U.S. Fish &amp; Wildlife Service. <a href="http://www.invasive.org/eastern/midatlantic/loja.html">www.invasive.org/eastern/midatlantic/loja.html</a>)</b></p> <p><b>Valued as deer browse, with some value for erosion control. Still planted in wildlife food plots. (Texas Invasives – <i>Lonicera japonica</i>; <a href="http://www.texasinvasives.org">www.texasinvasives.org</a>)</b></p> <p><b>Japanese honeysuckle was, and in some areas still is, planted. . .for erosion control. . . (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)</b></p> <p><b>It has been used as a fast-growing plant for rehabilitation of disturbed, erodible ground [47,70]. (Munger, Gregory T. 2002. <i>Lonicera japonica</i>. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <a href="http://www.fs.fed.us/database/feis/">http://www.fs.fed.us/database/feis/</a> [2007, May 25].)</b></p>			

<b>Wildlife: Food and Shelter</b>		
This plant is currently used in wildlife management	<input checked="" type="checkbox"/> <b>YES</b> 5 points	<input type="checkbox"/> <b>NO</b> 0 points
This plant is specified or used by wildlife organizations in habitat restoration or feed plot establishment	<input type="checkbox"/> <b>YES</b> 5 points	<input checked="" type="checkbox"/> <b>NO</b> 0 points
This plant is specified and used by federal and state agencies in providing shelter and/or feed sources on public lands	<input type="checkbox"/> <b>YES</b> 5 points	<input checked="" type="checkbox"/> <b>NO</b> 0 points
This plant provides value added benefits in soil and water conservation	<input checked="" type="checkbox"/> <b>YES</b> 3 points	<input type="checkbox"/> <b>NO</b> 0 points

### Level of Documentation

Place a check next to the most accurate category and briefly explain			
<input checked="" type="checkbox"/>	<b>Reviewed scientific publication</b>	<input type="checkbox"/>	<b>Observational</b>
<input checked="" type="checkbox"/>	<b>Other published material</b>	<input type="checkbox"/>	<b>Anecdotal</b>
<p>Comments, supportive evidence, and explanation of documentation level:</p> <p>Valued as deer browse, with some value for erosion control. Still planted in wildlife food plots. (Texas Invasives – <i>Lonicera japonica</i>; <a href="http://www.texasinvasives.org">www.texasinvasives.org</a>)</p> <p>Was, and in some areas still is, planted. . .for wildlife food and habitat. . (Williams, C. No date. Dept. of Biology, Clarion University. Virginia DCR)</p> <p>Japanese honeysuckle is an important browse species for white-tailed deer throughout much of the eastern and southern United States, especially during poor mast years and in winter when other food sources are scarce or inaccessible [43,49,79,87,109,116,125]. It is particularly important for white-tailed deer in the South. Japanese honeysuckle is considered a "choice" woody browse species for white-tailed deer on the Oconee National Forest in the Georgia Piedmont [48]. In areas of northern Alabama managed primarily for loblolly pine production, Japanese honeysuckle constituted 49.4% of the year-round diet of white-tailed deer. No other single food item amounted to &gt;6% [122]. Cultivation and fertilization of Japanese honeysuckle food plots may provide winter forage for white-tailed deer in the southeastern United States [116,130], although such practices have been discouraged [117].</p> <p>In eastern forests, wild turkeys, northern bobwhite, and various songbirds utilize Japanese honeysuckle as food, particularly during winter when other food may be scarce [45,56,79,126]. Its persistent leaves shield fruit from sleet when other food is glazed with ice [45]. Wood thrushes, hermit thrushes, tufted titmice, dark-eyed juncos, eastern bluebirds, purple finches, pine grosbeaks, American robins, white-throated sparrows, and yellow-rumped warblers consume fruits [46,56,96,97,132]. Japanese honeysuckle</p>			

also provides excellent forage for rabbits [79]. Ruby-throated hummingbirds feed from the flowers [126]. While Japanese honeysuckle was promoted and planted as a beneficial wildlife species in the eastern United States during the mid 1900s, emphasis has now changed toward controlling its spread [57]. Japanese honeysuckle does provide food for wildlife, but it also suppresses many native plants that may be of greater economic or ecological value [47]. (Munger, Gregory T. 2002. *Lonicera japonica*. In: Fire Effects Information System, [Online]. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <http://www.fs.fed.us/database/feis/> [2007, May 25].)

Note: Of the 7 references listed above regarding honeysuckle as an important browse species for white-tailed deer, the most recent was 1990 and 5 were from the 1970' s.

**Value Within Michigan Subrank: Section VI: Value within Michigan**

Please total the points for each area and place them in the appropriate column.

Subrank	Agriculture	Horticulture	Turf	Forestry	Landscape	Erosion Control	Wildlife Habitat
	Crop and Forage	Fruit, Vegetable, Ornamentals	Sod, Golf Course, Commercial Turf	Wood, Pulp, Christmas Trees	Public and Private	Soil and Water	Food and Shelter
Points	0	8	0	0	15	8	8
Rating	0=N <5= L >8 =H	0=N <5= L >8 =H	0=N <5= L >10 =H	0=N <5= L >8 =H	0=N <5= L >10 =H	0=N <5= L >8 =H	0=N <5= L >8 =H

**Section VII. Invasiveness Rank, MIPC Plan of Action, and Plant Summary Report**

Section VII is for use by MIPC. The Invasive Plant Assessment Committee will use the information provided in Sections I-VI to establish an Invasiveness Rank (based on Potential Invasiveness and Impact for each systems within the four ecological regions), a MIPC Plan of Action, and a Plant Summary Report.

**Potential Invasiveness**

Potential Invasiveness is a based on biological characteristics that may predispose a plant to invasive behavior. Reproductive Ability (Seed and Vegetative) + Dispersal = Potential Invasiveness.

Determine a Reproductive Ability value for this plant using the table below and the scores from the Seed and Vegetative reproduction sections on Biological Character

**Reproductive Ability**

**Table of Reproductive Ability Values**

		Vegetative Reproduction			
		H	M	L	I
Seed Reproduction	H	H	H	H	H
	M	H	M	M	L
	L	H	M	L	L
	I	H	I	I	I

	Value
<b>Enter the Reproductive Ability Value for this plant:</b>	M

Use the Reproductive Ability Value and the Dispersal rating from Section 1. to determine the Potential Invasiveness Value for this plant from the table below.

**Potential Invasiveness**

**Table of Potential Invasiveness Values**

		Dispersal			
		H	M	L	I
Reproductive Ability	H	H	H	M	M
	M	H	M	M	L
	L	M	M	L	L
	I	I	I	I	I

	Value
<b>Enter the Potential Invasiveness Value for this plant:</b>	M

Invasiveness Rank is a function of Potential Invasiveness and Impact. Impact is the expression of potential invasiveness under a given set of environmental conditions within a system (Natural System, Forest Production, Constructed Habitats, Ag/Hort/Turf Production, and Urban and Suburban Landscapes). Impact may vary among or within ecological regions. A plant's impact may occur over a broad set of environmental conditions (temperature, light, water) or be limited by one or more factors specific to a system or ecological region.

**Table of Invasiveness Rank**

		Impact			
		H	M	L	I
Potential Invasiveness	H	H	H	M	M
	M	H	M	M	L
	L	M	M	L	L
	I	I	I	I	I

**Invasiveness Rank**

Determine the Invasiveness rank for each system:	Value
Natural System	M
Forest Production	M
Ag/Hort/Turf Production	L
Constructed Habitats	L
Urban and Suburban Landscapes	M

**Regional Importance**

Distribution establishes the regional importance of a plant's impact on Michigan's natural, production, managed, and constructed systems. Use Invasiveness rank for each system and the Regional Impact rating for each ecological region from Section III. to determine regional importance. Regional importance is recorded as: high (H); medium (M); and low (L); and Insignificant (I)

**Conversion table for determining Regional Importance**

		Regional Impact			
		N	W	L	I
Invasiveness Rank	H	H	H	M	I
	M	H	M	M	I
	L	M	M	L	I
	I	I	I	I	I

**Regional Importance**

Regional Importance in five system types in each of four ecological regions.

Record the Invasiveness Rank for each system within each ecological region below.		System Type				
		Natural	Constructed Habitats	Managed Forests	Suburban/Urban	Ag/Hort/Turf
Ecological Region	WUP	I	I	I	I	I
	EUP	I	I	I	I	I
	NLP	I	I	I	I	I
	SLP	M	L	M	M	L

This information will aid in assessing and determining the overall MIPC Plan of Action.

**MIPC Plan of Action**

MIPC Plan of Action is based on the information obtained through this assessment. The Plan of Action is developed by the MIPC Invasive Plant Assessment Committee for review and endorsement of the MIPC Board of Directors. The Plan of Action outlines recommendation that may include one or all of the following: Education; Suppression; Restoration; and Elimination.

**References**

References	
------------	--

Form Updated: 2/3/09